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# FEDERAL ANIMAL DAMAGE CONTROL ACT OF 1972

GOVERNMENT PRINTINGS

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## HEARINGS

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BEFORE THE

### SUBCOMMITTEE ON THE ENVIRONMENT

OF THE

### COMMITTEE ON COMMERCE

### UNITED STATES SENATE

NINETY-SECOND CONGRESS

SECOND SESSION

ON

#### S. 273

TO ESTABLISH A NATIONAL POLICY AND PROGRAM WITH RESPECT TO WILD PREDATORY MAMMALS, AND FOR OTHER PURPOSES

#### S. 2083

TO PROHIBIT THE POISONING OF ANIMALS AND BIRDS ON THE PUBLIC LANDS OF THE UNITED STATES, AND FOR OTHER PURPOSES

#### S. 2821

TO PROVIDE FOR A STUDY BY THE SECRETARY OF THE INTERIOR OF METHODS OF CONTROL OF PREDATORY ANIMALS AND BIRDS ON THE PUBLIC LANDS OF THE UNITED STATES

#### S. 3334

TO AUTHORIZE THE SECRETARY OF THE INTERIOR TO ASSIST THE STATES IN CONTROLLING DAMAGE CAUSED BY PREDATORY ANIMALS; TO ESTABLISH A PROGRAM OF RESEARCH CONCERNING THE CONTROL AND CONSERVATION OF PREDATORY ANIMALS; TO RESTRICT THE USE OF TOXIC CHEMICALS AS A METHOD OF PREDATOR CONTROL; AND FOR OTHER PURPOSES

#### H.R. 13152

TO AUTHORIZE THE SECRETARY OF THE INTERIOR TO ASSIST THE STATES IN CONTROLLING DAMAGE CAUSED BY PREDATORY ANIMALS; TO ESTABLISH A PROGRAM OF RESEARCH CONCERNING THE CONTROL AND CONSERVATION OF PREDATORY ANIMALS; TO RESTRICT THE USE OF TOXIC CHEMICALS AS A METHOD OF PREDATOR CONTROL; AND FOR OTHER PURPOSES

AUGUST 7 AND 8, 1972

Serial No. 92-89

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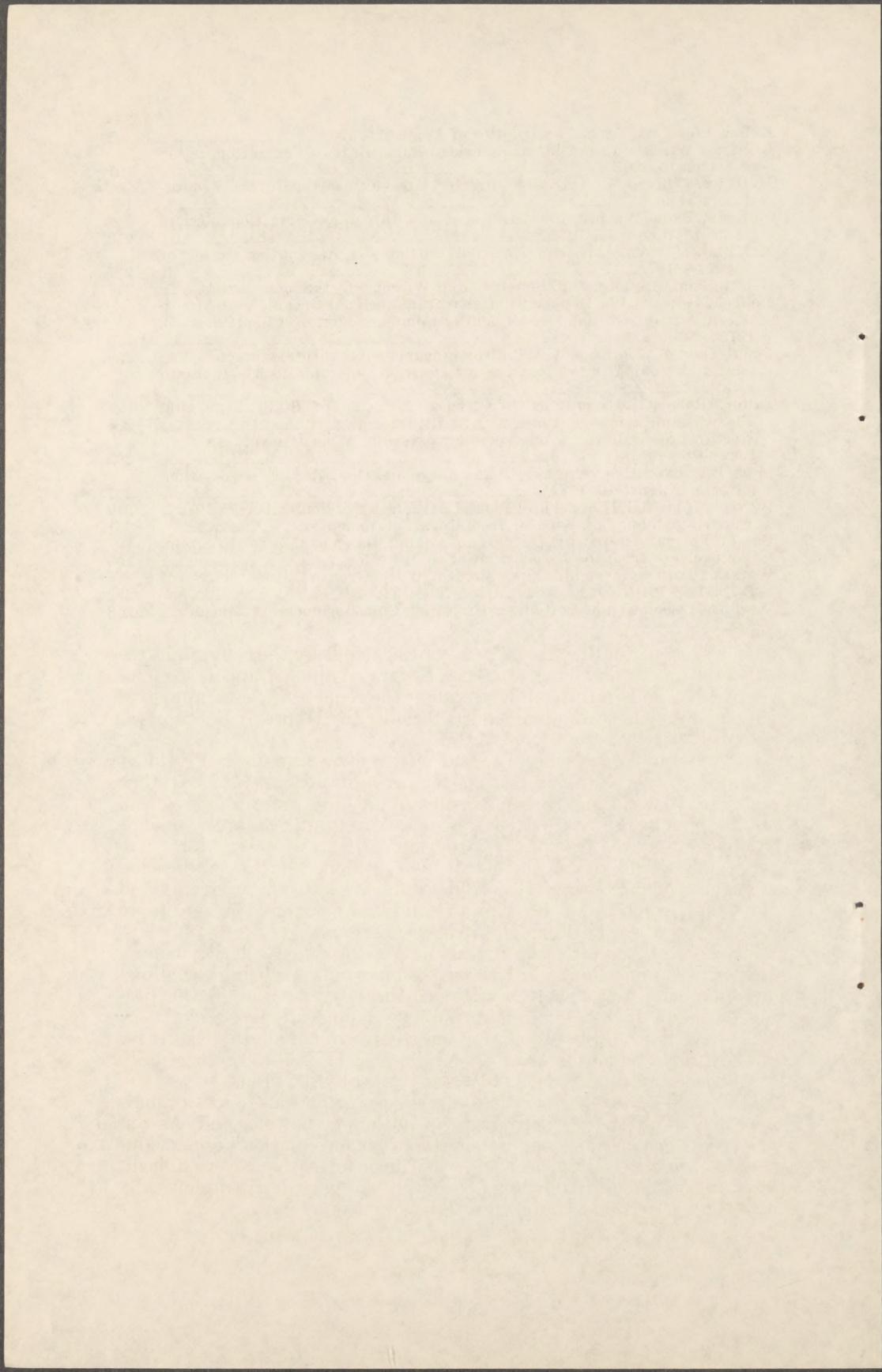
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# FEDERAL ANIMAL DAMAGE CONTROL ACT OF 1972

MONDAY, AUGUST 7, 1972

U.S. SENATE,  
COMMITTEE ON COMMERCE,  
SUBCOMMITTEE ON THE ENVIRONMENT,  
*Washington, D.C.*

The subcommittee met, pursuant to notice, at 10 a.m., in room 5110, New Senate Office Building, Hon. Frank E. Moss presiding.  
Present: Senator Moss.

## OPENING STATEMENT BY SENATOR MOSS

Senator Moss. The subcommittee will come to order. This is an open public hearing by the Subcommittee on the Environment of the Senate Commerce Committee on a subject that is of great interest and concern to all of our citizens, especially those in the western part of our country.

Today, we begin the first of 2 days of hearings by the Subcommittee on Environment on H.R. 13152, the Federal Animal Damage Control Act of 1972. This bill was introduced at the request of the administration and was passed in an amended form by the House of Representatives July 17, 1972, by a vote of 277-74.

As you well know, this bill is an attempt to transform President Nixon's ban on the use of poisons for predator control into statutory language. It would also create a grant-in-aid program for States who wish to manage their own predator control programs, as long as chemical toxicants are not part of that program.

The bill would repeal the act of 1931, which calls for eradication programs for predators. It would establish research programs and allow the Secretary of Interior to conduct operational programs to assist States where he deems this to be necessary.

The House Committee on Merchant Marine and Fisheries made a number of changes in the bill, the most important one being the allowance of chemical toxicants when such use is "essential to the prevention in specific areas of major damage to domestic livestock."

I believe it would be useful for the record to include the Executive order of the President issued February 8, 1972, H.R. 13152 as originally introduced, and finally, H.R. 13152 as passed by the House.

The broad-scale and sometimes careless use of poisons to kill animals suspected of predatory activities can no longer be tolerated. As our society has grown more populated, it has come to place a higher value on wild animals. Though accurate scientific information is very difficult to obtain on these matters, it is clear that we must lean emphatically toward preservation as opposed to extermination.

Staff member assigned to these hearings: Leonard Bickwit, Jr.

The Cain Commission, composed of many of the most eminent wildlife scientists in the country, concluded that chemical toxicants were not vital to programs designed to protect livestock from predators, and recommended that these programs be replaced with other means such as trapping, hunting, calling, and aerial shooting.

Yet many livestockmen claim that their industry will be devastated if poisons remain banned. These are honest, hard-working men who have lived on the range and know their country well. The disparity in viewpoint could not be more clearly drawn.

Dr. Frederic H. Wagner, one of the members of the Cain Commission and a man who spent over 14 years in field wildlife management and research experience with State and Federal agencies before becoming a professor and associate dean of the College of Natural Resources, Utah State University, provided some insight into the conflicting viewpoints in a recent honors lecture at USU.

I would like to quote from that speech :

One cannot meet with stockmen's groups on the subject of predator control without hearing a number of these sincere and forthright men attest to heavy predator losses. Yet the growing evidence seems to point in many cases to the conclusion that such losses, on the average, are relatively light.

This seeming paradox can perhaps be resolved by a look at the frequency distribution of the losses . . . The majority of ranchers in Nielson's and Curle's sample experienced relatively light losses: 80 percent of this sample sustained losses of 50 ewes and lambs per 1,000 ewes or less.

\* \* \* but the number of sheepmen in Utah must approximate 300 to 400. Twenty percent of that total is 60 to 80, and in any group there will always be a number of individuals who have had sizeable losses.

The rest of Dr. Wagner's speech is an exercise in explaining the tremendous difficulty in establishing firm evidence for the discussion of damage caused by predators. Yet he does tentatively conclude that :

\* \* \* The evidence on total sheep losses shows little if any, correlation with coyote population density and the use of control measures which reduce that density.

Dr. Wagner's lecture, "Coyotes and Sheep," is a very useful document, and in the absence of any objection, I include it as an appendix in this hearing record.

The thing that I have stressed by this opening statement is that there is a very severe conflict of viewpoint on this matter. There are many involved economically and others less involved, but who have strong feelings on the matter. Therefore, it is going to be difficult to find a reasonable compromise that can satisfy the views of the groups that express such deep interest in the matter.

We are now operating under an Executive order of the President. The question before us is how can we best fashion legislation that will serve the industry involved and at the same time serve the general policy of preserving the environment. This includes preservation of wildlife, many species of which are nearing the extinction point.

For example, it may well be that by exterminating or cutting down severely on coyotes, in a way to preserve the animal life there, we may also be impinging on other species that are not part of the study here.

So this matter is requiring a great deal of attention and will require continued and thorough scientific experimentation and study in the field for many years to come before we find out what is the best way of treating the problem.

(The bills and agency comments follow :)

92D CONGRESS  
1ST SESSION

# S. 273

---

IN THE SENATE OF THE UNITED STATES

JANUARY 26, 1971

Mr. NELSON introduced the following bill; which was read twice and referred to the Committee on Commerce

---

## A BILL

To establish a national policy and program with respect to wild predatory mammals, and for other purposes.

1        *Be it enacted by the Senate and House of Representa-*  
2        *tives of the United States of America in Congress assembled,*  
3        That it is the policy of the Congress to recognize that the  
4        wolf, the coyote, the mountain lion, the lynx, the bobcat, the  
5        several species of bear, and other large, wild carnivores  
6        native to North America and commonly known as predatory  
7        mammals are among the wildlife resources of interest and  
8        value to the people of the United States, and that the Secre-  
9        tary of the Interior, through the United States Fish and Wild-  
10       life Service, is authorized to recommend and demonstrate

1 to State specialists methods and means of regulating the  
2 numbers of individuals of native wildlife species.

3       SEC. 2. There is hereby authorized to be established in  
4 each regional office of the Bureau of Sport Fisheries and  
5 Wildlife the position of extension mammal control agent who,  
6 upon the request of the duly authorized wildlife agency of any  
7 State within the region, shall provide advice and demon-  
8 strations to State-employed specialists in methods of instruct-  
9 ing farmers and ranchers, or their agents, in techniques  
10 of preventing depredations by wild predatory mammals on  
11 domestic livestock and in techniques of trapping the indi-  
12 vidual mammals causing depredations on domestic livestock.  
13 Any control methods used, demonstrated, or advocated by  
14 the extension mammal control agents shall be in compliance  
15 with applicable Federal and State laws relating to the taking  
16 of wildlife, and no such method shall include in rural or  
17 suburban areas the use of poison or chemosterilant.

18       SEC. 3. (a) "Poison" means biocides and toxicants,  
19 singular or plural, in gaseous, liquid, dust, or solid form,  
20 placed in food, baits, or water directly ingested by carnivores  
21 herbivores or omnivores, and includes: direct acting poison,  
22 for example, strychnine; cumulative poison, for example,  
23 thallium sulphate; and chain-reacting poison, for example,  
24 sodium fluoracetate.

25       (b) "Chemosterilant" means any substance which, when  
26 ingested, causes the animal to become sterile.

1        SEC. 4. As of July 1, 1973, and thereafter, the number  
2 of mammal control experts and other persons employed by  
3 the United States Fish and Wildlife Service, or in any bureau  
4 or branch thereof, to engage in or assist, either directly or  
5 indirectly, in the trapping or other method of reducing the  
6 number of predatory mammals shall not exceed six persons.  
7 Biologists or other personnel employed within the Wildlife  
8 Research Branch of the Bureau of Sport Fisheries and Wild-  
9 life to investigate the biology or ecology of predatory mam-  
10 mals, or to develop control methods less likely to endanger  
11 valuable wildlife than the methods now in use or practiced  
12 in the past, shall not be counted against the foregoing  
13 limitation.

14        SEC. 5. There is hereby authorized to be appropriated  
15 for the purposes of this Act not to exceed \$153,000 for the  
16 fiscal year ending June 30, 1973, and for each fiscal year  
17 thereafter through and including the fiscal year ending  
18 June 30, 1977. The Secretary of the Interior is directed, dur-  
19 ing the period from the effective date of this Act until the  
20 close of the fiscal year ending June 30, 1972, to make such  
21 reorganizations, reductions, and adjustments in the predator  
22 control program of the Bureau of Sport Fisheries and Wild-  
23 life as are necessary to prepare for the implementation of  
24 this Act.

92<sup>D</sup> CONGRESS  
1<sup>ST</sup> SESSION

# S. 2083

---

## IN THE SENATE OF THE UNITED STATES

JUNE 17, 1971

Mr. BAYH introduced the following bill; which was read twice and referred to the Committee on Commerce

---

## A BILL

To prohibit the poisoning of animals and birds on the public lands of the United States, and for other purposes.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*  
3       That this Act may be cited as the "Antipoisoning Act of  
4       1971".

### DEFINITIONS

6       SEC. 2. For purposes of this Act—

7       (a) "Public lands" means all publicly owned lands of  
8       the United States except Indian and military reservations.

9       (b) "Poison" means biocides and toxicants, singular  
10      or plural, in gaseous-, liquid-, dust-, or solid-form, placed  
11      in foot, baits, or water directly ingested by carnivores from

1 eating poisoned herbivores or omnivores, and includes: di-  
2 rect acting poison, for example, strychnine; cumulative poi-  
3 son, for example, thallium sulphate; and chain-reacting  
4 poison, for example, sodium fluoroacetate.

5 (c) "Chemosterilant" means any substance which, when  
6 ingested, causes the animal to become sterile.

#### 7 PROHIBITIONS

8 SEC. 3. (a) Except as provided in section 4 of this Act,  
9 the use of poisons or chemosterilants to kill any animal or  
10 bird on public lands is hereby forbidden.

11 (b) The interstate commerce of thallium and sodium  
12 fluoroacetate, commonly known as Poison 1080, is hereby  
13 forbidden.

#### 14 EXCEPTION

15 SEC. 4. In any specific instance where either the Secre-  
16 tary of the Interior or the Secretary of Agriculture believes,  
17 because of unusual and extraordinary circumstances, that it  
18 is imperative to use poisons on public lands for animal con-  
19 trol, he shall place a Notice of Intention in the Federal  
20 Register at least sixty days prior to the proposed beginning  
21 of the program and shall give a public hearing to anyone  
22 who wishes to protest the poisoning; the program shall not  
23 be begun until a review of the protests is made by the Secre-  
24 tary of the Interior or Secretary of Agriculture, as the case

1 may be, and a detailed explanation of the need of the pro-  
2 gram is placed in the Federal Register.

3 PENALTIES

4 SEC. 5. Any person, including officials, employees, and  
5 agents of the United States or any State, who violates the  
6 provisions of this Act shall, upon conviction for the first  
7 offense, be subject to a fine not to exceed \$500 or imprison-  
8 ment not to exceed six months, or both; upon conviction of  
9 a second or subsequent offense, violators shall be subject to  
10 a fine not to exceed \$5,000, or imprisonment of one to three  
11 years, or both.

12 SEC. 6. (a) There is hereby authorized to be established  
13 in each regional office of the Bureau of Sport Fisheries and  
14 Wildlife of the Department of the Interior the position of  
15 extension mammal control agent who, upon the request of  
16 the duly authorized wildlife agency of any State within the  
17 region, shall provide advice and demonstrations to State-  
18 employed specialists in methods of instructing farmers and  
19 ranchers, or their agents, in techniques of preventing dep-  
20 redations by wild predatory mammals on domestic livestock  
21 and in techniques of trapping the individual mammals caus-  
22 ing depredations on domestic livestock. Any control methods  
23 used, demonstrated, or advocated by the extension mammal  
24 control agents shall be in compliance with applicable Fed-  
25 eral and State laws relating to the taking of wildlife, and

1 no such method shall include in rural or suburban areas the  
2 use of poison or chemosterilant.

3 (b) As of July 1, 1972, and thereafter, the number of  
4 mammal control experts and other persons employed by the  
5 United States Fish and Wildlife Service, or in any bureau  
6 or branch thereof, to engage in or assist, either directly or  
7 indirectly, in the trapping or other method of reducing the  
8 number of predatory mammals shall not exceed six persons.  
9 Biologists or other personnel employed within the Wildlife  
10 Research Branch of the Bureau of Sport Fisheries and Wild-  
11 life to investigate the biology or ecology of predatory mam-  
12 mals, or to develop control methods less likely to endanger  
13 valuable wildlife than the methods now in use or practiced  
14 in the past, shall not be counted against the foregoing  
15 limitation.

16

#### AUTHORIZATION OF FUNDS

17 SEC. 7. There is hereby authorized to be appropriated  
18 for the purposes of this Act not to exceed \$153,000 for the  
19 fiscal year ending June 30, 1972, and for each fiscal year  
20 thereafter through and including the fiscal year ending  
21 June 30, 1976. The Secretary of the Interior is directed dur-  
22 ing the period from effective date of this Act until the close of  
23 the fiscal year ending June 30, 1972, to make such reorgani-  
24 zations, reductions, and adjustments in the predator-control  
25 program of the Bureau of Sport Fisheries and Wildlife as  
26 are necessary to prepare for the implementation of this Act.





1 a permanent indemnification program for livestock lost  
2 to predators in lieu of a predator control program.

3 (b) The Secretary shall submit to the President and  
4 the Congress, within two years after the date of enactment  
5 of this Act, a report containing the results of the study  
6 directed by this title together with such recommendations  
7 as he deems appropriate.

8 ADVISORY COMMITTEE

9 SEC. 103. (a) The Secretary is authorized to estab-  
10 lish an Advisory Committee (hereinafter referred to as the  
11 "Committee") composed of not more than five members.  
12 Persons appointed to the Committee shall have a recognized  
13 interest and expertise in the subject of predator control. It  
14 shall be the function of the Committee to aid and advise the  
15 Secretary in conducting the study authorized by this title.  
16 Members of the Committee shall be appointed so as to  
17 achieve maximum representation of groups representing a  
18 diversity of views on the question of predator control, in-  
19 cluding, but not limited to, representatives of livestock own-  
20 ers and conservation groups.

21 (b) The Committee may, for the purpose of conduct-  
22 ing the study authorized by this title—

23 (1) hold such hearings, take such testimony, and  
24 sit and act at such times and places as it deems advis-  
25 able. Any member may administer oaths or affirmations

1 to witnesses appearing before the Committee;

2 (2) consult with any other department, agency, or  
3 instrumentality of the Federal Government and any in-  
4 terested State or municipal agency and with any other  
5 person concerned with the control of predatory animals  
6 and birds;

7 (3) procure temporary and intermittent services to  
8 the same extent as is authorized by section 3109 of title  
9 5, United States Code, but at rates not to exceed \$100  
10 a day for individuals.

11 SEC. 104. There are authorized to be appropriated such  
12 sums as may be necessary to carry out the provisions of  
13 this Act.

92<sup>D</sup> CONGRESS  
2<sup>D</sup> SESSION

# S. 3334

---

IN THE SENATE OF THE UNITED STATES

MARCH 13, 1972

Mr. MAGNUSON (by request) introduced the following bill; which was read twice and referred to the Committee on Commerce

---

## A BILL

To authorize the Secretary of the Interior to assist the States in controlling damage caused by predatory animals; to establish a program of research concerning the control and conservation of predatory animals; to restrict the use of toxic chemicals as a method of predator control; and for other purposes.

1     *Be it enacted by the Senate and House of Representa-*  
2     *tives of the United States of America in Congress assembled,*  
3     That this Act may be cited as the "Federal Animal Damage  
4     Control Act of 1972".

5     SEC. 2. For the purpose of this Act—

6             (a) the term "person" means any individual, orga-  
7     nization, or association, including any department,  
8     agency, or instrumentality of the Federal Government, a  
9     State government, or a political subdivision thereof;

1           (b) the term "State" means the several States of  
2 the Union, Puerto Rico, Guam, the Virgin Islands,  
3 American Samoa, the Trust Territory of the Pacific  
4 Islands, and the District of Columbia, but shall not in-  
5 clude any political subdivision of the foregoing entities;

6           (c) the term "chemical toxicant" means any chemi-  
7 cal substance which, when ingested, inhaled, or absorbed,  
8 or when applied to, or injected into the body, in relatively  
9 small amounts, by its chemical action may cause signifi-  
10 cant bodily malfunction, injury, illness, or death to ani-  
11 mals or man;

12           (d) the term "predatory animal" means any mam-  
13 mal, bird, or reptile which habitually preys upon other  
14 animals; and

15           (e) the term "secondary poisoning effect" means  
16 the result attributable to a chemical toxicant which, after  
17 being ingested, inhaled, or absorbed by or into, or when  
18 applied to or injected into a mammal, bird, or reptile, is  
19 retained in its tissue, or otherwise retained in such a  
20 manner and quantity that the tissue itself or retaining  
21 part if thereafter ingested by man or another mammal,  
22 bird, or reptile, produces the effects set forth in sub-  
23 section (c) hereof.

1 (f) the term "field use" means any use on lands not  
2 in or immediately adjacent to occupied buildings.

3 SEC. 3. (a) In order to assist the States in controlling  
4 damage caused by predatory animals, birds, and field rodents,  
5 and in order to encourage the use by States of predator control  
6 methods which are consistent with accepted principles of  
7 wildlife management and the maintenance of environmental  
8 quality, the Secretary of the Interior (hereinafter referred  
9 to as the "Secretary") is authorized to conduct directly or  
10 by agreement with qualified agencies or institutions, public  
11 and private, a program of research which shall concern the  
12 control and conservation of predatory and depredating ani-  
13 mals and the abatement of damage caused by such animals.

14 (b) The program of research authorized by subsection  
15 (a) hereof shall include, but need not be limited to (1) the  
16 testing of methods used for the control of predator and  
17 depredating animals and the abatement of damage caused by  
18 such animals; (2) the development of effective methods for  
19 predator control and the abatement of damage caused by  
20 predatory animals which contribute to the maintenance of en-  
21 vironmental quality and which conserve, to the greatest de-  
22 gree possible, the Nation's wildlife resources, including  
23 predatory animals; (3) a continuing inventory of the Na-  
24 tion's predatory animals, and the identification of those

1 species which are or may become threatened with extinction;  
2 and (4) the development of means by which to disseminate  
3 to States the findings of studies conducted pursuant to this  
4 section.

5 (c) The Secretary is authorized to conduct such demon-  
6 strations of methods developed pursuant to subsection (b)  
7 and to provide such other extension services as may be rea-  
8 sonably requested by the duly authorized wildlife agency of  
9 any State.

10 SEC. 4. (a) In furtherance of the purposes of this Act,  
11 the Secretary is authorized to provide in the three fiscal years  
12 following enactment financial assistance to any State which  
13 may annually propose to administer a program for the control  
14 of predatory animals. To qualify for assistance under this  
15 section, any such State program must be found by the  
16 Secretary to meet such standards as he may, by regulation,  
17 establish: *Provided, however,* That the Secretary shall not  
18 approve any such State program which entails the field use  
19 of chemical toxicants for the purpose of killing predatory  
20 animals or the field use of any chemical toxicant which causes  
21 any secondary poisoning effect for the purposes of killing  
22 other mammals, birds, or reptiles: *Provided further,* That  
23 he may approve a State program which entails such emer-  
24 gency use of chemical toxicants as he may authorize, in each  
25 specific case, for the protection of human health or safety;

1 the preservation of one or more wildlife species threatened  
2 with extinction or likely within the foreseeable future to be-  
3 come so threatened, or for the prevention of substantial ir-  
4 retrievable damage to nationally significant natural resources.

5 (b) An annual payment under subsection (a) hereof  
6 may be made to any State in such amount as the Secretary  
7 may determine: *Provided, however,* That no such annual  
8 payment shall exceed an amount equal to 75 per centum in  
9 the first year, 50 per centum in the second year, or 25 per  
10 centum in the third year, of the cost of the program approved  
11 under subsection (a) hereof: *And provided further,* That no  
12 such annual payment to any State shall exceed \$300,000 in  
13 the first fiscal year following enactment, \$200,000 in the  
14 second fiscal year following enactment, or \$100,000 in the  
15 third fiscal year following enactment. No payment otherwise  
16 authorized by this section shall be made to a State whose  
17 share, in whole or part, of the cost of the program approved  
18 under subsection (a) hereof is to be paid from funds not  
19 appropriated by its legislature.

20 (c) There is hereby authorized to be appropriated for  
21 the purposes of this section \$3,000,000 in fiscal year 1973,  
22 \$2,000,000 in fiscal year 1974, and \$1,000,000 in fiscal  
23 year 1975.

24 SEC. 5. (a) No person shall (1) make field use of any  
25 chemical toxicant on any Federal lands for the purpose of

1 killing predatory animals; or (2) make field use on such  
2 lands of any chemical toxicant which causes any secondary  
3 poisoning effect for the purpose of killing other mammals,  
4 birds, or reptiles: *Provided, however,* That nothing in this  
5 section shall be deemed to affect the administration of lands  
6 held in trust for Indians.

7 (b) Notwithstanding subsection (a) hereof, the head of  
8 a Federal department, agency, or establishment may author-  
9 ize on lands subject to his administrative jurisdiction the  
10 emergency field use of a chemical toxicant for the purpose  
11 of killing predatory animals or of a chemical toxicant which  
12 causes a secondary poisoning effect for the purpose of killing  
13 other mammals, birds, or reptiles, but only if in each specific  
14 case he makes a written finding, following consultation with  
15 the Secretaries of the Interior, Agriculture, and Health, Edu-  
16 cation, and Welfare, and the Administrator of the Environ-  
17 mental Protection Agency, that an emergency exists that  
18 cannot be dealt with by means which do not involve use of  
19 chemical toxicants, and that such use is essential:

- 20 (1) to the protection of human health or safety;
- 21 (2) to the preservation of one or more wildlife spe-  
22 cies threatened with extinction or likely within the fore-  
23 seeable future to become so threatened; or
- 24 (3) to the prevention of substantial irretrievable  
25 damage to nationally significant natural resources.

1           (c) Any person convicted of any violation of this sec-  
2 tion, or of any regulation promulgated under this Act, shall  
3 be fined not more than \$10,000 or imprisoned for not more  
4 than one year, or both.

5           SEC. 6. Heads of Federal departments, agencies, or  
6 establishments are hereby authorized to issue such regulations  
7 as may be necessary to carry out the purposes of this Act.

8           SEC. 7. There is hereby repealed in its entirety the Act  
9 of March 2, 1931 (7 U.S.C. 426-426 (b)), pertaining to  
10 the eradication and control of predatory and other wild  
11 animals.

12           SEC. 8. Nothing in this Act shall be construed as super-  
13 seding or limiting the authorities and responsibilities of the  
14 Administrator of the Environmental Protection Agency  
15 under the Federal Insecticide, Fungicide, and Rodenticide  
16 Act, as amended.

17           SEC. 9. Except as otherwise provided in section 4 hereof,  
18 there is hereby authorized to be appropriated such sums as  
19 may be necessary to carry out the purposes of this Act.

92<sup>D</sup> CONGRESS  
2<sup>D</sup> SESSION

# H. R. 13152

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IN THE SENATE OF THE UNITED STATES

JULY 18, 1972

Read twice and referred to the Committee on Commerce

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## AN ACT

To authorize the Secretary of the Interior to assist the States in controlling damage caused by predatory animals; to establish a program of research concerning the control and conservation of predatory animals; to restrict the use of toxic chemicals as a method of predator control; and for other purposes.

1        *Be it enacted by the Senate and House of Representa-*  
2        *tives of the United States of America in Congress assembled,*  
3        That this Act may be cited as the "Federal Animal Damage  
4        Control Act of 1972".

5        SEC. 2. For the purpose of this Act—

6                (a) the term "person" means any individual, or-  
7        ganization or association, including any department,

1 agency, or instrumentality of the Federal Government,  
2 a State government, or a political subdivision thereof;

3 (b) the term "State" means the several States of  
4 the Union, Puerto Rico, Guam, the Virgin Islands,  
5 American Samoa, the Trust Territory of the Pacific  
6 Islands, and the District of Columbia, but shall not in-  
7 clude any political subdivision of the foregoing entities;

8 (c) the term "chemical toxicant" means any chem-  
9 ical substance which, when ingested, inhaled, or ab-  
10 sorbed, or when applied to, or injected into the body,  
11 in relatively small amounts, by its chemical action may  
12 cause significant injury, illness, or death to animals or  
13 man;

14 (d) the term "predatory animal" means any  
15 mammal or reptile which habitually preys upon other  
16 animals;

17 (e) the term "depredating animal" means any non-  
18 predatory mammal or reptile causing damage to agri-  
19 cultural crops or natural resources; and

20 (f) the term "secondary poisoning effect" means  
21 the result attributable to a chemical toxicant which, after  
22 being ingested, inhaled, or absorbed by or into, or when  
23 applied to or injected into a mammal, bird, or reptile,  
24 is retained in its tissue, or otherwise retained in such  
25 a manner and quantity that the tissue itself or retaining

1 part if thereafter ingested by man or another mammal,  
2 bird, or reptile, produces the effects set forth in sub-  
3 section (c) hereof.

4 (g) the term "field use" means any use on lands  
5 not in or immediately adjacent to occupied buildings.

6 SEC. 3. (a) In order to assist the States in controlling  
7 damage caused by predatory and depredating animals, and  
8 in order to encourage the use by States of animal damage  
9 control methods which are consistent with accepted principles  
10 of wildlife management and the maintenance of environmen-  
11 tal quality, the Secretary of the Interior (hereinafter referred  
12 to as the "Secretary") is authorized to conduct directly or by  
13 agreement with qualified agencies or institutions, public and  
14 private, a program of research which shall concern the con-  
15 trol and conservation of predatory and depredating animals  
16 and the abatement of damage caused by such animals. Re-  
17 search objectives, and the program of research authorized by  
18 this subsection, shall be developed by the Secretary in coop-  
19 eration with each of the affected States.

20 (b) The program of research authorized by subsection  
21 (a) hereof shall include, but need not be limited to (1) the  
22 testing of methods used for the control of predator and depre-  
23 dating animals and the abatement of damage caused by such  
24 animals; (2) the development of effective methods for  
25 predator control and the abatement of damage caused by

1 predatory and depredating animals which contribute to the  
2 maintenance of environmental quality and which conserve, to  
3 the greatest degree possible, the Nation's wildlife resources,  
4 including predatory animals; (3) a continuing inventory, in  
5 cooperation with the States, of the Nation's predatory ani-  
6 mals, including the identification of those species which are  
7 or may become threatened with extinction; and (4) the  
8 development of means by which to disseminate to States  
9 the findings of studies conducted pursuant to this section.

10 (c) The Secretary is authorized to conduct such dem-  
11 onstrations of methods developed pursuant to subsection (b)  
12 and to provide such other extension services as may be rea-  
13 sonably requested by the duly authorized wildlife agency of  
14 any State.

15 (d) There are hereby authorized to be appropriated for  
16 the purposes of this section not to exceed \$1,500,000 for  
17 each fiscal year occurring after fiscal year 1972.

18 SEC. 4. (a) In furtherance of the purposes of this Act,  
19 the Secretary is authorized to provide financial assistance to  
20 any State, through the agency designated by the State for  
21 wildlife management, which may annually propose to ad-  
22 minister a program for the control of predatory and depre-  
23 dating animals. To qualify for assistance under this section,  
24 any such State program must be approved by the agency  
25 designated for wildlife management and found by the Secre-

1 tary to meet such standards as he may, by regulation, estab-  
2 lish: *Provided, however,* That the Secretary shall not approve  
3 any such State program which entails the field use of chemi-  
4 cal toxicants for the purpose of killing predatory animals or  
5 the field use of any chemical toxicant which causes any sec-  
6 ondary poisoning effect for the purposes of killing other  
7 mammals, birds, or reptiles: *Provided further, however,* That  
8 he may approve a State program which entails such emer-  
9 gency use of chemical toxicants as he may authorize, in each  
10 specific case, for the protection of human health or safety;  
11 the preservation of one or more wildlife species threatened  
12 with extinction or likely within the foreseeable future to be-  
13 come so threatened, or for the prevention of substantial  
14 irretrievable damage to nationally significant natural re-  
15 sources, or for the prevention of major damage to domestic  
16 livestock in an area where he determines that other means  
17 of predator control will not prevent such major damage.

18 (b) An annual payment under subsection (a) hereof  
19 may be made to any State in such amount as the Secretary  
20 may determine: *Provided, however,* That no such annual  
21 payment shall exceed an amount equal to 75 percent in each  
22 of the first two years, or 50 percent in each of the succeeding  
23 fiscal years of the cost of the program approved under sub-  
24 section (a) hereof: *And provided further,* That no such

1 annual payment to any State shall exceed \$300,000 in each  
2 of the first two fiscal years following enactment, or \$200,-  
3 000 in each of the succeeding fiscal years following enact-  
4 ment. No payment otherwise authorized by this section shall  
5 be made to a State whose share, in whole or part, of the  
6 cost of the program approved under subsection (a) hereof  
7 is to be paid from funds not appropriated or otherwise au-  
8 thorized by its legislature: *Provided, however,* That not more  
9 than 10 percent of the State share may be from funds derived  
10 from sale of hunting, fishing, and trapping licenses or permits.

11 (c) The Secretary shall conduct such operational pro-  
12 grams for the control of predatory and depredate animals  
13 as he may deem necessary or desirable and is authorized to  
14 assist the States in their implementation of programs pro-  
15 posed under section 4 hereof.

16 (d) The head of a Federal department, agency, or  
17 establishment may authorize on lands subject to his juris-  
18 diction, subject to such terms and conditions as he may  
19 impose, the conduct by a State of an operational program  
20 for the control of predatory and depredate animals.

21 (e) (1) There are hereby authorized to be appropri-  
22 ated for purposes of subsections (a) and (b) of this section  
23 \$3,000,000 for each of fiscal years 1973 and 1974, and  
24 \$2,000,000 for each succeeding fiscal year thereafter.

25 (2) There are hereby authorized to be appropriated for

1 the purposes of subsection (c) of this section not to exceed  
2 \$5,000,000 for each fiscal year occurring after fiscal year  
3 1972.

4       SEC. 5. (a) No person shall (1) make field use of any  
5 chemical toxicant on any Federal lands for the purpose of  
6 killing predatory animals; or (2) make field use on such  
7 lands of any chemical toxicant which causes any secondary  
8 poisoning effect for the purpose of killing other mammals,  
9 birds, or reptiles: *Provided, however,* That nothing in this  
10 section shall be deemed to affect the administration of lands  
11 held in trust for Indians.

12       (b) Notwithstanding subsection (a) hereof, the head of  
13 a Federal department, agency, or establishment may author-  
14 ize on lands subject to his administrative jurisdiction the  
15 emergency field use of a chemical toxicant for the purpose  
16 of killing predatory animals or of a chemical toxicant which  
17 cause a secondary poisoning effect for the purpose of killing  
18 other mammals, birds, or reptiles, but only if in each specific  
19 case he makes a written finding, following consultation with  
20 the Secretaries of the Interior, Agriculture, and Health,  
21 Education, and Welfare, and the Administrator of the En-  
22 vironmental Protection Agency, that an emergency exists  
23 that cannot be dealt with by means which do not involve use  
24 of chemical toxicants, and that such use is essential—

25               (1) to the protection of human health or safety;

1           (2) to the preservation of one or more wildlife  
2 species threatened with extinction or likely within the  
3 foreseeable future to become so threatened;

4           (3) to the prevention of substantial irretrievable  
5 damage to nationally significant natural resources; or

6           (4) to the prevention in specific areas of major dam-  
7 age to domestic livestock.

8           (c) Any person convicted of any violation of this sec-  
9 tion, or of any regulation promulgated under this Act, shall  
10 be fined not more than \$10,000 or imprisoned for not more  
11 than one year, or both.

12       SEC. 6. Heads of Federal departments, agencies, or  
13 establishments are hereby authorized to issue such regula-  
14 tions as may be necessary to carry out the purposes of this  
15 Act.

16       SEC. 7. There is hereby repealed in its entirety the Act  
17 of March 2, 1931 (7 U.S.C. 426-426 (b)), pertaining to  
18 the eradication and control of predatory and other wild  
19 animals.

20       SEC. 8. Prior to five years from the date of enactment,  
21 the Secretary shall submit to the President and the Congress  
22 a report which evaluates the status of the programs author-  
23 ized by this Act and makes such recommendations concern-  
24 ing these programs as he deems appropriate.

1        SEC. 9. Nothing in this Act shall be construed as  
2 superseding or limiting the authorities and responsibilities  
3 of the Administrator of the Environmental Protection  
4 Agency under the Federal Insecticide, Fungicide, and  
5 Rodenticide Act, as amended.

6        SEC. 10. There are hereby authorized to be appropri-  
7 ated such sums as may be necessary to carry out the pur-  
8 poses of this Act other than sections 3 and 4 hereof.

Passed the House of Representatives July 17, 1972.

Attest:

W. PAT JENNINGS,

*Clerk.*

OFFICE OF THE DEPUTY ATTORNEY GENERAL,  
Washington, D.C., September 28, 1971.

HON. WARREN G. MAGNUSON,  
Chairman, Committee on Commerce, U.S. Senate,  
Washington, D.C.

DEAR SENATOR: This is in response to your request for the views of the Department of Justice on S. 273, a bill to establish a national policy and program with respect to wild predatory mammals, and for other purposes.

This bill would express the policy of Congress to protect certain large, wild, carnivorous animals native to North America. At the same time the proposal would seek to prevent depredations by those wild predatory mammals on domestic livestock.

The bill has been examined, but since its subject matter does not directly affect the activities of the Department of Justice, we would prefer not to offer any comment concerning it.

Sincerely,

RICHARD G. KLEINDIENST,  
Deputy Attorney General.

U.S. DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY,  
Washington, D.C., March 31, 1972.

HON. WARREN G. MAGNUSON,  
Chairman, Committee on Commerce, U.S. Senate,  
Washington, D.C.

DEAR MR. CHAIRMAN: We respond to your request for comment on S. 273, a bill to establish a national policy and program with respect to wild predatory mammals and for other purposes, and S. 2821, a bill to provide for a study by the Secretary of the Interior of methods of control of predatory animals and birds on the public lands of the United States.

This Department strongly recommends enactment of S. 3334, the Administration's proposed "Federal Animal Damage Control Act of 1972", in lieu of the aforementioned bills.

S. 273 would recognize as a policy of Congress that predatory mammals "are among the wildlife resources of interest and value to the people of the United States"; and would authorize the Secretary of the Interior to engage in the conservation of such predatory mammals. It would further authorize the employment, in each regional office of the Bureau of Sport Fisheries and Wildlife, of an "extension mammal control agent" whose responsibility it would be to demonstrate techniques of preventing depredations by wildlife predatory mammals and methods other than the use of poisons or chemosterilants by which to trap individual mammals causing such depredations. The number of such agents and of persons otherwise concerned with control of predatory mammals, except those employed to investigate the biology or ecology of predatory mammals, would be limited to six.

S. 2821 would direct the Secretary of the Interior to undertake "a full and complete study to determine the need for predator control programs on the public lands of the United States", including the cost of predator control to the Federal government, possible alternative methods of controlling predatory animals, allocation of the costs for predator control programs, long-term dangers to human health and welfare, and the feasibility of indemnification for livestock lost to predators. A report of the Secretary's findings, together with such recommendations as he deems appropriate, would be submitted to the President and the Congress within two years from the date of enactment. S. 2821 would also authorize the establishment of a five-member advisory committee to assist the Secretary in conducting said study of predator control programs.

These bills demonstrate a growing public concern for the fate of those wildlife species generally described as predatory animals. Until recently, the prevailing attitude had been reflected by the Act of March 2, 1931 (7 U.S.C. 426-426(b)), which directed the Secretary of Agriculture and, later, the Secretary of the Interior "to conduct campaigns for the destruction or control of (predatory) animals". Pursuant to this mandate, the Bureau of Sport Fisheries and Wildlife has provided predatory animal control services on public and private lands in many western States. These services are funded jointly by the Federal government and interested agencies, public and private, at the State and local levels.

In recognition that the objectives of this program had become subject to public criticism, Secretary Morton announced on July 9, 1971 the appointment of an expert study team "to initiate a complete review of predator control activities to identify problem areas and seek their resolution". "I personally pledge", the Secretary said in making this announcement, "that performance will follow program so that our imperiled predators will not perish in a sea of platitudes".

On February 8, President Nixon proposed enactment of the "Federal Animal Damage Control Act of 1972" now pending before your Committee, and issued an Executive Order which directed that heads of Federal agencies "take such action as is necessary to prevent on any Federal lands under their jurisdiction . . . (1) the field use of any chemical toxicant for the purpose of killing a predatory mammal or bird; or (2) the field use of any chemical toxicant which causes any secondary poisoning effect for the purpose of killing mammals, birds, or reptiles". In taking these actions, the President endorsed the conclusion of the Advisory Committee on Predator Control that necessary control of coyotes and other predators can be accomplished by methods other than poisons, and recommended that the Congress act to "shift the emphasis of the current direct Federal predator control program to one of research and technical and financial assistance to the States to help them control predator populations by means other than poisons".

Thus, S. 3334 incorporates several recommendations made to this Department and the Council on Environmental Quality by the Advisory Committee on Predator Control in its report, "Predator Control—1971". Briefly, the Administration proposal would (1) authorize an expanded Federal program of research concerning the control and conservation of predatory animals; (2) prohibit on Federal lands the field use of chemical toxicants for the purpose of killing predatory animals, except when such use may be required to cope with an emergency; (3) authorize Federal grants-in-aid to States for implementation of predator control programs, and (4) repeal in its entirety the Act of March 2, 1931. A full discussion of its provisions is contained in Secretary Morton's letter to the President of the Senate, dated February 8, 1972.

We believe that the "Federal Animal Damage Control Act of 1972" is responsive both to the judgment that direct Federal participation in predator control activity should be curtailed, and to the need for selective control by the States of those species which constitute a substantial threat to human health or safety, domestic livestock and other property, or to the effective management of other natural resources. Its enactment would again affirm the belief expressed last month by President Nixon, that "Americans today set high values on the preservation of wildlife".

The Office of Management and Budget has advised that enactment of S. 3334 would be in accord with the program of the President.

Sincerely yours,

ROGERS C. B. MORTON,  
*Secretary of the Interior.*

DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
Washington, D.C., August 4, 1972.

HON. WARREN G. MAGNUSON,  
*Chairman, Committee on Commerce,  
U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: This is in response to your request for the views of this Department on S. 273, a bill to establish a national policy and program with respect to wild predatory mammals, and for other purposes.

This Department strongly recommends enactment of S. 3334, as amended, the Administration's "Federal Animal Damage Control Act", in lieu of S. 273. The Administration's proposal would shift the emphasis of the current Federal predator control program to one of research and technical and financial aid to the States to control predator populations by means other than poisons.

The bill would set up within the Bureau of Sport Fisheries and Wildlife extension positions of control agents to provide advice and demonstrations to authorized State-employed specialists in the methods and techniques in the prevention and control of depredations by wild predatory mammals on domestic livestock. The methods and techniques used are to be within the purview of applicable Federal and State laws relating to the taking of wildlife, and no method shall include in rural or suburban areas the use of poison or chemoster-

ilants. The bill would limit these extension positions to six (6) persons as of specified dates exclusive of research biologists and others employed to investigate the biology or ecology of predatory mammals or to develop methods for control of predatory mammals. The bill provides for an effective date of the limitation. The bill would authorize an annual appropriation of \$153,000 for a limited period for the purpose of the Act. The Secretary of the Interior would be directed to make such reorganizations, reductions, and adjustments in the predatory control programs of the Bureau of Sport Fisheries and Wildlife necessary to prepare for the implementation of the Act.

The Department of Agriculture, through the Forest Service and other agencies, has made extensive use of the research, expertise, and cooperative programs of the Bureau of Sport Fisheries and Wildlife in the control of depredations by predators and rodents to permitted livestock on National Forests, to tree plantations, and to range rehabilitation projects. We would continue to do so under the Administration's proposal.

The Office of Management and Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

J. PHIL CAMPBELL,  
*Under Secretary.*

DEPARTMENT OF STATE,  
*Washington, D.C., August 2, 1972.*

HON. WARREN G. MAGNUSON,  
*Chairman, Committee on Commerce,  
U.S. Senate, Washington, D.C.*

DEAR SENATOR MAGNUSON: The Secretary has asked that I reply to your letter of February 9, 1971 requesting our comments on S. 273, a bill to establish a national policy and program with respect to wild predatory mammals.

The bill is primarily of domestic application. The Department notes that the generic term "wolf" would include two species presently on the United States Endangered Species List prepared by the Department of the Interior, i.e., the Eastern timber wolf, *Canis lupus lycaon* and the Red wolf *canis rufus*. A copy of this list has been received from the Department of the Interior for forwarding to the Pan American Union for inclusion in the Annex of the Pan American Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. When the list has been so included, those two species of wolf would be entitled to the protection provided under Article VIII of the Convention.

The Office of Management and Budget advises that from the standpoint of the Administration's program, there is no objection to the submission of this report.

Sincerely,

DAVID M. ABSHIRE,  
*Assistant Secretary for Congressional Relations.*

U.S. DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY,  
*Washington, D.C., August 4, 1972.*

HON. WARREN G. MAGNUSON,  
*Chairman, Committee on Commerce,  
U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: This responds to your request for comment on S. 2083, a bill to prohibit the poisoning of animals and birds on the public lands of the United States, and for other purposes.

We strongly recommend that S. 3334, the Administration's proposed "Federal Animal Damage Control Act of 1972", be enacted in lieu of S. 2083.

S. 2083 would prohibit the unauthorized use of poisons or chemosterilants to kill any animal or bird on public lands, and would also prohibit, under penalties specified by section 5, "the interstate commerce of thallium and sodium fluoroacetate (sic), commonly known as Poison 1080". The bill would authorize appointment of an "extension mammal control agent" in each regional office of the Bureau of Sport Fisheries and Wildlife whose function it would be to assist State specialists in demonstrating methods of preventing depredation. The number of Departmental personnel engaged "in the trapping or other method of reducing the number of predatory mammals" and the funds available for this purpose would be limited by sections 6 and 7 of S. 2083, respectively.

As the Committee is no doubt aware, this Department and the Council on Environmental Quality have received from the Advisory Committee on Predator Control the results of an exhaustive study conducted by this distinguished panel of scientists and wildlife managers. Several of the Committee's recommendations, including a prohibition against the use of chemical toxicants on public lands for purposes of predator control, were adopted in the promulgation of Executive Order 11643, "Environmental Safeguards on Activities for Animal Damage Control on Federal Lands", and in the recommendation that Congress enact the "Federal Animal Damage Control Act of 1972" (S. 3334). As President Nixon noted in his Environmental Message of February 8, "(t)he widespread use of highly toxic poisons to kill coyotes and other predatory animals and birds is a practice which has been a source of increasing concern to the American public and to the federal officials responsible for the public lands".

Thus, an important objective of S. 2083 has been accomplished by the Executive Order. We do not recommend that this prohibition be extended to include chemosterilants, as the use of such compounds may present a viable alternative to the use of chemical toxicants in the control of some species, including pest birds. In this connection, it should be noted that S. 3334, but not S. 2083, would provide new authority for research including "the development of effective methods for predator control and the abatement of damage caused by predatory animals which contribute to the maintenance of environmental quality and which conserve, to the greatest degree possible the Nation's wildlife resources, including predatory animals". With respect to section 3(b) of S. 2083, which would prohibit the interstate commerce of thallium and sodium fluoroacetate, it should be noted that on March 10 the Environmental Protection Agency made use of authority vested by the Federal Insecticide, Fungicide and Rodenticide Act to suspend the registration, and thus, the interstate shipment, of sodium monofluoroacetate (1080), thallium sulfate, cyanide, and strychnine used for predator control.

In our letter of June 7, the Department recommended amendments to S. 3334 which are intended to further facilitate the States' assumption of responsibility for animal damage control, and to assure the continued availability of predator control services for which there is a demonstrable need. The enactment of S. 3334, so amended, is essential to prompt implementation of the comprehensive program initiated by President Nixon in February.

The Office of Management and Budget has advised that there is no objection to the presentation of this report, and that enactment of S. 3334, if amended as we have suggested, would be in accord with the program of the President.

Sincerely yours,

NATHANIEL REED,  
*Assistant Secretary of the Interior.*

DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
*Washington, D.C. April 5, 1972.*

HON. WARREN G. MAGNUSON,  
*Chairman, Committee on Commerce,  
U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: As you requested, here is our report on S. 2821, a bill to provide for a study by the Secretary of the Interior of methods of control of predatory animals and birds on the public lands of the United States.

S. 2821 would direct the Secretary of the Interior to make a full and complete study to determine the need for predator control programs on the public lands of the United States. The Secretary would be authorized to establish an Advisory Committee to aid and advise him in conducting the study. Within two years of enactment, the Secretary would be required to submit the results of the study and his recommendations to the President and the Congress. Necessary funds would be authorized to be appropriated.

This Department recommends that the Administration's proposed legislation "Federal Animal Damage Control Act of 1972", S. 3334, be enacted in lieu of S. 2821.

The Administration's proposal would curtail direct Federal participation in predator control through repeal of the Act of March 2, 1931 (7 U.S.C. 426-426(b)). It would also seek to encourage the State's assumption of this responsibility by authorizing relevant studies and dissemination of the results and the demonstration of predator control methods developed as a result of such research.

The proposed legislation also would prohibit the use, on Federal lands, of chemical toxicants for the purpose of killing predatory animals, except where such use is essential to the protection of human health or safety, preservation of wildlife species threatened with extinction, or prevention of substantial irretrievable damage to nationally significant natural resources. We interpret the phrase "nationally significant natural resources" as including trees and other vegetation, soil, water, wildlife and livestock.

This Department believes that enactment of S. 3334 will provide the needed redirection of programs for animal damage control consistent with our concern both for environmental quality and the preservation of wildlife, thereby nullifying the need for a further study.

The Office of Management and Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

T. K. COWDEN,  
*Assistant Secretary.*

U.S. DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY,  
Washington, D.C., June 7, 1972.

HON. WARREN G. MAGNUSON,  
*Chairman, Committee on Commerce,  
U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: You will recall that the President's environmental message of February 8 included draft legislation to be cited as the "Federal Animal Damage Control Act of 1972". This proposal has been introduced in the Senate as S. 3334 and is pending before your Committee. As you may be aware, hearings have been conducted in the House by the Subcommittee on Fisheries and Wildlife Conservation of the Committee on Merchant Marine and Fisheries on companion bills, H.R. 13152, H.R. 13153 and H.R. 13261.

We continue to believe that enactment of this legislation will provide much needed redirection of programs for animal damage control consistent with our concern both for environmental quality and the preservation of wildlife. While the House hearings have evinced strong support for assumption by the States of increased responsibility for animal damage control, we have received from the States and other interested parties several constructive suggestions which we recommend as amendments to S. 3334. We recommend, therefore, that the amendments contained herein be adopted by your Committee and that S. 3334, so amended, be enacted.

Our proposed amendments are intended to further facilitate the States' assumption of responsibility for animal damage control activity. We and the States believe that the program authorized by S. 3334, if amended as we propose, will assure the continued availability of predator control services for which there is a demonstrable need. The amendments to our original proposal would (1) extend indefinitely the period in which Federal financial assistance would be available to a State for its implementation of an approved predator control program; (2) increase to 75% in the first two years and to 50% in succeeding years the maximum Federal share of State program costs; (3) increase to \$300,000 in the first two years and to \$200,000 in succeeding years the maximum amount payable to any single State; (4) increase the total amount authorized for such payments; and (5) authorize the Secretary of the Interior to conduct operational programs for the control of predatory and depredating animals for an indefinite period following enactment. In addition, we make provision for closer cooperation with participating States and their wildlife agencies and for the submission of a progress report no later than five years from the date of enactment, and extend the coverage of this legislation to include depredating animals.

These amendments, attached, are responsive to needs expressed by the States and other interested parties. We believe that they will encourage the adoption of State predator control programs which conform to the recommendations made recently to the Council on Environmental Quality and the Secretary of the Interior by the Advisory Committee on Predator Control. Because the use of chemical toxicants for purposes of predator control on public lands has been prohibited by Executive Order, and because the interstate shipment of certain chemical toxicants used in the control of predatory and depredating animals has been barred by the Environmental Protection Agency, there is immediate need for the

development and implementation of effective programs which do not entail the use of chemical toxicants. We believe that S. 3334, as we propose it be amended, will meet this need and urge prompt enactment by the Senate.

The Office of Management and Budget has advised that enactment of S. 3334, amended as suggested herein, is in accord with the program of the President.

Sincerely yours,

MITCHELL MELICH,  
*Acting Secretary of the Interior.*

Enclosure.

DEPARTMENT OF THE INTERIOR AMENDMENTS TO S. 3334 "FEDERAL ANIMAL DAMAGE CONTROL ACT OF 1972"

Page 2, line 10—delete "bodily malfunction,".

Page 2, line 13—delete ", bird,".

Page 2, line 15—insert a new subsection (e) as follows, and redesignate subsequent subsections accordingly: "(e) the term 'depredating animal' means any non-predatory mammal or reptile causing damage to agricultural crops or natural resources;".

Page 3, line 4—insert after "predatory" the words "and depredating", and delete "birds, and field rodents,".

Page 3, line 5—delete the word "predator" and substitute therefor "animal damage".

Page 3, line 13—add the following new sentence: "Research objectives, and the program of research authorized by this subsection, shall be developed by the Secretary in cooperation with each of the affected States."

Page 3, line 20—insert after "predatory" the words "and depredating".

Page 3, line 23—insert after "inventory" the words ", in cooperation with the States,".

Page 3, line 24—delete the word "and" and substitute therefor "including".

Page 4, lines 11 and 12—delete ", in the three fiscal years following enactment,".

Page 4, line 12—insert after "State" the words ", through the agency designated by the State for wildlife management,".

Page 4, line 14—insert after "predatory" the words "and depredating".

Page 4, line 15—insert after "be" the words "approved by the agency designated for wildlife management and".

Page 5, lines 5-10: Revise subsection (b) to read as follows: "(b) An annual payment under subsection (a) hereof may be made to any State in such amount as the Secretary may determine: *Provided, however,* That no such annual payment shall exceed an amount equal to 75 percent in each of the first two years, or 50 percent in each of the succeeding fiscal years of the cost of the program approved under subsection (a) hereof: *And provided further,* That no such annual payment to any State shall exceed \$300,000 in each of the first two fiscal years following enactment, or \$200,000 in each of the succeeding fiscal years following enactment. No payment otherwise authorized by this section shall be made to a State whose share, in whole or part, of the cost of the program approved under subsection (a) hereof is to be paid from funds not appropriated or otherwise authorized by its legislature: *Provided, however,* That not more than ten percentum of the State share may be from funds derived from sale of hunting, fishing and trapping licenses or permits."

Page 5, lines 20-23: Revise subsection (c) to read as follows: "(c) There is hereby authorized to be appropriated for the purposes of this section \$3,000,000 in fiscal years 1973 and 1974, and \$2,000,000 in each succeeding fiscal year."

Page 5, line 24: Add the following new subsections (d) and (e):

"(d) The Secretary shall conduct such operational programs for the control of predatory and depredating animals as he may deem necessary or desirable and is authorized to assist the States in their implementation of programs proposed under section 4 hereof."

"(e) The head of a Federal department, agency, or establishment may authorize on lands subject to his jurisdiction, subject to such terms and conditions as he may impose, the conduct by a State of an operational program for the control of predatory and depredating animals."

Page 7, line 12: Insert a new section 8 as follows, and redesignate subsequent sections accordingly: "SEC. 8. Prior to five years from the date of enactment, the Secretary shall submit to the President and the Congress a report which evaluates the status of the programs authorized by this Act and makes such recommendations concerning these programs as he deems appropriate."

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,  
Washington, D.C., July 17, 1972.

HON. WARREN G. MAGNUSON,  
Chairman, Committee on Commerce,  
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This letter is in response to your request of July 7, 1972, for a report on S. 3334, a bill to authorize the Secretary of the Interior to assist the States in controlling damage caused by predatory animals; to establish a program of research concerning the control and conservation of predatory animals; to restrict the use of toxic chemicals as a method of predator control; and for other purposes. The bill has a short title, the "Federal Animal Damage Control Act of 1972."

The bill would (1) authorize an expanded Federal program of research concerning the control and conservation of predatory animals, birds, and field rodents; (2) authorize Federal grants-in-aid to States for implementation of predator control programs; (3) prohibit on Federal lands the field use of chemical toxicants for the purpose of killing predatory animals or which cause secondary poisoning effects for the purpose of killing other mammals, birds, or reptiles, except where the head of the Federal department, agency, or establishment finds (after consultation with the Secretaries of the Interior, Agriculture, and Health, Education, and Welfare and the the Administrator of the Environmental Protection Agency) that such use is essential in emergency situations to the preservation of human health or safety, protection of endangered wildlife species, or prevention of substantial irretrievable damage to natural resources; and (4) repeal in its entirety the Act of March 2, 1931, pertaining to the eradication and control of predatory animals.

The bill would carry out the recommendations of the President in his message on Environmental Protection of February 8, 1972, and would further the purposes of Executive Order 11643 issued the same day banning the use of poisons for predator control on all Federal lands (except in emergency situations). The bill would implement the President's recommendation for legislation "to shift the emphasis of the current direct Federal predator control program to one of research and technical and financial assistance to the States to help them control predator population by means other than poisons.

The Department supports the enactment of this legislation.

Under the terms of Executive Order 11643 the Secretary of Health, Education, and Welfare, along with the Secretaries of the Interior, and Agriculture and the Administrator of the Environmental Protection Agency, is already required to be consulted by heads of Federal departments, agencies, and establishments prior to use of toxic chemicals for emergency control of predatory animals. Hence enactment of the bill would involve no new administrative expenses to the Department of Health, Education, and Welfare for such consultation for FY 1973 and the following five fiscal years.

We are advised by the Office of Management and Budget that there is no objection to the presentation of this report and that enactment of S. 3334 would be in accord with the President's program.

Sincerely,

ELLIOT L. RICHARDSON,  
Secretary.

DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
Washington, D.C., August 14, 1972.

HON. WARREN G. MAGNUSON,  
Chairman, Committee on Commerce,  
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This is in reply to your request for comments on S. 3334, a bill authorizing the Secretary of the Interior to assist States in controlling damage caused by predatory animals; establishing a program of research concerning control and conservation of predatory animals; restricting the use of toxic chemicals as a method of predator control; and certain other purposes.

The bill would authorize the Secretary of the Interior to conduct either direct or through cooperative arrangements a research program concerning predatory and depredatory animals. In addition, the Secretary of the Interior would be authorized for a limited period of years to provide financial assistance to States

administering a program for control of predatory animals, subject to the conditions specified in the bill.

This Department favors the objectives of S. 3334 and recommends that it be enacted if amended as suggested by the Department of the Interior.

We believe, however, that there should be a continuing rather than limited Federal program of operational and financial assistance to States in controlling losses, to livestock and crops caused by predatory and depreddating animals. The Department of the Interior has provided the Congress with recommended amendments to H.R. 13152 and S. 3334. We support the amendments which Interior has submitted regarding H.R. 13152, and believe that the suggestions are also applicable to S. 3334. In our judgment, these amendments provide for the proper balance between State and Federal activity in this important field, and also provide a means for a proper balance between the needs of agriculture and conservation of our natural resources.

The Office of Management and Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

J. PHIL CAMPBELL,  
*Acting Secretary.*

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U.S. DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY,  
*Washington, D.C., August 4, 1972.*

Hon. WARREN G. MAGNUSON,  
*Chairman, Committee on Commerce,  
U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: This responds to your request of July 21 for comment on H.R. 13152 as passed by the House of Representatives, the "Federal Animal Damage Control Act of 1972".

We strongly recommend Senate approval of House-passed H.R. 13152 with the amendments suggested herein, or the enactment of S. 3334, if amended as suggested in our letter of June 7.

As passed by the House of Representatives, H.R. 13152 follows closely the recommendations of this Administration as announced by President Nixon in his environmental message of February 8 and by Acting Secretary Melich in his letter of June 7. The Administration proposal, introduced in the Senate as S. 3334, would implement several of the recommendations made to Secretary Morton and the Council on Environmental Quality by the Advisory Committee on Predator Control. The bill would (1) authorize an expanded Federal program of research concerning the control and conservation of predatory animals; (2) prohibit on Federal lands the field use of chemical toxicants for the purpose of killing predatory animals and of chemical toxicants which cause secondary poisoning effects for the purpose of killing mammals, birds or reptiles, except where such use is essential in emergency situations to the preservation of human health or safety, protection of endangered wildlife species, or prevention of substantial damage to natural resources; (3) authorize Federal grants-in-aid to States for implementation of predator control programs; and (4) repeal in its entirety the Act of March 2, 1931 (7 U.S.C. 426-426(b)), pertaining to the eradication and control of predatory animals.

Following hearings conducted in the House by the Subcommittee on Fisheries and Wildlife Conservation, we proposed several amendments which reflect constructive suggestions received from the States and other interested parties. All of these amendments were adopted by the House in its passage of H.R. 13152, and are intended to further facilitate the States' assumption of responsibility for animal damage control activity. They include provisions for financial and technical assistance to the States beyond that originally proposed and will, we believe, assure the continued availability of predator control services for which there is demonstrable need.

H.R. 13152 contains other amendments with which we do not agree. They are: a specific, annual research authorization of \$1,500,000 (section 3(d)); an authorization of \$5,000,000 annually to conduct operational programs for the control of predatory and depreddating animals (section 4(e)(2)); and an exception to the prohibition on use of chemical toxicants by Federal agencies and States for "the prevention in specific areas of major damage to livestock" (sections 4(a) and 5(b)(4)). We believe that the general authorization for research and operational programs provided by S. 3334 and H.R. 13152 as introduced are

adequate to assure necessary funding. We believe, too, that the exceptions provided with respect to the emergency use of chemical toxicants will met foreseeable needs. They were proposed after careful review of recommendations from the Cain Committee, and in consultation with all interested Federal agencies. In contrast with subsection 5(b)(4) of the House-passed bill, they provide assurance that the use of chemical toxicants will be sanctioned only in the case of a clearly-defined emergency, and for the protection of human health and safety, the preservation of endangered species, and the prevention of substantial irretrievable damage to nationally significant natural resources. Accordingly, we recommend that the Senate adopt only those amendments to S. 3334 identified in our letter of June 7, or, in the alternative, that House-passed H.R. 13152 be amended as follows:

Page 4, lines 15-17: Delete subsection 3(d).

Page 6, line 25 through page 7, line 3: Delete subsection 4(e)(2).

Page 5, lines 15-17: Change the comma after "sources" to a period, and delete all thereafter through line 17.

Page 8, lines 6-7: Delete subsection 5(b)(4).

Page 9, line 8: Revise to read "poses of this Act other than section 4 hereof."

The Office of Management and Budget has advised that there is no objection to the presentation of this report and that enactment of S. 3334 as amended as we suggest herein would be in accord with the program of the President.

Sincerely yours,

NATHANIEL REED,  
*Assistant Secretary of the Interior.*

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U.S. DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY,  
*Washington, D.C., February 8, 1972.*

HON. SPIRO T. AGNEW,  
*President of the Senate,*  
*Washington, D.C.*

DEAR MR. PRESIDENT: There is enclosed a draft bill to authorize the Secretary of the Interior to assist the States in controlling damage caused by predatory animals; to establish a program of research concerning the control and conservation of predatory animals; to restrict the use of toxic chemicals as a method of predator control, and for other purposes.

We recommend that this bill, a part of the environmental program announced today by President Nixon, be referred to the appropriate committee for consideration and that it be enacted.

This Department believes strongly that enactment of this legislation will provide much needed redirection of programs for animal damage control consistent with our concern both for environmental quality and the preservation of wildlife. In brief, this draft bill would (1) authorize an expanded Federal program of research concerning the control and conservation of predatory animals; (2) prohibit on Federal lands the field use of chemical toxicants for the purpose of killing predatory animals and of chemical toxicants which cause secondary poisoning effects for the purpose of killing mammals, birds or reptiles, except where such use is essential in emergency situations to the preservation of human health or safety, protection of endangered wildlife species, or prevention of substantial damage to natural resources; (3) authorize Federal grants-in-aid to States for implementation of predator control programs; and (4) repeal in its entirety the Act of March 2, 1931 (7 U.S.C. 426-426(b)), pertaining to the eradication and control of predatory animals.

Predatory animal control has been a vexing problem since the advent of recorded history. Early settlers sought to cope with animal depredation through the provision of bounties for predatory species. Though the precedent for such legislation was established as early as 1630 in Massachusetts, most bounty laws have been repealed. Federal involvement in predatory animal control dates back to 1885, and an operational program has been conducted by the Federal Government since 1915. Existing Federal programs are carried out pursuant to the Act of March 2, 1931 (7 U.S.C. 426-426(b)), which directs that we "conduct campaigns for the destruction or control of (predatory) animals." The Bureau of Sport Fisheries and Wildlife has thus provided predatory animal control services on public and private lands in many western States. These services are funded jointly by the Federal Government and interested agencies, public and private, at the State and local levels.

Through the years attitudes toward predatory animal control have changed. We as a people and a Nation are now coming to recognize the ecological significance of all living creatures, including those known as "predators". It is generally acknowledged that while there remain some situations in which wild animals must be controlled or killed to assure human health and safety and to prevent substantial property damage, these situations no longer warrant a Federal program of the size and scope as that contemplated in 1931. It is our conclusion that current predatory animal control programs are inconsistent with the changing scale of social values.

Of particular concern has been the use of non-selective poisons to kill predatory animals. Experience has shown that significant numbers of beneficial animals are vulnerable to the poisons used to control predatory animals. Public opposition to the use of such poisons and to predatory animal control programs in general has prompted two important studies by advisory committees composed of eminent wildlife scientists. The first advisory committee, reporting to the Secretary of the Interior in 1964, concluded that far more animals were being killed than required for effective protection of livestock, agricultural crops, wildlife resources, and human health. It recommended a complete reassessment of Federal goals, policies and field operations and that predatory animals be killed only when absolutely essential to the protection of human health or property.

The second advisory committee, reporting recently to the Secretary of the Interior and the Chairman of the Council on Environmental Quality, has recommended a prohibition against the use of poisons in predatory animal destruction, expanded research to determine the economics and ecology of predator losses, and the establishment of cooperative trapper extension programs to focus on individual offending predators.

Based on the reports of the advisory committees appointed to study the animal damage control problem, the expressions of the public with regard to predatory animal control, and our own analysis of the validity and need for animal damage control, it is the position of this Department that such animal damage control as may prove warranted can be accomplished effectively through State efforts. Since most animal damage control is directed toward resident animals, it follows that the States should be directly involved in animal damage control programs. Our proposed legislation would seek to encourage the States' assumption of this responsibility by authorizing the conduct and dissemination of relevant studies, and the demonstration of predator control methods developed as the result of such research. We have also provided for a three-year program of grants-in-aid to States whose predator control programs meet standards to be established by the Secretary. Grants for implementation of an approved State program would be made in amounts not to exceed 75 percent of costs or \$300,000, whichever is less, in the first year, 50 percent of costs or \$200,000 in the second year, and 25 percent of costs or \$100,000 in the third fiscal year following enactment. No Federal assistance would be available to a State whose program entails the use of chemical toxicants, or whose share of program costs is to be paid from non-appropriated funds. Repeal of the Act of March 2, 1931, would result in cessation of direct Federal participation.

In recognition of growing concern over the use of non-selective poisons for animal damage control, and of the recommendations that such uses be sharply curtailed, section 5 of the draft bill would prohibit the use on all Federal lands of chemical toxicants for the purpose of destroying predatory animals, except when such use is found, in emergency situations, to be essential to the preservation of human health or safety, to the protection of wildlife species which are threatened with extinction, or the prevention of substantial damage to nationally significant natural resources. Violation of this prohibition would be punishable by a fine of not more than \$10,000, or imprisonment for not more than one year, or both.

By the enactment and implementation of this legislation, the Congress and the Federal Government will demonstrate a keen awareness of the change in scientific and public opinion which compels a redirection of predator control activity. There is enclosed an environmental impact statement prepared pursuant to section 102(2)(C) of the National Environmental Policy Act of 1969.

The Office of Management and Budget has advised that this legislative proposal is in accord with the program of the President.

Sincerely yours,

ROGERS C. B. MORTON,  
*Secretary of the Interior.*

A BILL To authorize the Secretary of the Interior to assist the States in controlling damage caused by predatory animals; to establish a program of research concerning the control and conservation of predatory animals; to restrict the use of toxic chemicals as a method of predator control; and for other purposes

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Federal Animal Damage Control Act of 1972".*

SEC. 2. For the purpose of this Act—

(a) the term "person" means any individual, organization or association, including any department, agency or instrumentality of the Federal government, a State government or a political subdivision thereof;

(b) the term "State" means the several States of the Union, Puerto Rico, Guam, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands, and the District of Columbia, but shall not include any political subdivision of the foregoing entities;

(c) the term "chemical toxicant" means any chemical substance which, when ingested, inhaled, or absorbed, or when applied to, or injected into the body, in relatively small amounts, by its chemical action may cause significant bodily malfunction, injury, illness or death to animals or man;

(d) the term "predatory animal" means any mammal, bird or reptile which habitually preys upon other animals; and

(e) the term "secondary poisoning effect" means the result attributable to a chemical toxicant which, after being ingested, inhaled, or absorbed by or into, or when applied to or injected into a mammal, bird, or reptile, is retained in its tissue, or otherwise retained in such a manner and quantity that the tissue itself or retaining part if thereafter ingested by man or another mammal, bird or reptile, produces the effects set forth in subsection (c) hereof.

(f) the term "field use" means any use on lands not in or immediately adjacent to occupied buildings.

SEC. 3. (a) In order to assist the States in controlling damage caused by predatory animals, birds and field rodents, and in order to encourage the use by States of predator control methods which are consistent with accepted principles of wildlife management and the maintenance of environmental quality, the Secretary of the Interior (hereinafter referred to as the "Secretary") is authorized to conduct directly or by agreement with qualified agencies or institutions, public and private, a program of research which shall concern the control and conservation of predatory and depredating animals and the abatement of damage caused by such animals.

(b) The program of research authorized by subsection (a) hereof shall include, but need not be limited to (1) the testing of methods used for the control of predator and depredating animals and the abatement of damage caused by such animals; (2) the development of effective methods for predator control and the abatement of damage caused by predatory animals which contribute to the maintenance of environmental quality and which conserve, to the greatest degree possible, the Nation's wildlife resources, including predatory animals; (3) a continuing inventory of the Nation's predatory animals, and the identification of those species which are or may become threatened with extinction; and (4) the development of means by which to disseminate to States the findings of studies conducted pursuant to this section.

(c) The Secretary is authorized to conduct such demonstrations of methods developed pursuant to subsection (b) and to provide such other extension services as may be reasonably requested by the duly authorized wildlife agency of any State.

SEC. 4. (a) In furtherance of the purposes of this Act, the Secretary is authorized to provide in the three fiscal years following enactment financial assistance to any State which may annually propose to administer a program for the control of predatory animals. To qualify for assistance under this section, any such State program must be found by the Secretary to meet such standards as he may, by regulation, establish; *Provided, however*, That the Secretary shall not approve any such State program which entails the field use of chemical toxicants for the purpose of killing predatory animals or the field use of any chemical toxicant which causes any secondary poisoning effect for the purposes of killing other mammals, birds, or reptiles; *Provided, further*, however, that he may approve a State program which entails such emergency use of chemical toxicants as he may authorize, in each specific case, for the protection of human health or safety; the preservation of one or more wildlife species threatened with extinction or likely

within the foreseeable future to become so threatened, or for the prevention of substantial irretrievable damage to nationally significant natural resources.

(b) An annual payment under subsection (a) hereof may be made to any State in such amount as the Secretary may determine; *Provided, however*, That no such annual payment shall exceed an amount equal to 75 percent in the first year, 50 percent in the second year, or 25 percent in the third year, of the cost of the program approved under subsection (a) hereof; and *Provided, further*, That no such annual payment to any State shall exceed \$300,000 in the first fiscal year following enactment, \$200,000 in the second fiscal year following enactment, or \$100,000 in the third fiscal year following enactment. No payment otherwise authorized by this section shall be made to a State whose share, in whole or part, of the cost of the program approved under subsection (a) hereof is to be paid from funds not appropriated by its legislature.

(c) There is hereby authorized to be appropriated for the purposes of this section \$3,000,000 in fiscal year 1973, \$2,000,000 in fiscal year 1974, and \$1,000,000 in fiscal year 1975.

SEC. 5. (a) No person shall (1) make field use of any chemical toxicant on any Federal lands for the purpose of killing predatory animals; or (2) make field use on such lands of any chemical toxicant which causes any secondary poisoning effect for the purpose of killing other mammals, birds, or reptiles; *Provided, however*, That nothing in this section shall be deemed to affect the administration of lands held in trust for Indians.

(b) Notwithstanding subsection (a) hereof, the head of a Federal department, agency, or establishment may authorize on lands subject to his administrative jurisdiction the emergency field use of a chemical toxicant for the purpose of killing predatory animals or of a chemical toxicant which causes a secondary poisoning effect for the purpose of killing other mammals, birds or reptiles, but only if in each specific case he makes a written finding, following consultation with the Secretaries of the Interior, Agriculture, and Health, Education, and Welfare, and the Administrator of the Environmental Protection Agency, that an emergency exists that cannot be dealt with by means which do not involve use of chemical toxicants, and that such use is essential:

- (1) to the protection of human health or safety;
- (2) to the preservation of one or more wildlife species threatened with extinction or likely within the foreseeable future to become so threatened; or
- (3) to the prevention of substantial irretrievable damage to nationally significant natural resources.

(c) Any person convicted of any violation of this section, or of any regulation promulgated under this Act, shall be fined not more than \$10,000 or imprisoned for not more than one year, or both.

SEC. 6. Heads of Federal departments, agencies or establishments are hereby authorized to issue such regulations as may be necessary to carry out the purposes of this Act.

SEC. 7. There is hereby repealed in its entirety the Act of March 2, 1931 (7 U.S.C. 426-426(b)), pertaining to the eradication and control of predatory and other wild animals.

SEC. 8. Nothing in this Act shall be construed as superseding or limiting the authorities and responsibilities of the Administrator of the Environmental Protection Agency under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended.

SEC. 9. Except as otherwise provided in section 4 hereof, there is hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this Act.

Senator Moss. We have many distinguished witnesses to appear before us this morning. Our first witness is Hon. Henry Bellmon, Senator from the State of Oklahoma. We will be glad to hear you.

#### STATEMENT OF HON. HENRY BELLMON, U.S. SENATOR FROM OKLAHOMA

Senator BELLMON. Thank you. I would like to express my appreciation to appear before the committee today to testify. As an active farmer and rancher, and as a representative of the State which has both significant livestock industries and a genuine interest in preserv-

ing its rich wildlife heritage, I have a keen interest in this proposed legislation.

In my view, the rational and reasonable controls which would be established by S. 3334 are long overdue.

These widespread, broadcast techniques of predator control previously used have been a major contributing factor to the reduction of wildlife species such as black bears, foxes, badgers, eagles, condors, and mountain lions in many parts of the country.

Ironically, the number and the range of coyotes has actually increased during the years of intensive poisoning, even though the coyote has been the primary target. Coyote predation has also increased correspondingly, with some scientific evidence that the increased use of poisons is directly responsible for the higher level of predation.

Indiscriminate poisoning has, in some cases, killed the coyote's natural food supply, which consists mostly of rodents and small mammals, disrupted his normal territorial habits, and caused him to turn to livestock for food.

During the past 8 years, two in-depth studies of predator control programs have been conducted under the auspices of the Department of the Interior. Both studies cited abuses of indiscriminate poisoning and significant losses among nontarget species. The 1964 advisory committee report concluded that far more animals were being killed than required for effective protection of livestock, crops, and human health, and further recommended that predators be killed only when absolutely essential to the protection of human health or property.

The more comprehensive Cain Commission report, issued in February of this year, found little solid evidence of substantial livestock losses and questioned the justification for the annual expenditure of \$8 million for predator control.

The Commission recommended a prohibition against the "field use" of poisons which have a secondary poisoning effect and urged the Federal Government to abandon broadcast programs of predator control in favor of target-animal methods.

Mr. Chairman, I wholeheartedly endorse this concept. Control programs should be limited to those specific species and areas where livestock is threatened. Generally only a few predatory animals actually become livestock killers and once these have been eliminated livestock production is not seriously threatened.

The administration has already taken executive action to halt the use of poisons in predator control and to implement other recommendations of the Cain Commission report. Passage of S. 3334 would provide statutory support for the administrative action.

While it is apparent that our old ways of controlling predators should not be continued, it is also generally acknowledged that some situations will remain in which wild animals must be controlled to prevent substantial property damage and to assure human health and safety.

S. 3334 has adequate provisions for predator control, including the use of poisons, in emergency situations for the protection of human health and the prevention of substantial damage to significant natural resources. It also encourages the development of selective control tech-

niques which will benefit livestock interests in the protection of their herds and flocks.

Mr. Chairman, the Federal Animal Damage Control Act will significantly modernize our programs with respect to predatory animals. It is consistent with modern, scientific management of wildlife, and with prevailing public attitudes toward conservation; yet, it still provides for adequate protection of private interests which may suffer damage from uncontrolled wildlife populations.

The wildlife conservation commission of my own State has reviewed this proposed legislation and found it to be consistent with wildlife management policies in Oklahoma. The commission adopted a position in support of the bill, which I am including with my testimony and asked that it be made a part of the record.

Senator Moss. Without objection, it will be so included.  
(The letter follows:)

DEPARTMENT OF WILDLIFE CONSERVATION,  
*Oklahoma City, Okla., May 3, 1972.*

HON. HENRY BELLMON,  
*U.S. Senate,  
Washington, D.C.*

DEAR SENATOR BELLMON: The Oklahoma Department of Wildlife Conservation Commission went on record May 1, 1972, supporting the proposed "Federal Animal Damage Control Act of 1972" which would repeal the Act of March 2, 1931.

This legislation would assign animal damage control to the states and provide grants to implement the program over a three-year period.

Enclosed is a cover letter and the proposed legislation for your information.

Sincerely,

FARRELL COPELIN, *Director.*

Senator BELLMON. In conclusion, Mr. Chairman, I would emphasize my opinion that S. 3334 is a sound approach to the problem of predator control and I urge the committee to approve the bill substantially as it was introduced.

Thank you.

Senator Moss. Thank you, Senator. I appreciate your testimony. As one who has personal experience by being a livestock operator himself, I am sure that you bring to this a great deal of understanding that we need. You recognize the problem that we have come up against here.

I noted particularly your pointing out that indiscriminate poisoning may actually increase the incursions of the predators by poisoning off much of their food supply, and this is causing them to turn more to livestock animals. Have you personally experienced that, or is that mostly from studies that you referred to?

Senator BELLMON. Mr. Chairman, so far as I know, there has never been a program of broadcast poisoning in the area where I live. Our approach in the area that I know best has been to use the trappers, the State and Federal trappers, to come in and try to eliminate, you might say, the criminals among the coyote population, which happens to be quite high in the area.

When I go home, it is very common to see coyotes. In fact, the last time I was home, 3 weeks ago. I saw three roaming around in broad daylight. So the population is high.

The big problem comes in the big sheep-range areas of the West which you know more about than I do. I might say as a former sheep producer, we always say coyotes, but it might have been dogs in some cases, who come into the pens at night and kill large numbers.

This does not add to the affection sheep owners have for these animals. Those occurrences, however, are rare, and I felt even at that time that it would be a great tragedy if we did not have more coyotes, because they hold down the population of rodents and rabbits and other animals which can do more damage than the coyotes do on those occasional forays.

Senator Moss. Thank you, Senator Bellmon. We appreciate your testimony. We are glad you came to the hearing this morning.

We will now hear from the Honorable Birch Bayh, Senator from Indiana.

#### STATEMENT OF HON. BIRCH BAYH, U.S. SENATOR FROM INDIANA

Senator BAYH. Mr. Chairman, I appreciate your courtesy and I know you have a number of witnesses, so I will, if I may, ask unanimous consent to have my statement put in the record and let me just capsulize it.

Senator Moss. That will be the order. The statement in full will be in the record.

Senator BAYH. I will try to resist the temptation of taking 20 minutes to capsulize a 7-minute statement. I, too, am supposed to be on the floor right now on some legislation I am managing, so you will permit me to be a little selfish here and helpful at the same time.

Last summer during the recess, my wife and son and I had the opportunity to be out in your part of God's country, and having seen firsthand America, the beautiful, as it is, and having had a chance to talk to a lot of the people there, and see some of the wildlife, I got a little better perspective on what is happening to some of the creatures which have been on earth since it was first created but now are rapidly approaching the point of extinction. It just seemed to me when I returned, and I know this is something that has been a matter of concern to you, coming from that part of the country, they were really facing a test of whether civilization and society can balance the interests and needs of mankind with the preservation of some of these vanishing species and do it in a humane and intelligent way.

I think we can. But I came back very disturbed by the great threat to our wildlife, which was being caused by the national predator control program, this \$8 million a year Federal effort managed by the U.S. Interior Department's Bureau of Sport Fisheries and Wildlife.

What is most disturbing is the use of poisons. On our return, I introduced legislation to prohibit the use of poisons on public land, and to prohibit interstate use of poisons, and to establish alternatives for predator control, rather than predator eradication.

Members of Congress have called attention to this outrage, and one good result was the President's Executive order of February 8, 1972, to restrict the use of chemical toxicants in the Federal lands.

Mr. Chairman, as we all know, Federal Executive orders are often short-lived. Therefore, I think it is imperative that an unequivocal ban on the use of poisons on our public lands be enacted into law. I say this because the enforcers of the order, the Interior Department, have perfected the very practice which we are now trying to discontinue.

For the last decades, the Division of Wildlife Services of the Department of the Interior probably has been the greatest indirect killer of the very endangered species which it is supposed to be protecting.

Let's look for a moment at the history of this country's thoughtless and tragic destruction of its animals. As of 6 months ago, and, Mr. Chairman, I have not had a chance to add up the figure since then, the Division of Wildlife Services had 700 agents who had placed 2,300,000 pounds—more than a thousand tons—of poisoned meat on public land in the past 5 years.

Mr. Chairman, I just want to emphasize this compound 1080 which has been the main tool in the program. It is so powerful that a single ounce of the compound could kill 200 adult humans, so it is extremely dangerous.

Secondly, the poison is not biodegradable. It is there for eternity, it has a tremendous cumulative effect, and the way in which it has been used in the animal poisoning means that amounts of this poison can accumulate in our food and water supplies. So it is not only a matter of policy as far as the rapid extermination of wildlife species, but if we are not careful, we are going to be exterminating some of the two-legged species.

For this reason, I hope this subcommittee will pursue this matter with all good speed. I note with a great deal of interest that the chairman has referred to the Cain Commission, which as you point out was composed of many of the eminent wildlife scientists in the country.

They conclude that chemical toxicants are not necessary.

I come from a farm area in Indiana, and although we don't have the wide open spaces and the large numbers of livestock that you do, sir, I still, having depended upon livestock for a good part of my farm income when I was farming, realize the importance of maintaining the farm economy, whether it is in Indiana, Utah, Arizona, Wyoming, or wherever it may be.

But as the Cain Commission pointed out, there are alternatives that can, and I hope will be, utilized instead of using this terrible 1080 program.

Mr. Chairman, I think I have exhausted the time I allowed myself. I appreciate your interest and your leadership in this program, and I volunteer my services in any way I can to help you pursue this goal.

Senator Moss. Thank you very much, Senator Bayh. We appreciate your testimony, and recognize your concern about preservation of some of the wildlife of our country, and as pointed out in the earlier discussion, certain species cannot be pinpointed when you are using an indiscriminate poisoning tactic, although the program might be directed against certain large predators.

Actually, it is much broader than that, poisoning many other species, and this not only cuts down the food supply of the large predator and may turn him more toward livestock, but it also, if it is a poison that is not degradable, gets in the chain and persists from one carnivore to the next as it is passed along.

Senator BAYH. I just might interrupt, Mr. Chairman. I think we have some pretty dedicated people down there at Wildlife Services, and I think we have some pretty wise individuals. So we have not used an incentive for them to use their expertise in coming up with an alternative.

In talking with some of the people down there, I have been amazed at the possibility in the near future of coming up with something that is a repellent. Now, that may sound "pie-in-the-sky"-ish, but so do many other things that we have seen come to fruition.

I think, by terminating the 1080 program and taking a firmer position on the indiscriminate poisoning program, we are then stimulating the experts down there to find an alternative, and I think that could be an important fallout of this type of legislation.

Senator Moss. And the bill would provide for a continuing study program to be directed primarily by the States, but with Federal assistance and cooperation.

Thank you very much, Senator. I appreciate your testimony, and your taking the time to come. I know that you are very much involved in the matter on the floor, and we will be glad to excuse you now.

Senator BAYH. Thank you very much, Senator.

(The statement follows:)

STATEMENT OF HON. BIRCH BAYH, U.S. SENATOR FROM INDIANA

Mr. Chairman, I appreciate the opportunity to appear today before this Subcommittee. Our struggle toward balanced predator control has been long and difficult but I trust that under the leadership of the Senator from Utah, we will realize positive legislative results this year. I have been interested in this problem for some time. As one who has viewed first-hand the wonder and glory of the natural wildlife in the untamed American West, I shared the sense of national outrage which erupted last year in response to the reports of airborne hunting of eagles.

But I soon became far more disturbed by a greater threat to our wildlife—the national predator control program, an eight million dollar a year Federal effort managed by the U.S. Interior Department's Bureau of Sports, Fisheries and Wildlife. The linchpin of this program has been the widespread and indiscriminate use of extremely potent poisons on publicly owned land throughout our Western states. As a result, I introduced legislation on June 17 of last year to prohibit the use of poisons on public lands, to prohibit the interstate shipment of thallium and Compound 1080, and to establish effective alternative programs for predator control, rather than predator eradication. Many members of Congress have repeatedly drawn public attention to this outrage; one very satisfying result was the President's Executive Order of February 8, 1972 to restrict the use of chemical toxicants on Federal lands.

Mr. Chairman, unfortunately Executive Orders are often short-lived. Therefore, it is imperative that an unequivocal ban on use of poisons on our public lands be enacted into law. I say this because the enforcer of this Order—the Interior Department—has perfected the very poisoning program which we are now trying to discontinue. For the last decade, the Division of Wildlife Services of the Department of the Interior probably has been the greatest indirect killer of the very endangered species which it is supposed to be protecting.

Let's look for a moment at the history of this country's thoughtless and tragic destruction of its animals. As of 6 months ago, the Division of Wildlife Services had 700 agents who had placed 2,300,000 pounds—more than a thousand tons—of poisoned meat on public land in the past five years. The main poisons are compound 1080, of which more than 100,000 pounds has been used annually for two decades, and thallium sulfate. The legal poisoners have used three million strychnine tablets and tons of poisoned grain. Not only has the Interior Department engaged in its own massive poisoning program, but states have subsidized similar programs by local governments and private organizations, often duplicating and aggravating the destructive impact of federal programs. Given the previous popularity of the program, the pressures on that Department to relax the restrictions on poisoning will no doubt continue to be great.

In fact, it is my understanding that Compound 1080 is still being used as a rodenticide—for rabbits, gophers, and other non-predators whose populations have mushroomed as a retribution for the elimination of their natural predators. Mr. Chairman, Friends of the Earth reports that a decision on the question of a complete ban on compound 1080 will be postponed until late autumn to permit

the processing by EPA of two agency petitions to permit continued use of 1080. I believe the continued use of this poison for any purpose is contrary to the public interest and flies in the face of the recent national outcry against poisoning. First of all, a single ounce of the compound 1080 could kill 200 adult humans. Secondly, the poison is not biodegradable. It has a cumulative effect which means that great amounts of poison, harmful to humans, can accumulate in our food and water supplies. Because many of the poisons are placed near streams, there is special reason to be concerned about the long-range impact on the water supply.

Mr. Chairman, I have received a wide variety of reports about the effectiveness of the recent Executive Order: some say past stocks of poison are still being used, others believe that local authorities with the assistance of the 700 former poisoning agents have quickly shifted to intensive trapping, and others believe animals are sufficiently protected. I look forward to studying testimony on the effectiveness of the ban. At any rate, the consensus that intensive, non-targeted trapping is being used leads to my strong concern that within a few years, this substitute program could come under criticism as strong as that for poisoning. Therefore, I would urge that two priorities of any legislation this year be the unambiguous declaration in law that poisoning of animals shall not occur on public lands and the formulation of, and full funding for, a constructive method of predator management.

In the crucial search for a reasonable predator control technique, I believe that my bill, S. 2083 provides an ecologically sound alternative in the form of selective trapping, performed by local farmers and agents. I believe a variation of this method, combined with the use of non-lethal methods such as fences, could be used quite effectively on the wide-open, Western lands. We cannot afford to support or encourage programs of random trapping or killing; such programs inevitably escalate into the wanton destruction of wildlife and invite continued public outrage.

This alternative to poisoning—known as the extension predator control program—is based on the belief that only a small number of the animals now being killed are truly a threat to livestock. For instance, extension agents have found that the majority of coyotes live some distance from ranches and feed on wild rodents. Careful trapping near chicken coops or livestock watering areas can effectively deal with those coyotes that actually pose a threat.

Under the extension predator control program, as implemented in my bill, federal mammal control agents would instruct farmers and ranchers in techniques of trapping the individual mammals causing deprivations of domestic livestock. There are careful studies which indicate that selective trapping by the farmers themselves would reduce damage from predators by 80 percent, while cutting sharply into the number of man days and costs per catch. I was particularly pleased that endorsement of these techniques formed one of the 15 recommendations of the January 1972 report on the Nixon Administration's Advisory Committee on Predator Control.

Extension predator control began in Missouri in September, 1945 and has been very effective. Since 1957, one federal control agent has been able to handle all requests for trapping demonstrations or training service by holding an annual meeting for about 2,000 farmers and then meeting individually with 400-700 farmers on their own land. Written statements from the farmers who received training indicate that they have reduced their damage losses an average of 80 percent—in other words, each farmer has realized savings of about \$100 per year. In addition, the cost per animal taken decreased from \$116 when federal agents were doing the trapping to \$6.99 when the farmer trapped. The combined livestock and program savings present a strong argument for shifting to this system.

Mr. Chairman, a simple application of logic demonstrates that hidden costs accumulate rapidly with extensive destruction of the predator population.

In an attempt to destroy all potential ranch predators, ranchers are only upsetting a natural balance of wildlife and are creating ripples of new economic losses for themselves. As I mentioned, elimination of wild predators will likely lead to mushrooming of small rodents who then strip the grazing lands intended for livestock. In fact, in 1970, Division of Wildlife Services designated a cumulative 228,019 acres for separate rodent-poisoning programs. Of course the inevitable result of expanding the circle of extermination to include rodents is that too great a decrease in the rodent population will force previously innocent predators toward captive livestock. In either case, upsetting the natural balance

of predators and prey will only lead to economic loss and to increased pressure for more of the poison which caused the problem.

I suggest we should listen to naturalists like Dr. Frank C. Craighead, Jr., who has stated, "Coyotes are a desirable and indispensable part of a collective predator population which serves to regulate prey populations on wild lands. They perform a useful function as scavengers and they do more good as rodent destroyers than harm as livestock killers." Even the U.S. Public Land Law Review Commission has recommended that predator control programs be eliminated or reduced on public lands, noting in its 1970 report: "While these programs may have been of some benefit to livestock operators in reducing cattle and sheep depredations by coyotes, puma, cougar, and bear, they have upset important natural mechanisms for the population control of other species."

Senator Moss. We will now hear from a rather distinguished panel of witnesses to be headed by the Honorable Nathaniel P. Reed, Assistant Secretary for Fish and Wildlife and Parks for the Department of the Interior.

Accompanying Mr. Reed is Mr. James Ruch, special assistant to the Assistant Secretary for Fish and Wildlife and Parks; Charles M. Loveless, Assistant Director for Research, Bureau of Sport Fisheries and Wildlife; Jack H. Berryman, chief, Division of Wildlife Services, Bureau of Sport Fisheries and Wildlife; and Michael D. Harvey, chief, Division of Legislation and Regulatory Management.

I am sure the reporter would like to know what order you are sitting in. We are pleased to have all of you, and Secretary Reed, we are glad you are here, and we look forward to having your testimony.

**STATEMENT OF HON. NATHANIEL P. REED, ASSISTANT SECRETARY FOR FISH AND WILDLIFE AND PARKS, U.S. DEPARTMENT OF THE INTERIOR; ACCOMPANIED BY JAMES B. RUCH, SPECIAL ASSISTANT TO THE ASSISTANT SECRETARY; CHARLES R. LOVELESS, ASSISTANT DIRECTOR OF RESEARCH, BUREAU OF SPORT FISHERIES AND WILDLIFE; JACK H. BERRYMAN, CHIEF, DIVISION OF WILDLIFE SERVICES, BUREAU OF SPORT FISHERIES AND WILDLIFE; AND MICHAEL HARVEY, CHIEF, DIVISION OF LEGISLATION AND REGULATORY MANAGEMENT**

Mr. REED. On my far left is Dr. Loveless, Mr. Ruch on my immediate left, Mr. Berryman on my immediate right, and Mr. Harvey on my extreme right.

I appreciate Senator Bellmon coming. I serve with him on the Migratory Bird Conservation Commission. He is a marvelous member of that body, and has made a significant contribution to the National Wildlife Refuge system.

I thank you for the opportunity to comment on this important legislative proposal.

Mr. Chairman, as you and your committee are aware, H.R. 13152 was first submitted to the House on February 8. Hearings were held on this bill and related proposals in March and April. A number of amendments were suggested at those hearings by various concerned groups, including the International Association of Game, Fish, and conservation commissioners representing State wildlife agencies and the National Wool Growers Association. Many of these amendments were recommended by the Department in its letter to you of June 7.

H.R. 13152 with amendments, including all of those suggested by this Department, was passed by the House on July 17.

I would like to begin with a few comments on the subject of predatory animal control and events which have led up to the administration's current position. The protection of livestock and crops from animal depredation has been a concern for many centuries. In recent years it has become one of the most vexing and controversial aspects of wildlife management. Early settlers sought to cope with animal depredation in many ways, including the provision of bounties.

The bounty system has not been an effective method of control, and all but nine States have discontinued this practice.

Other methods of control which have been used over the years, and with varying degrees of success, include shooting, denning, trapping, snaring, and poisoning. The problem still continues; and, it is a problem that has become of considerable concern to the Department of the Interior, to the Secretary, and to the President.

A need to provide protection to the livestock and farm industry, and assist in alleviating losses from marauding animals, was recognized by the Federal Government around the turn of the century. An operational program has been authorized by the Congress and conducted by the Federal Government since 1915. The current Federal animal damage control program is carried out pursuant to the act of March 2, 1931, which directs the Secretary of the Interior to conduct campaigns for the destruction of animals injurious to agriculture, livestock, and people.

At one time or another, during the past 50 years, most States have initiated direct predator control programs of their own. As research revealed that predator control was of limited value in increasing game populations, many of these States withdrew from conducting programs of their own. Instead, many States—particularly in the West—chose to help finance a federally operated program. Thus, the groundwork was established for the \$8 million cooperatively supervised and funded animal damage control program we have today.

While ranchers, particularly wool growers, have urged more intensive efforts by the Department to eliminate predation, the program has become increasingly objectionable to the public at large. Serious questions have been raised by some conservationists, scientists, and the general public as to the benefits derived from control operations, and possible adverse environmental consequences from control methods being used—particularly poisons.

There have been objections to the program for several reasons:

(a) It is believed to be the cause of the reduction of certain wildlife populations;

(b) Research has failed to substantiate the degree of predator caused livestock losses;

(c) The use of poisons as a control practice is hazardous to non-target animals and is sometimes inhumane; and,

(d) The prophylactic use of poisons has not significantly eliminated coyote depredation.

Because of the public concern, the concern of Congress, and increasing concern in the Department of the Interior over this Federal program, several investigations have been conducted within the past 10 years. These include:

1. A report to the Secretary of Interior (then Stewart Udall) by his Advisory Board on Wildlife Management in 1964—commonly referred to as the Leopold report;

2. Hearings on predatory mammals by Congressman John D. Dingell, in 1966;

3. A report by the National Academy of Sciences, in 1970, on *Vertebrate Pests: Problems and Control*; and,

4. Most recently, an intensive investigation by a task force of seven, well qualified, senior ecologists headed by Dr. Stanley Cain, commissioned by Secretary of the Interior, Rogers Morton and Russell Train, Chairman of the Council on Environmental Quality, in 1971.

Mr. Chairman, we believe that the proposed Federal Animal Damage Control Act of 1972, as it was introduced in the House, and subsequently amended to incorporate the administration's proposed changes, will lead to a satisfactory solution of the predatory animal control situation; satisfactory from the standpoint of necessary environmental safeguards, and satisfactory from the standpoint of livestock interests.

Our legislative proposal stemmed largely from the Advisory Committee's Report on Predator Control. The legislative proposal centers around three principal tenets:

First. The management of resident species of wildlife is generally a State function, and therefore, should be controlled by the States, where such control is needed;

Second. Additional research is needed to determine the solution to the predator problem. Without research, wildlife species cannot be safeguarded, and environmental quality cannot be maintained; and,

Third. Poisons are too hazardous and potentially damaging to the environment for widespread use in the control of predatory animals.

As passed by the House, H.R. 13152 would make provision for financial and technical assistance to the States in their conduct of approved programs for the control of damage caused by predatory and depredating animals. It would authorize an increased and expanded research program. It also would provide authority for a continuing Federal program; and, finally, it would prohibit the use of toxicants for controlling predatory animals on public lands, and restrict the use of toxicants for controlling other kinds of animal damage, with provision to cover emergency situations.

The amendments recommended to your committee on June 7 would: (1) extend indefinitely the period in which Federal financial assistance would be available to a State for its implementation of an approved predator control program; (2) increase the maximum Federal share of State program costs to 75 percent in the first 2 years and up to 50 percent in succeeding years; (3) increase the maximum amount payable to any single State to \$300,000 in the first 2 years and to \$200,000 in succeeding years; and (4) increase the total amount authorized for such payments.

Provisions are made for closer cooperation with participating States and their wildlife agencies; for the submission of a progress report by the Department of the Interior no later than 5 years from the date of enactment to the President and the Congress; and for extending the coverage of this legislation to include depredating animals.

The term "depredating animal" was recommended for addition to the bill by the Department in recognition of the need for effective

control of animals other than those that habitually prey upon one another. The term, as defined, includes mammals and reptiles, other than predators, which may cause damage to agricultural crops and other natural resources.

Included in this category are such animals as gophers, ground squirrels, prairie dogs, jackrabbits, and field mice. We do not intend to exercise this authority with respect to large depredate mammals, such as deer and elk, or that it supersede protection afforded to certain classes of animals, including wild horses and burros and endangered species, by Federal statute.

We have recommended that birds be excluded from the definition of predatory animal. The purpose of this is to permit the Department to continue carrying out its specifically authorized programs for the control of nuisance birds pursuant to the Migratory Bird Treaty Act and the Fish and Wildlife Act of 1956.

An amendment to the bill suggested to the House committee by other concerned witnesses, and incorporated by H.R. 13152, as passed by the House, is the addition of language that would permit an emergency use of chemical toxicants where essential "to the prevention in specific areas of major damage to domestic livestock."

This provision was not in the bill or amendments proposed by the Department. The Department is of the opinion that this language is not desirable. We provided, in our proposed bill, for those emergency uses of chemical toxicants, under carefully controlled conditions, which we believe are essential, including the protection of human health and safety, the preservation of endangered species, and the prevention of substantial irretrievable damage to nationally significant natural resources, which could include domestic livestock.

Mr. Chairman, we anticipate that States will develop programs of predatory and depredate animal control using a variety of techniques. We expect, however, that their efforts will largely focus on specific troublesome or offending animals, and not on entire populations.

As new and improved methods of control are developed through adequate research, we can look forward to programs which meet demonstrable needs, while maintaining environmental quality and conserving the Nation's wildlife resources.

Mr. Chairman, we anticipate that most States requiring predator control will elect initially to participate in the Federal grant-in-aid program. To qualify for assistance, State programs will have to meet the requirements of the proposed act, and such standards as the Secretary may, by regulation, establish.

State programs which include the field use of any chemical toxicant for the purpose of killing predatory animals or the use of chemical toxicants which would cause any secondary poisoning effect for the purpose of killing other mammals, birds, and reptiles, except in specified emergency situations, will not be approved by the Secretary.

We must be satisfied that the methods we use to control animals are safe, selective, and humane as man can make them. Pending the development of new methods which meet these criteria, we will have to use methods which have been proven to be environmentally safe.

We are confident that with adequate funds, intensified research, and with the full input and effort of the States and the cooperation of the

affected industry, depredation by predatory animals can be held at a reasonable level—without the use of poisons.

Mr. Chairman, before concluding my statement I would like to mention several developments since the issuance of the President's Executive Order No. 11643 on February 8, and which I think will be of interest to you and members of your committee.

First, on May 23d, Secretary Morton issued guidelines on the use of certain chemicals for necessary bird and rodent control work. These chemicals may be used within the intent and spirit of the Executive order, without hazard either to the environment or to nontarget populations of animals. We are, therefore, in a good position to provide assistance in those situations where birds and rodents are causing problems.

Second, it has now been possible to clear two compounds for use in bird control work—Avitrol and Starlicide—thereby making it possible to continue to provide relief from depredation situations within the intent of the Executive order.

And third, following through on Secretary Morton's pledge to provide continuing service to the livestock industry, especially in the west, during this spring and summer period additional funds were made available for nonchemical control, including intensified efforts in trapping and aerial shooting of specific animals, primarily coyotes. A temporary office was established in Denver, Colo.; and the Bureau of Sport Fisheries and Wildlife responded quickly to reduce depredations in certain critical areas during this interim period prior to action on this legislation.

Finally, the intervening months' consultations, discussions, and experience have provided a "cooling-off" period—a time for the reexamination of positions based on information received by the Department of the Interior, and by Representative Dingell's House subcommittee during its hearings.

This reevaluation, together with the experience gained by the Bureau of Sport Fisheries and Wildlife in conducting the nonchemical program, causes me to be optimistic about the prospects for development of a program which is workable to all concerned.

We have had an opportunity to talk with representatives and responsible officials from affected State governments in the west. They accept the concept that the States do have management responsibility for predatory animals. They generally are willing to assume that responsibility if allowed a necessary period of transition and financial support to implement their programs. In the interim, and for so long as necessary, we will continue to conduct an operational program and provide technical assistance.

We have had continuing discussions with the livestock industry—mainly the National Wool Growers Association and its State affiliates. It is well known that this association has very strong reservations as to whether adequate control can be provided without the use of chemicals. As a result, provisions were made by the House in the revised Bill for limited use of chemicals under certain circumstances. I can report that we have achieved some rather good results using nonchemical control methods, and we are confident that depredation can be reasonably controlled without the use of poisons.

We are also confident that the results of increased research efforts will lead to a better understanding of predatory animal behavior and

improved methods of nonchemical control. These methods will be more effective, humane and environmentally safe than toxic chemicals. The use of poisons, even in emergency situations, will not then be necessary.

Mr. Chairman, the climate is not only appropriate, but the need is now urgent for a new declaration from the Congress and a mandate on this important issue. It is our judgment that the course of action that must be taken at this point in our history is clear. No longer can we indiscriminately kill predators just because it is their nature to eat other animals.

No longer can we use control methods that are nonselective and place in jeopardy nonoffending animals—predators and nonpredators alike.

No longer can we ignore the fact that predators have a social, aesthetic and recreational value.

No longer can we, at the national level, assume responsibility for a program that is clearly a responsibility of the individual States.

We believe that prompt enactment of S. 3334, with the amendments we have proposed, will accomplish the change in direction recommended by the Cain Commission. Such action will be responsive not only to the public demand for environmental safeguards, but to the legitimate needs of stockmen and farmers.

Thank you, Mr. Chairman.

Senator Moss. Thank you very much, Secretary Reed, for a fine, comprehensive statement.

From your statement, I understand that you do not approve of the amendment made in the House, with an exception for major damage to domestic livestock.

Mr. REED. We think it is well covered under the original legislation in the term "natural resources."

Senator Moss. So you think that could be dealt with as an emergency situation under the language of the original bill?

Mr. REED. That is correct, sir.

Senator Moss. I wonder, have you polled the States to find their financial needs to run programs without the use of poisons?

Mr. REED. Yes, sir. We have had extensive communication with the States following the Executive order on February 8. One of the reasons we proposed amendments to our bill was because the States felt very strongly that it was unrealistic for the Federal Government to drop out of all funding within 3 years. Also, they felt very strongly that the percentage costs which we originally identified on a sliding scale over 3 years were not fair to them. On reevaluation we concurred and recommended amending the bill with the financial figures that are presently before you.

Senator Moss. I see. That is the reason for your recommending the higher figures?

Mr. REED. Yes, sir. The two principal methods which we have employed this summer have been the use of fixed-wing aircraft and helicopters, and the trapping of individual offending animals. Mr. Berryman has been in charge of this operation out of our Denver office. The expenses involved in using fixed-wing aircraft and helicopters were greater than we anticipated. The experience has shown that, on much of the terrain in the West, effective coyote control could be conducted on depredating animals. Not a widespread control on all

coyotes in the region, but actually getting the coyote involved in the killing.

You are going to hear from growers about problems associated with running sheep in high alpine country and heavily forested areas. There are significant difficulties in using either fixed-wing aircraft or helicopters in some terrain. The animals are hard to see.

We have had a very interesting spring and summer period during which we have learned a great deal. Mr. Berryman can answer individual questions about the program. I know that not every stockman in the West is as pleased as we are, but we think we have made a major point. Animal damage control can be effective without the use of chemical toxicants.

Senator Moss. Has the elimination of predators continued at about the same level in numbers, or has it dropped drastically?

Mr. REED. The numbers of animals killed would be sizably reduced. We can give you in writing a detailed analysis of the coyotes killed since the President's Executive order; where they were killed, how they were killed, and an expense sheet showing the costs, which are substantial.

Senator Moss. We would like to have that for the record.

(The following information was subsequently received for the record:)

DIVISION OF WILDLIFE SERVICES, BUREAU OF SPORT FISHERIES AND WILDLIFE, U.S. DEPARTMENT OF THE INTERIOR—ANIMAL DAMAGE CONTROL ACCELERATED PROGRAM, APR. 14 THROUGH JUNE 30, 1972

COYOTES REMOVED BY TECHNIQUE

State	Aerial hunting		Trapping	Denning	Ground shooting	Dogs	State totals
	Helicopter	Fixed-wing					
<b>Region 1:</b>							
California.....							
Idaho.....	484	244	85	250	57		1,120
Montana.....	73	388	102	221	68		852
Nevada.....	191	267	12	43	10		523
Oregon.....	346	49	88	193	37		713
Washington.....			122	92	21		235
<b>Region 2:</b>							
Arizona.....			51		10		61
Colorado.....	188	201					389
New Mexico.....	134				4		138
Oklahoma.....	56		8	148	44	2	258
Texas.....	431						431
Utah.....	29	223	7				259
Wyoming.....	387	651					1,038
<b>Region 3:</b>							
Nebraska.....		264					264
North Dakota.....		181					181
South Dakota.....		16					16
Technique total.....	2,319	2,484	475	947	251	2	6,478

PROGRAM TECHNIQUE

Region	Aircraft <sup>1</sup>	All other	Total
Region 1.....	\$79,934.50	\$30,565.50	\$110,500
Region 2.....	96,645.60	52,504.40	149,150
Region 3.....	10,064.80	5,635.20	15,700
Total.....	186,644.90	88,705.10	<sup>2</sup> 278,500

<sup>1</sup> Costs computed from average cost per hour for fixed-wing aircraft and helicopter in each region as follows: Helicopter—Region 1, \$125 per hour; region 2, \$110 per hour. Fixed-wing aircraft—Region 1, \$20 per hour; region 2, \$18 per hour; region 3, \$23 per hour.

<sup>2</sup> Includes central office administrative expense of \$3,150.

## USE OF AIRCRAFT FOR COYOTE REMOVAL

Region	Number of coyotes removed	Number of hours flown	Cost of operating <sup>1</sup>
Region 1.....	2,042	1,738.7	\$79,934.50
Region 2.....	2,300	1,509.8	96,645.60
Region 3.....	461	437.6	10,064.80
Total.....	4,803	3,686.1	186,644.90

<sup>1</sup> Costs computed from average cost per hour for fixed-wing aircraft and helicopter in each region as follows: Helicopter—Region 1, \$120 per hour; region 2, \$110 per hour. Fixed-wing aircraft—Region 1, \$20 per hour; region 2, \$18 per hour; region 3, \$23 per hour.

<sup>2</sup> Excludes 20 hours used in Arizona for den observation only.

Senator Moss. One of the proposals that has been made is for indemnification insurance program. Am I correct that Colorado has a form of indemnification program, and if so, could you explain it a little?

Mr. REED. I will ask Mr. Berryman to answer that. I am not familiar with an insurance program covering sheep losses in Colorado.

Senator Moss. Does Colorado have a form of indemnification?

Mr. BERRYMAN. Not to my knowledge, no, sir.

Senator Moss. Did they at one time, or are you aware of that?

Mr. BERRYMAN. If they did, I am not aware of it, sir. We can find out and submit it to you.

Mr. REED. I think it is this, Mr. Chairman. The State does pay ranchers for damage by wintering elk and deer herds. They pay for damage resulting from game animals. There may be a number of States that have severe winters that compensate ranchers who are losing winter foods, principally alfalfa hay, which has been stored to feed livestock. But I do not know of a State which is paying indemnification for losses of animals to predation. We will find out and submit a statement to you for inclusion in the Hearing record.

(The following information was subsequently received for the record:)

## INSURANCE PROGRAM

Colorado pays for game animal damage which includes bear and lion damage to livestock.

Five States have explored the feasibility of an insurance program. At the time of the Cain Committee investigation, Colorado was evaluating a program. New Hampshire, which pays damages inflicted by all game animals, was the only State, of the remaining four, reporting favorable conclusions to the Cain Committee inquiry.

Senator Moss. You don't know of any relating to the loss of animals?

Mr. REED. As the Cain Commission recommended, we have examined the feasibility of compensating ranchers for losses. We have explored the possibilities with insurance companies and with States in attempting to find a program that would be satisfactory. We did not find such a program, Mr. Chairman. The Council on Environmental Quality has also examined the subject, and has concluded that a predator insurance program is not feasible at this time.

Senator Moss. Do you know of any foreign countries that have used that method?

Mr. REED. No, sir; I am not aware of any that would be applicable to the United States.

(The following information was subsequently received for the record:)

In the Cain Report it is indicated that a few foreign countries have or have had livestock insurance. Brazil had a program for cattle—not sheep—in the 1950's. Japan has a government insurance program covering cattle. The Japanese conditions are not applicable to the open-range conditions of the western United States. According to the Cain Report, Mexico also has an insurance program for cattle. We are not aware of any other foreign countries having livestock insurance; and, we know of no foreign country having insurance covering predator caused sheep losses.

Senator Moss. Since you have not found any place where that has been utilized, do you have any opinion as to whether that might be desirable as an alternative here for the loss of livestock?

Mr. REED. Of course, the proposition was studied by the House Agricultural Committee; the bill, H.R. 14163, was defeated on the floor of the House. It is our strong conviction, and I think it is the conviction of a great many wool growers and cattlemen, that indemnification is not the way to go. There is a great problem, Mr. Chairman, of who killed that sheep; and there is the problem of getting somebody to the site to look at a sheep that is badly decomposed, and verify its cause of death. It is a legitimate problem for the wool grower, and a problem for the agent of the Federal Government to determine how the animal was lost. We see no way that indemnification could possibly be worked to avoid these problems.

Senator Moss. Is part of that problem that the coyote is also a scavenger and might very well feed on the carcass of a sheep, or a calf that had died from some other means?

Mr. REED. Absolutely, sir; and this is one of the great problems in the entire research program that has been undertaken over the years.

We still lack a definitive knowledge as to legitimate stock losses, and we admit there are areas where losses are significant.

This is one of the major gaps that we have in our knowledge. The research that was needed to obtain this kind of information has not been undertaken. Then you come down to a situation like this where you need it, and the work has not been done.

Thanks to the new appropriations bill, Mr. Chairman, we will be able to increase effort in this aspect of the program. It is desperately needed. Part of that will be held in Utah, at Utah State University, where a large-scale experimental effort will be undertaken.

Senator Moss. That is one of the areas that has done some research, and it would be good to build on that.

It has been suggested that action on this bill be deferred until we have had a chance to assess the full effect of the Executive order on the predator-caused livestock losses. What would be the effect of such a delay?

Mr. REED. I think the effect would be very sad, Mr. Chairman. From the standpoint of the wool growers, their losses would mount. With the reduction in the funds available to the Department for use in this coming year it would not be possible to conduct a program which would keep losses to a reasonable level.

We did not anticipate staying in the program at the same level, and the Appropriations Committee reduced our working account. I will be very frank. We would not be able to give the type of service we gave

this spring because of the tremendously increased costs attributed to fixed-winged aircraft and helicopter use.

Many of the States have prepared excellent program plans for going into predator control work. John McKean, director of the Oregon Game Commission, has one of the best reports, which I believe he will be putting in the record before you, Mr. Chairman.

Other States have copied it, and amended it to their own needs and uses.

Arizona is prepared to go ahead. Most of the Western States are presently prepared to go ahead.

I think that it would be very unfortunate if we do not go ahead this year with this opportunity to shift direction.

Senator Moss. The committee has received a number of letters from western woolgrowers, to the effect that they were promised a full hearing on the Cain report, and that promise was not kept. Can you comment on this?

Mr. REED. Wool growers were promised a full hearing. The use of the Cain report by the President in his Executive order preempted that possibility. Thus, the Secretary was not able to fulfill that promise. However, he has met repeatedly since then with the National Wool Growers Association, and with wool-grower units from the Western States. I can research the number of meetings we have held in his office, and around the United States, Mr. Chairman. They have been numerous.

Senator Moss. There have also been recurrent rumors that the Executive order banning the use of poisons may be lifted. I find this puzzling, and I wonder if there are plans to lift the Executive order?

Mr. REED. I would be delighted to speak to that, Mr. Chairman. We carefully checked that rumor out, and I can state categorically that the Executive order is not intended to be lifted.

Senator Moss. The proposed legislation does not specifically prohibit the use of poisons on State or private land. Do you foresee Federal agents engaged in operational programs being authorized to use poisons on State or private lands?

Mr. REED. No, sir. I do not foresee much use of toxicants at any time, especially on State or private lands. EPA, of course, has the controlling say on what chemicals would or could be used. It is inconceivable for me to think that Federal agents would be using toxicants on private lands or State lands.

Senator Moss. Is it a jurisdictional problem that would have to be overcome there, or would there be jurisdiction to use controls on State lands?

Mr. REED. The thrust of our legislation, Mr. Chairman, is that we feel that the coyote and other predators are an animal that belongs to the State. The management of resident wildlife is generally a State function. Therefore, predators should be controlled by the State wildlife agency.

Our biggest problem was how to segregate the cost of that legitimate program from hunter and fishermen's fees, which have traditionally paid for the cost of State game commissions.

This is why we came up with the language in the authorization part of our bill, which limits the amount or a State's matching share for predator control to no more than 10 percent from the sale of hunt-

ing, fishing, and trapping licenses. Programs for hunters and fishermen, paid by their license fees within their own States, will not be curtailed.

Senator Moss. Conceivably, a poison could be developed which is both selective and without secondary effects.

Does the Department of the Interior intend to continue research to develop such a poison?

Mr. REED. Dr. Loveless is assistant director of our research program and will answer that question.

Dr. LOVELESS. Mr. Chairman, the principal thrust of our research program at this moment, and the central thrust of the program in the future, will be to develop techniques, involving both chemical and nonchemical methods. Chemicals examined are not toxic but may prevent coyotes from taking livestock in other ways, such as repellants, and these kind of things.

Over the years, we have looked at a very large number of compounds, and it is extremely difficult and quite improbable we are sure, that we will ever come up with a toxicant that will be selective just for coyotes.

Senator Moss. Well, if a chemical is developed, of a repellant nature, would not this bill be so broad that it would be banned?

Dr. LOVELESS. No, sir; we do not believe so.

Senator Moss. But, if you could get a selective poison, one that actually caused the death of the predatory animals, but was selective, that would be banned by this bill; is that right?

Dr. LOVELESS. Yes, sir. For predators, although not for depredate animals. There is language regarding secondary hazards in the bill, and if we did develop a compound that was selective for a specific depredate animal, it obviously would not have secondary hazard properties.

Senator Moss. I think, Mr. Secretary, you said that there had been fewer coyotes actually killed this year. Therefore, we must assume that there is an increasing coyote population at the present time. How do you expect to turn the corner and start down on that?

Mr. REED. The great experts on this, of course, are men like Starker Leopold, and others who have studied the coyote in the sense of it being a territorial animal.

Dr. Leopold has given us an opinion that the population level will increase until some semblance of balance occurs. Then territorialism will assert itself, and it is a driving force in the coyotes. We will then see a leveling, if not a reduction in the population.

Senator Moss. Often it is mentioned that we are here banning the use of poisons in controlling coyotes, and yet for control of rats in cities, we are increasing the use of poisons.

How are we reconciling those two points of view?

Mr. REED. I think there is a great deal of difference between the range lands of the West and the urban ghettos of, principally, the eastern cities. There are different social judgments and different moral questions involved.

Senator Moss. There is a vast difference in area, but as far as use of poisons are concerned, we have not abandoned that entirely?

Mr. REED. No, sir, we have not. We certainly still intend to employ certain poisons in control of animals from depredate on forest

lands after either extensive cutting or fire. With respect to fire leveling, we must get a forest restarted. An entire watershed may rely on prompt reforestation. Seeds are one of the ways that we do this. Small rodents are able to set back a program of reforestation enormously. That is why we cleared two chemicals for use this spring.

I do not think anybody at the Department of the Interior thinks we are going to go backward in time to total balance in the West. That is precluded from occurring due to the number of people living in the West and the number of different interests in the West. But, I would hope we could find balance and objectivity in the use of public lands.

Senator Moss. I suppose forage on public lands is as much a conservation problem as the elimination of predators?

Mr. REED. Absolutely, sir, no question about it. The mutual benefits of increased forage for livestock and wild animals is a goal of good land management.

Senator Moss. Just how toxic is compound 1080? How much would be necessary to kill a coyote, and how does that compare with the amount that a human being could tolerate?

Mr. REED. Dr. Loveless can give you the figures on 1080, but they are a little redundant because 1080 has been banned by EPA, and to my knowledge none of it has been used since the President's Executive order was issued on February 8.

Dr. Loveless, would you speak to the potency of 1080?

Dr. LOVELESS. Yes, sir.

The LD-50 of 1080 on coyotes, the amount of toxicant that it would take to kill 50 percent of the animals involved, is one-tenth of a milligram per kilogram.

For a 150-pound man, it would require between about 50 to 90 milligrams. There are 453.6 grams in a pound, and 28.3 grams in an ounce, and a milligram is a thousandth of a gram.

Mr. REED. To bring that down from the research level, a very small amount is extremely toxic.

Senator Moss. I gather that.

You have mentioned, Mr. Secretary, that there were problems using airborne, helicopters and fixed-wing plane, in areas where there was timber, or in rough country.

What other alternative is there, then, to using the aircraft, if poisons are not utilized?

Mr. REED. I will ask Mr. Berryman to amplify on this answer. We have not had a full year's experience yet. We have not had an opportunity to use the helicopters or aircraft in the winter months, which we think is an important part of the year. We think the trapping of offending animals is one alternative. Also, wool growers are using various types of dogs which have been successful in certain areas, I believe, in Colorado and Idaho. Furthermore, we believe there are certain things that can be done in the research field which could be extremely effective in years to come.

Mr. Berryman, would you like to comment on the question?

Mr. BERRYMAN. We had some very fine successes in the application of both helicopter and fixed-wing aircraft in lower, more open country, and early in the spring and summer months. The specific difficulties that you refer to, Mr. Chairman, relate to terrain and the denseness

of the vegetation, the difficulty in seeing, and in some cases, the class of land. Recently, we have been dealing with coyotes in these difficult terrain situations.

We do not know how effective we might be if we could intercept those coyotes before they got into the high country. In other words, we have not had an opportunity to apply mechanical methods on a year-round basis and make that kind of an evaluation. We began in April, and we are dealing with the problem on the ground, now.

Senator Moss. Are you doing any research in the area of a mechanical way of frightening the predators away? I remember as a boy, the first time I stayed out in camp, the shepherd let me shoot his six-shooter and he did that two, or three times during the night.

He would get up and shoot, and he said that frightened the coyotes away. In fact, later on, I went out and found they had firecrackers, large as a salute-type firecracker, that they used.

What has been the research in this area?

Mr. BERRYMAN. They provide temporary and immediate relief. As a matter of fact, a manufacturer of such devices demonstrated them at an annual meeting of the Colorado wool growers about a week ago. Our experience to date has been that anything that is repetitive, the coyote generally gets accustomed to. But, for immediate one-shot relief, they are effective. I do not know what the future might hold in advanced electronics. As a standard continuing operational tool, they are not used within our program, sir.

Senator Moss. We have had some reports coming in that there was an abnormally high number of sheep losses in the high country this summer. Do you have any information on that?

Mr. BERRYMAN. We have looked into all of the reports of losses that have been received in our office at Denver, and have tried to keep track of those received in our State offices.

We have provided a degree or measure of service on most of the intense or really high losses. We have serviced most requests. However, we have not serviced some of the individual requests that have been received by our field personnel. We have had to identify priorities, and apply this accelerated program only to the most critical areas. I am quite sure that there are some areas of heavy depredations that we have not attempted to service.

Senator Moss. Are you able to confirm that there appear to be abnormally high losses this summer?

Mr. BERRYMAN. No, sir. Over the West as a whole, I cannot confirm that. The reports received from our regional and State offices indicates that, over the West as a whole, depredations this summer and spring are about the same as last year. That we would have anticipated.

Now, I am not suggesting that there are not higher losses in specific areas. But over the West as a whole, I do not think they are higher than last year.

Senator Moss. Although there hasn't been a full report, your impression seems to be that it is not higher this year.

Mr. BERRYMAN. I think this year is about the same as last year.

Senator Moss. Thank you very much. Gentlemen, I do appreciate your testimony, and the information that you have brought us. This is a pressing problem, and it is one reason that this committee is determined to hold these hearings even though this is a time of heavy

activity, and generally our hearings are not now being held on legislation unless it is of a pressing need.

Thank you very much.

Mr. REED. Thank you, Mr. Chairman.

Senator Moss. We will now have a second panel of witnesses from the Environmental Protection Agency, headed by Dr. William Upholt, who is Deputy Assistant Administrator for Pesticide Programs of EPA, accompanied by Mr. Charles Fabrikant, Special Assistant to the Assistant Administrator for Categorical Programs, Mr. Herbert Harrison, Director, Insecticide-Rodenticide Branch, Pesticides Regulation Division, Office of Pesticides Programs.

We are very pleased to have you, Dr. Upholt, and your fellow members from EPA, and we look forward to hearing from you, sir.

**STATEMENT OF DR. WILLIAM D. UPHOLT, DEPUTY ASSISTANT ADMINISTRATOR FOR PESTICIDE PROGRAMS, ENVIRONMENTAL PROTECTION AGENCY; ACCOMPANIED BY CHARLES FABRIKANT, SPECIAL ASSISTANT TO THE ASSISTANT ADMINISTRATOR FOR CATEGORICAL PROGRAMS; AND HERBERT HARRISON, DIRECTOR, INSECTICIDE-RODENTICIDE BRANCH, PESTICIDES REGULATION DIVISION, OFFICE OF PESTICIDES PROGRAMS**

Dr. UPHOLT. Thank you, Mr. Chairman. It is a pleasure to testify before you today on our views on those bills which would repeal the present Federal predator control authority and establish new authorities which reflect a new awareness of man's often devastating impact on the environment when he attempts to control it.

The hard lessons of our experience under present predator control law, the rejection of control programs based on poisoning, and the need for new methods having minimal environmental impact are basic to the proposed bills.

Before discussing those bills, I would like to review related matters, the President's February 8, 1972, Executive Order No. 11643, and the Environmental Protection Agency's March 9, 1972, suspension and cancellation of predator control pesticide registrations.

Titled "Environmental Safeguards on Activities for Animal Damage Control on Federal Lands," the Executive order restricts the use of chemical toxicants, pesticides which can cause injury, illness, or death to animals or man, which have direct or secondary effects on predators or other animals on Federal lands or in any Federal mammal or bird control program.

Such use is to be prevented except under certain emergency conditions, including protection of human health or safety, preservation of a wildlife species threatened with extinction, and "prevention of substantial irretrievable damage to nationally significant natural resources." The order is to be carried out by the heads of Federal agencies.

The effect of the order is to prohibit, except under certain extraordinary circumstances, the use of any chemical toxicant in a Federal or federally supported program.

The effect of our suspension-cancellation action is to prohibit the interstate shipment of any product containing strychnine, cyanide,

sodium monofluoroacetate, or 1080, or thallium sulfate, labeled with instructions for use in controlling predators.

The action was based on the suspension provision of section 4(c) of the Federal Insecticide, Fungicide, and Rodenticide Act, FIFRA. Past interpretations of the statutory criteria, "imminent hazard," are broad enough to include as part of the public, the environment, and as part of the term "imminent" it can mean any point in a chain of events which ultimately results in harm to the public.

Underlying our action was the same conclusion which motivated the President's Executive order and the proposed bills before you; that an immediate hazard to endangered species exists as the result of the unsupervised, unattended use of highly toxic poisons over a broad area of the West. The hazard is neither geographically nor chronologically remote, and it threatens a broad range of the animal population of affected areas, some of those populations being endangered species such as the American bald eagle.

Now you have before you two bills which, among other things, extend the effect of the President's Executive order. They would not, if enacted, affect our suspension-cancellation action, nor would they in any other way supersede or limit the authority of the administration under FIFRA.

S. 3334 would authorize the Secretary of the Interior to engage in a predator control and conservation research program which would include research into nonchemical toxicant and other control methods; perform predator control extension services requested by a State; and provide predator control program assistance funds to States. The use of chemical toxicants would be permitted under certain limited conditions.

The bill prohibits the use of chemical toxicants for predator control, or which have secondary poisoning effects, on Federal lands with exceptions provided for emergencies including the protection of human health or safety, preservation of wildlife species threatened with extinction, or "the prevention of substantial irretrievable damage to nationally significant natural resources."

The act of March 2, 1931, which provides authority for Federal predator control, would be repealed by S. 3334, and the bill is not to be construed as limiting the authority of the Administrator under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended.

H.R. 13152, as passed by the House, is identical to S. 3334 except for these important provisions:

1. The definition of "chemical toxicant" was amended to exclude substances which interfere with bodily functions but do not cause injury or death, in order to permit the continued use of compounds such as chemosterilants.

2. The term "predatory animal" was amended to exclude birds in order to permit the Department of the Interior to control nuisance birds pursuant to the Migratory Bird Treaty Act and the Fish and Wildlife Act of 1956.

3. The term "depredating animal," meaning any nonpredatory mammal or reptile causing damage to agricultural crops or natural resources, was added to the definitions and to sections 3 and 4, which deal with research and State programs.

4. A provision is added to section 3(a) which would require that predator control research objectives and programs be developed in cooperation with each of the affected States. Similar cooperation is required with respect to the continuing inventory of predators under section 3(b).

5. A new subsection 3(d) is added which would authorize \$1,500,000 for predator control research each fiscal year.

6. The provisions governing Federal aid to State predator control programs are amended by requiring that such aid must be provided through the State agency responsible for wildlife management, for a program which is approved by that agency and which meets the Secretary of the Interior's standards. In addition, the amended bill provides that Federal aid to States for predator control programs will not end after 3 years, but continued indefinitely.

7. State predator programs could be approved which entail the emergency use of chemical toxicants for the prevention of major damage to domestic livestock in an area where the Secretary of the Interior determines that other means of predator control will not prevent such major damage; and the heads of Federal agencies in consultation with the Secretaries of Interior and HEW, and the Administrator of EPA, could make use of chemical toxicants when essential "to the prevention, in specific areas, of major damage to domestic livestock."

8. The Secretary of the Interior is directed to conduct such predatory and depredateing animal control programs as he deems necessary or desirable, and is authorized to assist section 4 State programs; and \$5 million is authorized for those purposes each fiscal year.

In addition, the head of a Federal agency administering Federal lands may authorize a State predator and depredateing animal control program on his lands.

9. Within 5 years of enactment, the Secretary is to submit to the President and Congress a status report and recommendations on the programs authorized under the Act.

Now I would like to discuss the use of chemical toxicants in emergency situations as defined in the proposed bills as such use relates to present pesticide regulatory law, the Federal Insecticide, Fungicide, and Rodenticide Act, as amended; and to that law if Congress amends it by passage of H.R. 10729, the proposed Federal Environmental Pesticide Control Act.

FIFRA requires that all pesticides shipped in interstate commerce bear an approved label for the use to which they are to be put. Operating under the present FIFRA, there would appear to be several options available to EPA in permitting some kind of emergency registration of previously cancelled poisons or use of those never before registered. We could either approve shipment under a temporary permit for a particular emergency use limited to a stated period of time, or a permit restricting use and shipment relating to emergency situations whenever they occur. Distribution could be made by Federal officials or by private shipment bearing an approved label granted for a temporary registration.

Under present law public officials engaged in the performance of their lawful duties may ship and use unregistered poisons. All such uses for the past 10 years have had prior review by the Federal Working Group on Pest Management, a Federal interagency review panel.

In response to the mandate of the President's Executive order, and in anticipation of passage of H.R. 13152 or S. 3334, we have begun to examine the feasibility of establishing a new interagency review group which would define the criteria to be met by any agency, individual, or State in requesting emergency use of chemical toxicants on predators. In addition to performing the functions outlined under section 5 of each of these bills, we anticipate such a group would function under the provision for exemption from FIFRA in the proposed pesticide bill to advise the Administrator in making decisions concerning use of chemical toxicants for predator control on other than Federal lands.

The proposed amendment to FIFRA, H.R. 10729, contains prohibitions against the use of an unregistered pesticide as well as use of a pesticide in a manner inconsistent with its labeling. As passed by the House of Representatives, it also contains an exemption provision which would require an Executive order from the President upon his determination that emergency conditions exist before any Federal agency could be exempted from the provisions of the Act.

As reported out by both the Senate Agriculture and Forestry Committee and Commerce Committee, the bill contains an exemption provision which would authorize the Administrator to exempt a Federal or State agency from the provisions of the act if he determines that his action would be consistent with the purposes of the act and in the public interest.

In an emergency situation under the proposed pesticide regulatory bill, if enacted, any chemical toxicant proposed to be used will require either registration by this agency or exemption of the appropriate Government agency from the provisions of the Act by the Administrator or the President, depending on the form in which the act is passed, if either determines that the necessary conditions in fact exist.

Both H.R. 13152 and S. 3334, as I have noted, define emergencies to include the need to protect human health or safety, preserve a wildlife species threatened with extinction, or prevent substantial irretrievable damage to nationally significant natural resources. We do not view those tests as incompatible with the intent of the proposed bills and the basis for our recent actions on certain chemical toxicant registrations.

If it were to be enacted, we would read the fourth emergency condition in H.R. 13152, major damage to domestic livestock in an area where the Secretary of the Interior determines that other means of predator control will not prevent such major damage, to be as stringent as the other three conditions in the bill, and not a "foot-in-the-door" provision to return the Federal Government to a general, routine program of livestock protection by open-field baiting.

Mr. Chairman, I would like to conclude by noting that a primary purpose of the proposed amendment to FIFRA, H.R. 10729, is to give the Administrator badly needed authority to impose more realistic regulation on the use of pesticides than he can under present law.

Under the proposed bill, pesticides would be classified according to their effects on health and the environment, and requirements would be imposed on users of pesticides classified for restricted use.

In addition, misuse of a pesticide is prohibited, a serious omission of present law.

The bill, in short, would give the Administrator far greater flexibility in determining whether a pesticide can be made available, by authorizing the imposition of all appropriate restrictions rather than forcing a ban or unregulated use decision on him.

I would be pleased to answer any questions.

Senator Moss. Thank you very much, Dr. Upholt, for that statement, and for clarifying for me, at least, the work that the EPA is doing already in this field.

Do you know how much poison was out in inventory at the time of EPA's ban on interstate shipment of poisons, how much has come in voluntarily?

Dr. UPHOLT. I do not believe we have those figures. This would be done by one of our divisions, and I have not seen a report on that.

Senator Moss. Could you furnish those figures for us so that I might place them in the record?

Dr. UPHOLT. To the best of our ability, we will do so.

(The following information was subsequently received for the record:)

ENVIRONMENTAL PROTECTION AGENCY,  
Washington, D.C., September 7, 1972.

HON. FRANK E. MOSS,  
Subcommittee on the Environment, Senate Commerce Committee, U.S. Senate,  
Washington, D.C.

DEAR SENATOR MOSS: During the August 7, 1972, testimony of Dr. William Upholt, Deputy Assistant Administrator for Pesticides Programs, on H.R. 13152, the proposed Federal Animal Damage Control Act, and related bills, you asked what volume of predator control poisons recently suspended and cancelled by this Agency were in the channels of distribution and what volume had been recovered. This is in response to your request for the above mentioned information.

The suspension and recall of predator control products involved eleven registrants and a total of eighteen products. During the year preceding the recall, approximately 5,110 pounds of the poisons, 500 pounds of poison treated seed and 332,730 chemical cartridge shells were distributed to retailers and users. Of these amounts, 4,035 ½ pounds of the poisons and 283,925 of the cartridge shells have been returned to the registrants and are being held there pending this Agency's recommendations for disposal. We do not have information as to the amount of these products held by retailers and users on the date of the suspension order.

Of the eleven registrants involved in the suspension, only one refused to recall: that firm was Humane Coyote Getter, Inc., Pueblo, Colorado. To date, thirteen seizures have been initiated against that firm's product, the Humane Coyote Getter Chemical Cartridge, with 519 cartridges having been seized. The initial seizures were aimed at those consignees which, according to information obtained from the registrant, had received large shipments of this product. Only 20 percent of the cartridge shells making up these shipments were still "on hand" at the time the seizures were attempted. All seizures were attempted within three months of the date of shipment. Judging by the percentage of the product still "on hand" at the time of seizure and keeping in mind this product is a "one shot" item, it is not expected that very much of the product remains in the channels of trade.

It should be kept in mind that some of these products have rodenticide uses as well as predator control uses. We cannot supply figures breaking down what percentage of the products are put to what use.

Sincerely yours,

GARY H. BAISE,  
Director Office of Legislation.

Senator Moss. I note that in H.R. 13152, the exemption of Federal agencies to use poisons is conditional upon consultations with the Secretary of the Interior and HEW and the Administrator of EPA, and yet State programs would only need the approval of the Secretary of Interior to use toxic chemicals. Would you favor making the full consultation provision mandatory with regard to States as well as Federal agencies?

Dr. UPHOLT. I think that this is probably pretty well taken care of by the fact that the pesticides would not be available unless we had registered them, and it would not be our intention to register them without consultation with the other agencies. So it would automatically require at least the cooperation of both the Secretary of Interior and the Administrator of EPA before the pesticides could be available.

Senator Moss. That would make it really controlling on the States all the way out, because it could not be shipped until it had been registered, is that right?

Dr. UPHOLT. This is correct.

Senator Moss. Won't the ban on the use of toxic chemicals for predator control result in the discontinuation of their production, making stocks of such chemicals unavailable for future emergencies?

Dr. UPHOLT. This is a problem we face on all such actions, and I am sure that we do not have a good answer to this, because we have no way of telling what stocks would be kept on hand, whether there are sufficient other uses to justify the manufacture.

For example, 1080 has other registered uses. Thallium sulfate contained thallium which is used for other purposes, and it should not be too difficult to tool up to make some as a pesticide. The same is true of strychnine. It is just a matter of making it available in a form for use as pesticides.

The same is true of cyanide.

Senator Moss. Do you feel that a public hearing or at least an opportunity for public comment would be desirable before any emergency registration of chemicals?

Dr. UPHOLT. My experience with public hearings and this approach is that they are very time consuming, and if we are talking about a true emergency, I suspect that it will require a much more rapid action than could be obtained through this procedure.

Therefore, I personally would doubt the value of such a requirement. If there is not such an emergency that it would preclude it, then I think we would seek advice, but I would rather not be tied to a requirement for public hearings.

Senator Moss. What would be your opinion of amending H.R. 13152 so that it would not ban all toxic chemicals for predator control, but only those deemed imminently hazardous by the EPA?

This would probably have much the same effect as an all-out ban, but it would leave the way open for possible use of environmentally safe chemicals.

Dr. UPHOLT. This bill, as I understand it, would not preclude our registering pesticides which are not hazardous. It would preclude their use on Federal land. I am not sure that this would create a serious difficulty, because if we registered them, I presume that in an emergency, they could be made available on Federal land.

I suspect that there would be a situation where, as you are implying in your discussion with the previous witness, the possibility of a

highly specific pesticide being developed which could not be used on Federal land, and if it might seem desirable to make highly specific ones available, we could register them.

Senator Moss. And then they could be used on private land and State lands, if registered?

Dr. UPHOLT. That would be my understanding, yes.

Senator Moss. But to be used on Federal lands, it would need a further exception in the statute?

Dr. UPHOLT. That is correct.

Senator Moss. Are there conditions in the FIFRA other than those specified which would limit cases in which EPA has authority to register poisons for emergencies?

Dr. UPHOLT. I am not sure I understood your question.

Senator Moss. I wondered if there were any other conditions in FIFRA other than the four specified in the House bill which would limit cases which EPA has authority to register poisons for emergencies.

Dr. UPHOLT. To the best of my knowledge, FIFRA does not put any limitations on what we can register on an emergency basis. Wherever we feel that there is an emergency situation in our own judgment we may register a pesticide.

Senator Moss. In the course of your work at EPA, have you assessed what the effect has been of the Executive order thus far on the number of predators that have been eliminated, or the total number that have been eliminated this year as compared to previous years?

Dr. UPHOLT. No. We have relied upon the Department of Interior, who have the responsibility for the field operations, to do such evaluations. We do not have the manpower to carry out such an evaluation ourselves.

Senator Moss. Do you foresee the possibility of a target type of control on predators, a chemical agent that could be targeted specifically, rather than being rather broad?

Dr. UPHOLT. This is certainly highly desirable, and I believe there must be research along this line, although I am not familiar with it. This would be done either by the Department of Interior or by private industry, but certainly such would be desirable, and I would guess that there is such research underway.

Senator Moss. Thank you very much, Dr. Upholt and Mr. Harrison and Mr. Fabrikant. We appreciate your coming here to testify before us.

Dr. UPHOLT. Thank you. It has been a pleasure.

Senator Moss. We will now hear from Mr. John McKean, director of the Oregon Game Commission.

We are very pleased to have you, Mr. McKean, and we look forward to your testimony.

#### STATEMENT OF JOHN McKEAN, DIRECTOR, OREGON GAME COMMISSION

Mr. McKEAN. Mr. Chairman, I am John McKean, director of the Oregon State Game Commission, testifying in support of H.R. 13152 on behalf of the Western Association of State Game and Fish Commissioners. The Western Association is a regional forum including the

fish and wildlife agencies of 13 Western States and two Canadian Provinces.

Our support of this legislation is based on the fact that H.R. 13152—

(1) Recognizes that management of resident wildlife is a State function and that there is a national interest in State wildlife management programs;

(2) Provides modest Federal assistance to the States for performance of services formerly provided through the Federal Animal Damage Control Act of 1931;

(3) Stipulates that matching State funds for animal damage control programs will not create a substantial diversion of dedicated wildlife funds by establishing a 10-percent limitation of revenue derived from sale of hunting, fishing, and trapping licenses to be used for State matching money;

(4) Provides that Federal assistance will be contingent upon designation of a State wildlife agency as the organization responsible for program administration; and

(5) Provides for primary management by the States and cooperation between State and Federal agencies in research, planning, and implementation of animal damage control programs.

In explanation of this position, I would like to explain that the Western States, particularly, have an abundance and variety of wildlife including many species that frequently conflict with other resources or land uses.

The wildlife management problems and programs in Western States are substantially different from other States because of the large amount of relatively wild land, and the fact that approximately 45 percent of land in the 11 contiguous Western States is in Federal ownership.

Timber and livestock production are important enterprises in Western States, including the Federal lands; and some control of resources losses to predators and rodents is essential to achieve production goals.

Following the President's Executive Order 11643 of February 8, 1972, the implementation order of the Secretary of the Interior, dated February 10; the decision by the Environmental Protection Agency, to stop shipment of certain pesticides; and the announced intent of the Secretary of Interior to seek repeal of the Federal Animal Damage Control Act of 1931, the States began formulation of alternate programs for consideration by the respective State legislatures.

A draft of Oregon's preliminary plan is enclosed for reference by the subcommittee. State plans cannot be completed until the intentions of Congress are made known through H.R. 13152, or some similar legislation.

It is, therefore, urgent that Congress act upon the matter this session so that State legislatures which meet on a biennial basis, can make necessary adjustments of State laws and budgets, during the 1973 session.

Mr. Reed commented on this, and I would like to emphasize it. I think it is very important that we not be left in a state of ambiguity going into this next legislative session. Our legislatures are interested in these questions, and they would like to have some definition of the Federal intent.

H.R. 13152 provides for Federal assistance to the States and stipulates that State matching funds may contain not to exceed 10 percent of revenue obtained from sales of hunting, fishing, and trapping licenses. This is an important stipulation. Control of predators and depredating animals is primarily an agricultural service program, and it is not proper to place the financial burden selectively upon licensed hunters, anglers, and trappers. The proposed Federal assistance and the provision for evaluation within 5 years after enactment are desirable features of H.R. 13152.

The requirement that States place responsibility for animal damage control in the wildlife agency is an important provision. At present, the States are in the process of broadening the missions of their wildlife agencies to assure maintenance of all indigenous species of fish, mammals, birds, amphibians, and reptiles, including rare and endangered species.

This movement is encouraged by the International Association and Regional Associations of Game, Fish, and Conservation Commissioners. They have collectively developed a "Model State Law," as an aid to the States in making needed adjustments of State wildlife laws.

Mr. Chairman, if I may, I would like to refer to a recent publication, which is a popular edition of the "Model Law" developed by the International Association. It was printed by the Winchester-Western Division of the Olin Corp., and this is being used by all the States to promote better legislation.

Senator Moss. We are glad to have that. It will be incorporated as an appendix to our record.

Mr. MCKEAN. Thank you, Mr. Chairman.

Coyotes, bobcats, foxes, rodents, and other species, which are often in conflict with other land uses, are a part of the natural fauna and should be managed as an integral part of the wildlife resource by the wildlife agency of the State. Fragmentation of State wildlife programs does not provide an efficient vehicle for coordinated wildlife management.

The Western Association does question the intent and potential impact of the language in sections 4 (c) and (d). In section 4(c), the Secretary is directed to continue to conduct operational programs that he deems necessary. Although we believe the intent of this subsection is to provide continuity of the operational program until the States assume control, the present language does permit a dual program. We believe this section could be clarified by inserting "at the request of a State," after "The Secretary shall . . .," in line 1 of section 4(c).

Section 4(d) provides for the conduct of State animal damage control programs on Federal lands, but allows the administrator of the public lands to impose the terms and conditions of such programs. The Western Association realizes that this provision is consistent with the rights of all landowners. However, the negative language in section 4(d) is not in keeping with the tenor of Federal-State cooperation expressed in other portions of the bill such as establishment of research objectives, inventory of predatory animals, dissemination of research findings, demonstration of control methods, emergency use of toxicants and implementation of programs. It is suggested that section 4 (d) be amended as follows: "The head of a Federal department, agency, or establishment shall cooperate with a State in the conduct

of a mutually acceptable program for the control of predatory and depreddating animals on lands subject to his jurisdiction.”

Mr. Chairman, I appreciate the opportunity to present the views of the Western Association on this important legislation. At their annual meeting, July 19, 1972, member States of the association endorsed H.R. 13152 and strongly urged its passage during the current Congressional session.

We urge your prompt and favorable action upon this measure.

Appended to this statement, I have a copy of the resolution that was adopted on July 19 by the association and as an example, a copy of a draft plan of the State of Oregon, which is really designed along the lines of the original 13152, and is not necessarily an end product.

Senator Moss. Those documents will appear in the records immediately following your statement. We are glad to have them.

Mr. McKEAN. In lieu of reading the statement of the International Association, I would like to make reference to it. It is largely repetitive, and it also voices support for H.R. 13152.

The International Association does make mention of another factor that I would like to get into the record, and this is on page two, about the center of the page—

Section 4(a) and Section 5(b) refer to emergency situations relating to use of chemical toxicants in state programs.

One such instance where emergency use would be possible is in the case of prevention of substantial irretrievable damage to nationally significant natural resources. We would urge that the Committee Report make clear that falling within the ambit of this provision, are instances where use of chemical toxicants may provide the only effective means to permit survival of other resident wildlife populations.

In the case of animal populations, control of high predator populations is often required to have animal survival.

In addition, attempts by state agencies to reintroduce wildlife species in areas of suitable or historic range where high predator populations are present, could be frustrated unless provision is made for emergency use of chemical toxicants.

Where other methods of control are ineffective, use of chemical toxicants should be available to reduce temporarily, the number of predators to a point where transplanted animals would be able to reach a survival threshold.

In our State, we have been successful in establishing populations of bighorn sheep and Merriam turkey. I question if we would have been, if we had not had a thorough, predator-control program, in order to get initial reproduction and establishment of the species.

Senator Moss. Thank you very much, Mr. McKean.

The actual statement of the International Association will be in the record, and we appreciate your emphasizing that particular point. Obviously there are emergency situations, and I am glad to have you underline them.

Do the western game commissioners believe that they can adequately manage the predator populations without poisons if we have these emergency provisions included that you emphasize there?

Mr. McKEAN. I think that most of the State departments are taking a wait-and-see attitude. We appreciate the public concern in this matter. We are willing to try it, and let future decisions rest on facts as they may develop. I personally have some questions.

Obviously, it is going to cost much more to provide the needed protection with other methods. It is a question of how much more and

whether it can be done at any price, and these are things we will learn by experience.

Senator Moss. You suggested the term "substantial irretrievable damage to nationally significant natural resources" should include resident wildlife populations. Would you have any objection to including domestic livestock under this phrase and dropping out the specific exemption for major damage to domestic livestock?

Mr. McKEAN. We feel this is all a matter of interpretation of nationally significant natural resources, on behalf of both wildlife and domestic animals. The policy does need to be flexible. There needs to be an opportunity to meet those exceptional conditions where there is a need for an action program.

I think it is a play on words myself. We are hopeful that the Secretary's interpretation of "nationally significant natural resources" would cover both wildlife and domestic livestock problems, but I think there is much apprehension on behalf of the livestock industry that the Secretary's interpretation may not recognize serious livestock loss problems.

Senator Moss. Since the promulgation of the executive order and the suspension action on chemicals by EPA, have any serious difficulties arisen in controlling predators in the Western States, and do you have any reports of dramatically increased livestock damage?

Mr. McKEAN. Mr. Chairman, it would be my opinion that the time interval is too short to reveal any significant change. These animal populations don't respond that rapidly to a change of public policy. It isn't logical that in the first year we would see a significant change.

Senator Moss. So you haven't heard of any dramatically increased livestock damage in just this short time?

Mr. McKEAN. We have problems, we had problems last year, and we have them this year. I would agree with Mr. Berryman that it would be difficult to ascertain that there has been any great increase in the problem within the last 6 months.

Senator Moss. What is your opinion of the poisoning program which was carried out before the Executive order? Was it successful in terms of preventing coyote predators?

Mr. McKEAN. We can't say that we did not have problems. So far as the State of Oregon is concerned, we have for many years had a cooperative program executed by the bureau, and we have been generally happy with the way the program has been conducted. There have been no serious impacts on any other part of our wildlife resource, and with the exception of the occasional loss of a domestic dog, no hazard for other domestic animals.

Apparently there are variations in the performance in different States, but in our State we have had a good program and our people have been generally satisfied with it.

Senator Moss. Do you feel that the maximum of \$300,000 a year for Federal assistance is going to be sufficient encouragement for the States to drop poisons from their predator control programs?

Mr. McKEAN. This is, again, a question that time will have to answer. There has been a forecast that it will cost 10 times as much to provide the same level of protection with traps and guns as we were able to secure with the use of toxicants, and if this is true, then the \$300,000 is going to be grossly inadequate.

Senator Moss. If we have to use aircraft to any great degree, that will be quite expensive, won't it?

Mr. MCKEAN. Right. Some of the areas in our State where we have the most depredation problems is timber country, and the aircraft would not be effective.

Senator Moss. Thank you very much, Mr. McKean, for your testimony and for your representation of the International Association, as well as the Western States Association of Fish and Game Commissioners. You gentlemen are on the frontline there dealing with the problem of our resident wildlife, and we are certainly glad to have your attention here. Thank you.

(The statement and material referred to earlier follows:)

STATEMENT OF JOHN MCKEAN, INTERNATIONAL ASSOCIATION OF GAME, FISH, AND CONSERVATION COMMISSIONERS

Mr. Chairman, I am John McKean, Director of the Oregon Game Commission and Vice-Chairman of the Predator Policy Committee of the International Association of Game, Fish and Conservation Commissioners. I appreciate this opportunity to testify in connection with H.R. 13152 and S. 3334 on behalf of the Association which numbers among its government members the wildlife agencies of all fifty States, the Commonwealth of Puerto Rico, and five Canadian provinces. It is the Association's purpose to coordinate efforts of public agencies responsible for protection and management of the wildlife of North America.

We support H.R. 13152 as approved by the House on July 17, 1972. The decision of the federal government to ban the use of chemical toxicants on public lands except in emergency situations and to in large measure transfer animal damage control programs to the states will have its greatest impact in the western states. State wildlife agencies are willing to shoulder this responsibility.

Because many of the traditional predators and rodents are resident species, we concur with the approach taken in H.R. 13152 that management should be in the hands of state wildlife agencies. There are two areas where we believe the House-passed measure could be improved. Both are in the nature of clarification. Section 4(a) and section 5(b) refer to emergency situations relating to use of chemical toxicants in state programs. One such instance where emergency use would be possible is in the case of prevention of substantial irretrievable damage to nationally significant natural resources. We would urge that the Committee Report make clear that falling within the ambit of this provision are instances where use of chemical toxicants may provide the only effective means to permit survival of other resident wildlife populations. In the case of antelope populations, for example, control of high predator populations is often required to improve antelope fawn production. In addition, attempts by state agencies to reintroduce wildlife species in areas of suitable or historic range where high predator populations are present could be frustrated unless provision is made for emergency use of chemical toxicants. Where other methods of control are ineffective, use of chemical toxicants should be available to reduce temporarily the number of predators to a point where transplanted animals would be able to reach a survival threshold.

In addition, section 4(d) of H.R. 13152 provides that where states undertake control programs on federally-owned lands the federal land administering agency may subject such programs to any such terms and conditions as it may impose. This provision may make it difficult for states to organize and conduct operational programs on some federal lands. We would urge that the provision in section 4(d) be amended so as to restrict the imposition of conditions to those deemed necessary to avoid interference with other uses of the land.

Mr. Chairman, with the above clarifications we support H.R. 13152. I would be willing to attempt to respond to any questions Members may have.

WESTERN ASSOCIATION OF STATE GAME AND FISH COMMISSIONERS

RESOLUTION NO. 28—ANIMAL DAMAGE CONTROL

Whereas, proposed legislation contained in H.R. 13152, entitled "Federal Animal Damage Control Act of 1972", outlines procedures for conduct of an animal damage control program through cooperative state and federal efforts.

reaffirms authority for management of resident wildlife by the states, provides for continuous federal funding assistance, stipulates that state cost-sharing funds contain a maximum of 10 percent of hunting, fishing and trapping license revenues and provides that federal funding assistance be contingent upon designation of the State Wildlife Agency as the organization responsible for program administration. Now, therefore, be it

*Resolved*, that the Western Association of State Game and Fish Commissioners hereby endorses and supports H.R. 13152, as passed by the House of Representatives, with the exception of Section 4(d) which it feels should be deleted or amended to provide for full cooperation of federal administrators in the conduct of an operational program within a state, and be it further

*Resolved*, that this resolution be sent to the Chairman of the Senate Committee on Interior and Insular Affairs and to the Secretary of the Interior.

Adopted July 19, 1972, Portland, Oregon.

Draft, MAY 5, 1972.

#### A PREDATOR MANAGEMENT PLAN FOR OREGON

The President's February 8 Executive Order banning the use of chemical toxicants on federal lands; the EPA order of March 10 prohibiting the registration, manufacture and interstate shipment of 19 chemical pesticides and H.R. 13152 proposing repeal of the 1931 Federal Animal Damage Control Act and elimination of all direct federal participation in that activity make it appropriate for the State of Oregon to consider alternative methods of providing required Predator and Rodent Control Services for protection of the resources and people of Oregon.

This plan was developed after thorough review of the information presented in the Cain Committee Report "Predator Control—1971" and the history and status of predator and rodent problems and programs in Oregon and other states.

*The plan* is premised upon the following assumptions and observations:

1. That all indigenous wildlife has a value and place in Oregon's environment.
2. That all wildlife populations are to be managed in a manner that is compatible with primary uses of land and waters of the state.
3. That the existing federal restraints on chemical control will be applicable until research or experience proves their fallacy and that the Congress will eliminate direct federal participation in predator control services.
4. That there is need for a statewide predator damage prevention service for protection of domestic livestock, farm and forest crops and wildlife resources.
5. That part of the responsibility for protection of property from wildlife should be shared by landowners and the general public.
6. That the diversity of environments and variations of wildlife density by time and space require a flexible management program.
7. That there is need for regulation and supervision of wildlife damage prevention programs to assure that safe and humane practices will be employed.

*The objectives* of this plan are as follows:

1. To provide an equitable and reasonable wildlife damage prevention service for rural landowners throughout the state.
2. To maintain all native wildlife at optimum levels.
3. To promote public recreational use of wildlife populations that are in conflict with other resources.
4. To protect rare or endangered wildlife.
5. To aid in the control of wildlife hosted diseases such as rabies, bubonic plague, tularemia, etc.

*Definition* of terms used in this plan are as follows:

"Wildlife"—all wild mammals, birds, amphibians, reptiles and game fish.

"Predator"—any unprotected species of wildlife that causes damage to other resources.

#### THE PROBLEM

In 1971, a total of 1,277 complaints of damage by predators was serviced by the Division of Wildlife Services in 25 cooperating counties. Reported confirmed and unconfirmed losses included 14,427 sheep and goats, 474 calves, 7,195 turkeys, 3,372 chickens, 670 other poultry, 15 pigs and 6 colts having a farm sales value of \$436,415. Reported damage to agricultural field crops by predators was estimated at \$78,160.

In 1971 approximately 65 percent of the mule deer fawns and 80 percent of the antelope fawns were lost during the first five months of life. An undefined part of the mortality was to predators.

In addition to the services provided through the Cooperative Predator and Rodent Control Program, the Oregon Game Commission serviced 1,458 complaints of damage to property by protected wildlife and spent over \$100,000 on investigations, fences, panels, repellents, and other services to alleviate those problems.

The seasonal and daily range of most species of wildlife precludes effective treatment of predation problems on an individual farm or animal basis and in the case of free-ranging sheep or protected wildlife there is some need for prophylactic population control over several ownerships frequently including public lands.

Variations of carnivore and prey densities create a need for a flexible management policy which permits protection of carnivores when high prey population densities make predation beneficial and vice-versa when prey populations are low and carnivores are dependent upon beneficial wild or domestic animals.

#### THE PROGRAM

It is recommended that the Oregon legislature delegate responsibility for management of predator populations to the Oregon Game Commission and provide general fund revenue for a modest statewide predator damage prevention service.

It is further recommended that the counties be authorized to supplement the state program when the local demand exceeds budgeted limits of the state program.

Recognizing the controversial nature of this program and the need for full consideration of all interests and values, it is recommended that a broad-based citizen advisory committee be created to carefully review all problems and programs and develop recommendations for consideration by the Game Commission and other responsible agencies. It is also suggested that the enabling legislation require approval of the Department of Agriculture for any regulation that would prohibit the taking of predators.

The practices to be employed in preventing damage by predators are:

1. Promotion and guidance of public hunting and trapping of predators in problem areas.
2. Provide technical advice and assistance for control or prevention of damage to livestock, farm crops, forest resources or public health, including: (a) Loan and placement of traps; (b) Aerial hunting where selective removal is required; (c) Distribution and application of repellents; and (d) Assistance in design and construction of fences and other mechanical protection.
3. Conduct research to evaluate employed practices and search for better methods of preventing damage.
4. In cooperation with the State Department of Agriculture, Department of Environmental Quality and Oregon State University, develop regulations and training programs for use of permitted chemical repellents, and safe, humane taking of problem animals.
5. Prescribe and regulate programs for the control of noxious rodents and birds.

#### IMPLEMENTATION

The predator management function can be integrated into the Game Commission's decentralized statement management program by employing 22 wildlife damage control technicians to service the 22 existing wildlife management districts within the agency's 5 administrative regions.

The need for close supervision and discipline in this function will require one staff supervisor in each of the 5 regions and one staff member in the Portland office to plan and coordinate the operation in concert with other responsible agencies and organizations. It is recommended that counties desiring to supplement the state program be authorized to employ and supervise control agents in compliance with state and federal regulations relating to management of predators and rodents or enter into an agreement with the Game Commission for additional services to be provided with county funds.

The program will be coordinated with the State Department of Agriculture, Oregon State University Extension Service, the State Department of Forestry,

the counties and other interested agencies. It is anticipated that much of the needed research for evaluation and development of control methods could be executed by Oregon State University and distributed to the interested public through the publications and offices of the Extension Service.

The Department of Agriculture's responsibility for registration and control of pesticides and pesticide applicators will aid in the regulation of control methods. Broadening of the existing pesticide clearing house to include extensive application of hazardous rodenticides by private landowners and surveillance of the manufacture and distribution of chemical toxicants are needed services that could be provided by the State Department of Agriculture.

It is planned that much of the aerial damage prevention service can be provided through off-season use of aerial fire control equipment of the State Department of Forestry.

The Extension Service would continue to provide a communication link between complainants and control technicians and distribute technical information relating to control methods to interested persons.

The Department of Forestry through the Forest Practices Act will supervise and regulate the use of rodenticides and insecticides on commercial forest lands.

#### PROGRAM COST

On the initial year an investment of about \$50,000 in traps, scare devices, radios and other equipment will be required. Maintenance of these items will require only a small expenditure of subsequent years. The program cost is estimated at approximately \$410,000 the first year and \$360,000 on subsequent years.

#### *Estimated Program Cost*

Salaries:	
22 Wildlife conservation technicians (\$7,128 per yr.)-----	156, 800
5 Game biologists 2 (\$11,604 per yr.)-----	58, 000
1 Game biologist 3 (\$13,452 per yr.)-----	13, 450
<b>Total salaries-----</b>	<b>\$228, 250</b>
Supplies and services:	
Mileage (550,000 miles)-----	\$55, 000
Aircraft rental-----	45, 000
Traps, steel (300 dozen)-----	<sup>1</sup> 21, 600
Traps, live (300 small animal, 10 culvert-type)-----	<sup>1</sup> 10, 000
Repellents and scare devices-----	8, 000
Radios (\$750/unit)-----	<sup>1</sup> 20, 500
Radio maintenance-----	1, 500
Travel and meals-----	7, 000
Office and supplies-----	5, 000
Other supplies-----	8, 150
<b>Total supplies and services-----</b>	<b>181, 750</b>
<b>Total program-----</b>	<b>410, 000</b>

<sup>1</sup> First year purchase only.

#### SOURCES OF REVENUE

In view of the fact that animal control is primarily an agricultural service program, it is not proper to place the financial burden selectively upon licensed hunters and anglers.

The program should be funded primarily from state and federal general fund revenues and it is anticipated that Congress will provide some level of assistance through H.R. 13152 or similar legislation.

With this formula the state's share of the cost would be:

First year-----	\$110, 000
Second year-----	160, 000
Third year-----	260, 000

The state's wildlife departments are collectively seeking continuancy federal aid for performance of predator and rodent control services and at this point it appears probably that some concession may be granted by Congress—particularly in the western public land states.



## APPENDIX A

## HISTORY AND STATUS OF PREDATOR AND RODENT CONTROL IN OREGON

(By R. H. Stein, Planning Coordinator, Oregon State Game Commission, April 20, 1972)

This report provides a concise summary of a part of the information considered in preparation of a Plan for Management of Predators in Oregon.

## HISTORY OF PREDATOR CONTROL IN OREGON

Predator control in Oregon began at the second "wolf meeting" in 1843 when bounties were authorized for wolf, cougar, bear and lynx. Coyotes were added to the bounty payment in 1911.

The federal government became involved in 1915 by hiring 13 trappers to control rabid coyotes in eastern Oregon. This pilot program was so effective that 64 trappers were hired the following year.

In 1923 the legislature agreed to cooperate with the federal predator control program and appropriated money for that purpose. The federal-state cooperation was on a permissive basis because Congress had not passed an enabling act formally authorizing federal participation. This was corrected in 1931 by passage of the federal Predatory Animal Control Act which gave the Bureau of Biological Survey broad authority to control predators.

A formal cooperative agreement was negotiated between interested state agencies and the federal government in 1957. Cooperators included the Oregon State Department of Agriculture, Oregon State Game Commission, Oregon State College Extension Service and the U.S. Fish and Wildlife Service. Responsibility for predator control was placed in the Department of Agriculture and rodent control was delegated to the college. Both agencies were ordered to cooperate with the Fish & Wildlife Service. (Exhibit 3).

A severe mouse infestation in eastern Oregon during 1958 created some problems in coordinating control operations and resulted in serious loss in migratory waterfowl in the Klamath area. Recognizing the need for flexibility in the use of the Predatory Animal Control Fund, the 1959 legislature included rabbits, rodents and birds destructive to agricultural crops as predatory animals and placed primary responsibility for control in the State Department of Agriculture. All funds were to be expended in Cooperation with the Fish and Wildlife Service.

The Oregon Predator and Rodent Committee was organized to act as a board for review and approval of the annual control program and budget. Membership of the committee included a representative of each cooperating agency. This administrative procedure is in effect at the present time.

## OREGON COOPERATIVE PREDATOR AND RODENT CONTROL PROGRAM

The federal predator and rodent control program is administered by the Division of Wildlife Services, Bureau of Sport Fisheries and Wildlife, Department of Interior. In 1971, a total of 42 district field assistants were employed by the Bureau and 3 assistants employed by counties to control predators and rodents. These men are supervised by four district supervisors and a state supervisor. The state central office is located in Portland with district offices in Portland, Roseburg, Bend and Pendleton.

During 1971, 25-counties participated in the cooperative program. Cooperators in the program and funding are shown below:

Cooperating agencies:	<i>Funds provided</i>
25 counties.....	\$230, 327
Bureau of Sport Fisheries & Wildlife.....	143, 940
State Department of Agriculture.....	45, 000
State Game Commission.....	40, 000
Bureau of Land Management.....	2, 717
Malheur Refuge.....	500
Timber industry.....	1, 430
<b>Total.....</b>	<b>463, 914</b>

The program operations are controlled by the Oregon Predator and Rodent Committee consisting of a representative of the major cooperators. A meeting is held annually to review and approve the coming year's program and the budget (See Exhibit 4).

## NEED FOR PREDATOR AND RODENT CONTROL

A questionnaire to Oregon counties, asking if a predator and rodent control program would be needed if the federal control program was abolished, brought a reply of *yes* by 31 counties and *no comment* from 5. An inquiry regarding payments of bounty revealed that 13 counties make bounty payments as follows:

Species	Counties making payments	Number of animals bountied 1971
Coyote.....	11	1,989
Bobcat.....	10	935
Fox.....	4	26
Moles.....	1	75
Gophers.....	1	75
Porcupine.....	2	3,110

An examination of Douglas County bounty payments revealed that 93 percent of the persons collecting bounties killed the animal in the process of other recreational pursuits, indicating that the predator would have been removed without the bounty incentive. Approximately 12 persons hunted coyotes for the sport involved, while four individuals were engaged in serious hunting. Approximately one-third of the animals bountied were taken during the big game seasons.

The 25 counties cooperating in the federal control program reported spending \$191,000 in 1971. Five counties conducted their own program and reported spending \$111,413. The 13 counties offering bounty payments spent \$22,449 for this purpose. The total amount spent by counties on predator and rodent control in 1971 was \$324,863.

All wildlife populations must be controlled to the extent that they are compatible with primary uses of the land and other wildlife. This precept applies to the game animals and predatory animals alike. Several studies have indicated that coyote predation can seriously affect deer or antelope when the predator population becomes excessive in relation to the prey population.

The Steens Mountain Mule Deer Study (Trainer, 1970)<sup>1</sup> indicates that 64 percent of the fawns are gone by the beginning of winter with predation a factor. A coyote scat study of 1,134 scats collected in the Steens during 1971 revealed 28 percent of the content was deer. Monthly comparisons of scat content indicated deer comprised 15 percent of the volume in April, 30 percent in May, 35 percent in June, 31 percent in July and 21 percent in August.

Oregon game biologists report that up to 65 percent of mule fawns and 85 percent of antelope kids may be lost the first few weeks following birth. It is believed that coyote predation is a major factor.

The Game Commission introduced 17 antelope in the Umatilla Ordnance Depot in 1969. Only one fawn per year survived to September in 1969 and 1970. A total of 146 coyotes were removed from the 20,000-acre area during the winter and spring of 1970-71. Census in the winter of 1971 revealed 13 antelope fawns present in the herd.

Analysis of coyote stomachs in northeastern Washington (Ogle, 1971)<sup>2</sup> found that an average of 41.6 percent contained deer and 17.4 percent of the total volume was deer. Coyote scats contained 53 percent deer remains. Fawns contributed to 59 percent of the deer remains in scats and stomachs.

Knowlton (1964)<sup>3</sup> studied coyote-deer relationships and from an analysis of 3,200 coyote scats discovered that deer comprised from 25 to 75 percent of the coyote diet. Telemetry studies (Cook, et al., 1971)<sup>4</sup> revealed that 53 percent of the radioed fawns were killed by predators and 22 percent lost were suspected victims of predation.

<sup>1</sup>Trainer, C. 1970. Steens Mountain Mule Deer Study. Oregon Game Commission.

<sup>2</sup>Ogle, T. F. 1971. Predator-Prey Relationships Between Coyotes and White-tailed Deer. N.W. Sci. 45:213-218.

<sup>3</sup>Knowlton, F. F. 1964. Aspects of Coyote Predation in South Texas With Special Reference to White-tailed Deer. Ph. D. Thesis. Purdue Univ., Lafayette, Ind. 189 pp.

<sup>4</sup>Cook, R. S., White, M., Trainer, D. O., Glazener, W. C. 1971. Mortality of Young White-tailed Deer Fawns in South Texas. J. Wildl. Mgmt. 35(1):47:56.

## FUNDING OF PROPOSED PROGRAM

Under the provisions of H.R. 13152 federal assistance would be available on a declining scale for three years. The proposed program would need the following amounts of state match money.

	State	Federal
1st year.....	\$110,000	\$300,000
2d year.....	200,000	200,000
3d year.....	300,000	100,000
4th year.....	400,000	0

Optimistically, the present federal legislation might be amended to provide continuing federal support. Realistically, this may be precluded by the national environmental concern for all wildlife.

Sportsmen can be expected to bear their fair share of the cost of predator control. They cannot be expected to shoulder an unproportionate amount for the purpose of protecting domestic crops and animals. The amount presently contributed from the sportsmen dollar is 10 percent of the proposed program. A modest increase might receive favorable approval by the hunting public, by the majority of the program should be paid by the beneficiaries through appropriation from the general fund. If individual counties desire services in addition to the proposed base program, the cost of increased control should be borne by the county.

## THE PRESIDENT'S EXECUTIVE ORDER 11643

This order issued February 8, 1972, basically prohibited:

- (1) Use of chemical toxicants for killing predatory mammals or birds on federal lands.
  - (2) Using any chemical toxicants which cause secondary poisoning effect for killing any mammals or birds.
  - (3) Using either type mentioned in (1) and (2) for any federal program.
- A copy of this order is included as Exhibit 5.

## THE SECRETARY OF INTERIOR'S ORDER OF FEBRUARY 10, 1972

Following the Executive Order, Rogers C. B. Morton announced that:

- (1) The Bureau of Sport Fisheries and Wildlife has stopped formulating, distributing or using poisons to kill predatory animals.
- (2) Poison baits previously placed would be retrieved.
- (3) Poisons causing secondary poisoning would not be used.
- (4) The Secretary would introduce legislation to abolish the federal predator control program.

This order is attached as Exhibit 6.

## ENVIRONMENTAL PROTECTION AGENCY ORDER MARCH 10, 1972

This order cancelled and suspended federal registration which subsequently prohibited interstate shipment of 19 products based on thallium sulfate, cyanide, strychnine and 1080. (See attached Exhibit 7)

*H.R. 13152 and S. 3334*

The Secretary of Interior's bill to abolish the federal predator control program was introduced in the House on February 16 and in the Senate on March 13. The two bills are identical. General provisions of the bills are:

- (1) Repeal of the federal Predatory Animal Control Act of 1931.
- (2) Authorizes 3-year phase in financing for state program provided: (a) No chemical toxicants are used and (b) State match money is appropriated by the legislature.
- (3) Federal funding: (a) First year \$300,000 maximum or 75%; (b) Second year \$200,000 maximum or 50%; (c) Third year \$100,000 maximum or 25%; and (d) Fourth year None.
- (4) Authorizes Interior to conduct predator control research (recommends \$1,000,000 for this purpose).
- (5) Prohibits using chemical toxicants for predatory animal and bird control on federal lands.
- (6) Prohibits using chemical toxicants having secondary poisoning effects for killing any mammal or bird on federal lands. (Exhibit 8)

## EXHIBIT NO. 3

## COOPERATIVE AGREEMENT

This agreement, entered into between the U.S. Fish and Wildlife Service, acting through the Bureau of Sport Fisheries and Wildlife, of the United States Department of the Interior, hereinafter known as the "Bureau" and the Oregon State Department of Agriculture, Oregon State Game Commission and Oregon State College Extension Service, hereinafter known as the "Cooperators", witnesseth, that,

Whereas, the Bureau is authorized by the Act of March 2, 1931 (46 Stat. 1468) and the Act approved August 14, 1946 (60 Stat. 1080), to provide assistance to and cooperate with states, individuals and public and private agencies, organizations and institutions in the control of predatory animals and rodents injurious to agriculture, horticulture, forests, animal husbandry and wild game, and;

Whereas, the Cooperators are authorized by law as follows: O.R.S.-610 (610.005-610.040) to cooperate with the Bureau in the control of predatory animals and injurious rodents, and desire to cooperate in such a program, and have funds available for that purpose; Now, therefore, it is mutually agreed as follows:

1. A program for the control of predatory animals and injurious rodents will be undertaken in the State of Oregon, and all operations as provided for by this agreement shall be under the direct supervision of the Bureau, in order that the work may be conducted in accordance with the latest improved practices and correlated with predator control programs carried on in adjacent areas.

2. The Regional Director or his designee, acting as the authorized representative of the Director of the Bureau shall confer annually, prior to the commencement of each fiscal year, with representatives of the Cooperators and agree in writing upon the program for the forthcoming year, including extent, types and area of program, financing, employment and fixing of compensation of personnel, and other general operating and financial details. The District Agent of the Bureau as program representative of the Regional Director, shall confer frequently with representatives of the Cooperators on details of operating the program.

3. To accomplish the intent and purpose of this agreement, the Bureau will finance the program from Bureau funds, including payments for salaries, auto mileage, supplies, equipment and other pertinent and necessary expenses. Costs of the program will be borne by the parties in the ratios agreed upon at the time of development of the program as provided in Section 2 hereof and the Bureau will render billings against each Cooperator for his share as hereinafter provided.

4. Bureau funds shall be expended in accordance with the laws, regulations, policies and practices applicable to the Bureau. Hunters and other field personnel employed in the program set forth in this agreement shall be Federal employees and subject to Federal laws, regulations and policies pertaining hereto. The salary rates of employees engaged in work under this agreement shall be fixed by the Secretary of Interior in accordance with existing procedures and the rates for personal property and equipment used by such employees shall be fixed and reviewed annually by the parties to this agreement not later than ninety (90) days before the beginning of the fiscal year; provided, however, that the salary rates of such employees shall be fixed and reviewed in the same manner as are rates for such personal property and equipment if and when authorized by any revision of existing procedures for fixing the salary rates of such employees. All accrued State annual and sick leave of an employee on the effective date of this agreement shall be combined with any Federal annual and sick leave he may have to his credit and be available to him.

5. All equipment classified as major accountable property, according to Bureau regulations and procedures, purchased for use in the program under this agreement shall be Bureau property and subject to the control, use and disposition of the Bureau in accordance with the purposes of this agreement.

6. Claims to be submitted to the Cooperators for reimbursement will be presented monthly by the Bureau in the manner and on such forms as may be required by the Cooperators and payment therefor by the Cooperators shall be accomplished within 30 days after date of billing.

7. The Bureau shall dispose of animals or pelts of value by private sale of individual specimen skins, by sealed bids to the highest bidder or through an established fur auction house and the proceeds of such sales shall be prorated between and paid to the parties to this agreement in the same ratio as the amount of funds each party hereto contributes to the program.

8. The Regional Director of the Bureau or his designee shall submit to the cooperating parties of this agreement an annual report at the end of each Federal fiscal year, including the following:

(a) A complete financial statement showing all expenditures made in carrying out this project.

(b) A summary of the findings, needs for future work, and information of interest and value to the program of control.

(c) A complete record of all personnel employed and an outline of work accomplished, and any other pertinent information.

Special reports will be rendered at any time upon request by the Cooperators, and in all reports and publications due credit shall be given to each of the parties hereto cooperating in said project.

9. This agreement and any continuation thereof shall be contingent upon the availability of funds appropriated by the Congress of the United States and funds available to the Cooperators for the purposes of this agreement.

10. Non-discrimination clause: In connection with the performance of work under this agreement each party agrees that he shall not discriminate against any employee or applicant for employment because of race, religion, or color, or national origin. The aforesaid provision shall include but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; lay-off or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The parties agree to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Bureau setting forth the provisions of the non-discrimination clause.

11. No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this agreement, or to any benefit that may arise therefrom; but this provision shall not be construed to extend this agreement if made with a corporation for its general benefit.

12. This agreement rescinds the current agreement dated April 11, 1951 and shall be in effect from July 1, 1957 to June 30, 1958 but shall automatically renew itself annually thereafter unless written notice to the contrary is given by either party to the other party ninety (90) days in advance of the anniversary date. Upon termination of this agreement the Cooperators shall reimburse the Bureau for their proportionate share of all obligations created by the Bureau as a result of this agreement and not previously reimbursed. In addition any costs incurred as a result of the liquidation of this agreement shall be prorated between the parties to the agreement in proportion to their annual contribution to the program.

In witness whereof the duly authorized officers of the parties hereto have executed this agreement on the dates shown opposite their respective signatures.

\_\_\_\_\_, \_\_\_\_\_,  
Director, State Dept. of Agriculture.

\_\_\_\_\_, \_\_\_\_\_,  
Director, Oregon State Game Commission.

\_\_\_\_\_, \_\_\_\_\_,  
Director, Oregon State Extension Service.

\_\_\_\_\_, \_\_\_\_\_,  
Director, U.S. Fish and Wildlife Service.

## EXHIBIT NO. 4

1971

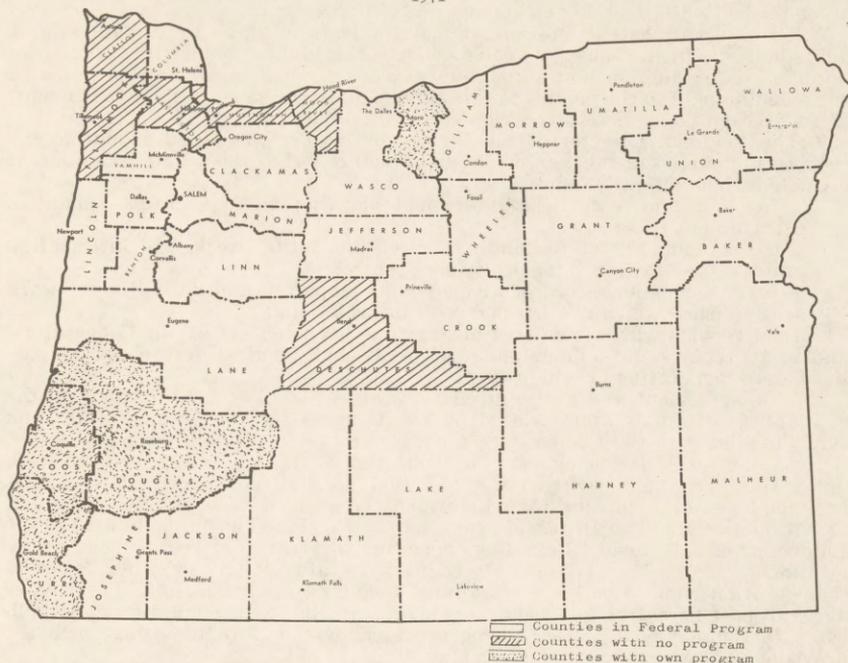


EXHIBIT #4

## EXHIBIT NO. 5

For release at 12 noon EST February 8, 1972, Office of the White House Press Secretary, the White House

## EXECUTIVE ORDER

ENVIRONMENTAL SAFEGUARDS ON ACTIVITIES FOR ANIMAL DAMAGE CONTROL ON FEDERAL LANDS

By virtue of the authority vested in me as President of the United States and in furtherance of the program and policies of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et SEQ) and the Endangered Specie Conservation Act of 1969 (16 U.S.C. 668aa) it is ordered as follows:

*Section 1, Policy.*—It is the policy of the Federal Government to (1) restrict the use on federal lands of chemical toxicants for the purpose of killing predatory mammals and birds; (2) restrict the use on such lands of chemical toxicants which cause any secondary poisoning effects for the purpose of killing other mammals, birds or reptiles, and (3) to restrict the use of both such types of toxicants in any federal programs of mammal or bird damage control that may be authorized by law. All such mammal or bird control programs shall be conducted in a manner which contributes the maintenance of environmental quality; and to the conservation and protection to the greatest degree possible, the Nation's wildlife resources, including predatory animals.

*Section 2, Definitions.*—As used in this order the term: (a) "Federal lands" means all real property owned by or leased by the federal government, excluding 1. lands administered by the Secretary of the Interior pursuant to his trust responsibilities for Indian affairs, and 2. real property located in metropolitan areas.

(b) "Agencies" means the departments, agencies and establishments of the executive branch of the federal government.

(c) "Chemical toxicant" means any chemical substance which when ingested, inhaled, or absorbed, or when applied to or injected into the body, in relatively

small amounts, by its chemical action may cause significant bodily malfunction, injury, illness, or death, to animals or man.

(d) "Predatory mammal or bird" means any mammal or bird which habitually preys upon other animals or birds.

(e) "Secondary poisoning effects" means the result attributable to a chemical toxicant which, after being ingested, inhaled, or absorbed, or when applied to or injected into, a mammal, bird or reptile, is retained in its tissues or otherwise retained in such a manner and quantity that the tissue itself or retaining part if thereafter ingested by man, mammal, bird or reptile, produces the effect as set forth in paragraph C of this section.

(f) "Field use" means used on land, not in, or immediately adjacent to occupied buildings.

*Section 3, Restrictions on use of chemical toxicants.*—(a) Heads of agencies shall take such action as is necessary to prevent on any federal lands under their jurisdiction, or in any federal program for animal damage control under their jurisdiction: (1) the field use of any chemical toxicant for the purpose of killing any predatory mammal or bird; or (2) the field use of any chemical toxicant which causes secondary poisoning effects for the purpose of killing mammals, birds, or reptiles.

(b) Notwithstanding the provisions of subsection (a) of this section, the head of any agency may authorize the emergency use on federal lands under his jurisdiction of a chemical toxicant for the purpose of killing predatory mammals or birds, or of a chemical toxicant which causes a secondary poisoning effect for the purpose of killing other mammals, birds or reptiles, but only if in each specific case he makes a written finding, following consultation with the Secretaries of Interior, Agriculture, Health, Education & Welfare, and the administrator of the Environmental Protection Agency that an emergency exists that cannot be dealt with by means which does not involve use of chemical toxicants and that such use is essential: (1) to the protection of health or safety of human bodies; (2) to the preservation of one or more wildlife species which are threatened with extinction; or likely within the foreseeable future to become so threatened; or (3) to the prevention of substantial irretrievable damage to nationally significant natural resources.

*Section 4, Rules for implementation of Order.*—Heads of agencies shall issue such rules or regulations as may be necessary and appropriate to carry out the provisions and policy of this order.

(Signed) RICHARD NIXON.

THE WHITE HOUSE, February 8, 1972.

#### EXHIBIT NO. 6

U.S. DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY.

News Release for release February 10, 1972.

#### USE OF ALL POISONS BANNED IN ANIMAL DAMAGE CONTROL PROGRAMS

Secretary of the Interior Rogers C. B. Morton announced today that his Department's Fish & Wildlife Service has ceased to formulate, distribute, or use poisons for killing predatory animals on Federal lands.

His action implements a new presidential order directing drastic overhaul of the animal damage control program on public lands both with administrative changes and proposed new legislation.

Toxicants on hand are being held and retrieval of baits already placed in the field has begun. All baits will be removed as quickly as weather and terms of current agreements with cooperators will permit.

"President Nixon's message on the environment demonstrates that he means business—and so does the Department of Interior," Secretary Morton said. "We are moving ahead with both administrative and legislative remedies to correct a situation that needs reform."

As ordered by the President, use is also being halted of toxic chemicals with "secondary poisoning effects". These are poisons deemed that the prey of predators, such as rodents, birds and other creatures, whose carcasses could contain dangerous residues of poisons.

Exceptions to these bans will be made only if the use of poisons is required to protect human life, health or safety; to preserve a wildlife species threatened with extinction or likely soon to become so threatened; or to prevent substantial

irretrievable damage to nationally significant natural resources, under such circumstances each exception would have to be specially justified by a written report, prepared following consultation with the Secretaries of Interior, Agriculture, Health, Education, and Welfare and the administrator of the Environmental Protection Agency, determining that the emergency cannot be dealt with except by use of poisons.

Fish and Wildlife Service personnel and available cooperating personnel are authorized to continue to protect crops and livestock by using nonchemical techniques such as trapping, shooting, or denning (removal of young) in those states where these practices are legal under local laws.

Legislation is being proposed to Congress by Secretary Morton to abolish direct Federal participation in predator control activities, to provide intensified research to develop safer control methods, and to investigate predatory species fully. This information would be provided to the states.

In addition, the proposed bill would provide for a three year phased period for the states to assume responsibility for animal damage control programs on a matching fund grant-in-aid basis. Until such legislation is passed, the Service will continue to conduct its program without using poison.

Assistant Secretary of the Interior Nathaniel P. Reed, who heads Interior's program for Fish, Wildlife and Parks, stated: "We recognize that a difficult transition period is ahead. We intend to do our best to minimize any potential problems by cooperating fully, within the constraints of the new National and Interior policies, with all individuals and organizations that are involved with animal damage control programs."

Reed commended the Service personnel who have conducted the control program as "men who have carried on a controversial program in a responsible manner under difficult circumstances, in accordance with the mandates of the Congress and Federal policy. We have now moved into a period of public concern where changes are possible."

The problem of cooperative predator control programs administered by the Interior Department was highlighted by Secretary Morton last July 9, in a speech to the National Wildlife Federation Conservation Summit at Estes Park, Colorado.

At that time, Mr. Morton announced appointment of a blue ribbon task force to study predator control programs throughout the country. Sponsored jointly by Interior and the Council of Environmental Quality, the task force was made up entirely of wildlife management experts from various universities and chaired by Dr. Stanley Cain of the University of Michigan.

The group's 207-page report, calling for major changes in predator control techniques, was released this week. Titled "Predator Control—1971. Report to the Council on Environmental Quality and the Department of the Interior by the Advisory Committee on Predator Control", it is available in limited quantities by writing to the Director, Bureau of Sport Fisheries and Wildlife, Department of the Interior, Washington, D.C. 20240.

#### EXHIBIT NO. 7

ENVIRONMENTAL PROTECTION AGENCY,  
Washington, D.C.

For release p.m.'s Friday, March 10, 1972.

#### EPA STOPS SHIPMENT OF PREDATOR-CONTROL PESTICIDES

The Environmental Protection Agency today ordered an immediate halt to the interstate shipment of all pesticides registered for use in controlling predatory animals, plus a halt to one pesticide, thallium sulfate, registered for use in rodent control, but applied widely to control predators.

At the same time, EPA initiated action for voluntary recall of all outstanding stocks of these predator control poisons from warehouses and shelves of distributors and dealers, and made suggestions for ranchers and farmers to follow in returning stocks of the predator control pesticides already in their possession.

EPA's action today involved the suspensions and cancellation of federal registration for 19 products that are based on four major compounds—thallium sulfate, cyanide, strychnine, and sodium monofluoracetate (1080). Two additional products containing thallium sulfate were suspended by EPA last June as the probable cause of the death of approximately twenty eagles in Wyoming.

In taking the action, EPA administrator, William D. Ruckelshaus, made it clear that the federal government is fully aware of the urgent need of ranchers and farmers to control predators. With that in mind, the government is initiating a major program to help ranchers and farmers use effective alternatives to poisons for predator control.

Ruckelshaus explained that the present action against predator poisons is being taken because "the evidence indicates that these chemicals represent an imminent hazard to the public welfare through the indiscriminate destruction of our valuable wildlife resources."

EPA's action follows an executive order that barred the use of poisons for predator control on public lands or by Federal officials, except in emergencies. Ruckelshaus said that in proved emergency circumstances, EPA would be prepared to take appropriate action.

The EPA administrator pointed out that there are alternative methods available so that ranchers and farmers can protect their livestock from predators which are actually preying on the stock.

One of the alternatives, he pointed out, is supervised shooting and trapping, particularly during the lambing season. To help with this program, approximately 750 Federal and Cooperative personnel have been specially assigned to work with livestock associations and ranchers.

As a further aid, there is legislation now pending before Congress which would authorize the U.S. Department of the Interior to provide financial assistance to any state wishing to initiate an approved program for predator control. Such an approved program would be one that does not allow the field use of chemical toxicants for predator control or for other uses which have secondary poisoning effects, except on an emergency basis. One of the major benefits to the rancher from this program should be development of better methods of predator controls. Several states have already indicated their intent to begin such programs.

As still another federal aid, the Interior Department plans an intensified research effort to develop non-lethal, more selective methods for controlling predators. These methods will include repellants, conditioning of the attack mechanism in coyotes, and similar new approaches that will protect livestock while leaving the predators and desirable species unharmed.

Today's suspension-cancellation measures by EPA do not affect urban and other programs for control of rats and other disease-bearing or undesirable rodents, Ruckelshaus said. However, EPA anticipates that decisions will be reached in the near future upon completion of an agency review of these uses.

Although thallium sulfate products are registered for rodent control, instances of thallium poisoning of humans and bootlegging of the compound for killing predators have been reported. It is a persistent chemical which will remain indefinitely in the soil and has a tendency to be stored in the human body.

Registration of the last remaining nine thallium sulfate products was withdrawn today on the basis of these hazards and also because alternative rodent control methods are available, the EPA said.

Cyanide, strychnine, and 1080 were barred from the market for predator control because of their highly toxic effect on non-target species. The poisons are used as unattended baits and are spread over the open prairie where they are eaten by non-target animals as well as by badgers, coyotes, foxes, and other predators.

Additionally, secondary poisoning effects can result if eagles or other species feed on the flesh of an animal poisoned by 1080.

The Agency said that existing stocks of predator chemicals already shipped or on dealers' shelves are relatively small. It is anticipated that these chemicals will be recalled by the registrant with a minimum of difficulty.

Formal notification of the suspension and cancellation action is being given to registrants of the products with a request that they issue stop sale orders to all consignees of the products. Regional EPA personnel will work closely with the registrants in supervising the recall of the products.

In addition, Ruckelshaus requested cooperation from farmers and ranchers who have stocks of the poisons. Said Ruckelshaus: "We are asking ranchers to cooperate in our recall program by returning stocks of thallium sulfate, strychnine and cyanide being held for predator control to the manufacturer or distributor. Where this is impracticable, ranchers should store stocks on hand and immediately notify the enforcement section of the nearest EPA regional office, which will advise them of a location where they may turn in these poisons." (EPA had ten regional offices across the country).

EPA is independently checking the manufacturers and their distributors to learn who may have stocks of these poisons on hand.

## EXHIBIT NO. 8

[H.R. 13152, 92d Congress, 2d sess.]

A BILL To authorize the Secretary of the Interior to assist the States in controlling damage caused by predatory animals; to establish a program of research concerning the control and conservation of predatory animals; to restrict the use of toxic chemicals as a method of predator control; and for other purposes

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That this Act may be cited as the "Federal Animal Damage Control Act of 1972".

SEC. 2. For the purpose of this Act—

(a) the term "person" means any individual, organization or association, including any department, agency, or instrumentality of the Federal Government, a State government, or a political subdivision thereof;

(b) the term "State" means the several States of the Union, Puerto Rico, Guam, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands, and the District of Columbia, but shall not include any political subdivision of the foregoing entities;

(c) the term "chemical toxicant" means any chemical substance which, when ingested, inhaled, or absorbed, or when applied to, or injected into the body, in relatively small amounts, by its chemical action may cause significant bodily malfunction, injury, illness, or death to animals or man;

(d) the term "predatory animal" means any mammal, bird, or reptile which habitually preys upon other animals; and

(e) the term "secondary poisoning effect" means the result attributable to a chemical toxicant which, after being ingested, inhaled, or absorbed by or into, or when applied to or injected into a mammal, bird, or reptile, is retained in its tissue, or otherwise retained in such a manner and quantity that the tissue itself or retaining part if thereafter ingested by man or another mammal, bird, or reptile, produces the effects set forth in subsection (c) hereof.

(f) the term "field use" means any use on lands not in or immediately adjacent to occupied buildings.

SEC. 3. (a) In order to assist the States in controlling damage caused by predatory animals, birds, and field rodents, and in order to encourage the use by States of predatory control methods which are consistent with accepted principles of wildlife management and the maintenance of environmental quality, the Secretary of the Interior (hereinafter referred to as the "Secretary") is authorized to conduct directly or by agreement with qualified agencies or institutions, public and private, a program of research which shall concern the control and conservation of predatory and depredating animals and the abatement of damage caused by such animals.

(b) The program of research authorized by subsection (a) hereof shall include, but need not be limited to (1) the testing of methods used for the control of predator and depredating animals and the abatement of damage caused by such animals; (2) the development of effective methods for predator control and the abatement of damage caused by predatory animals which contribute to the maintenance of environmental quality and which conserve, to the greatest degree possible, the Nation's wildlife resources, including predatory animals; (3) a continuing inventory of the Nation's predatory animals, and the identification of those species which are or may become threatened with extinction; and (4) the development of means by which to disseminate to States the findings of studies conducted pursuant to this section.

(c) The Secretary is authorized to conduct such demonstrations of methods developed pursuant to subsection (b) and to provide such other extension services as may be reasonably requested by the duly authorized wildlife agency of any State.

SEC. 4. (a) In furtherance of the purposes of this Act, the Secretary is authorized to provide, in the three fiscal years following enactment, financial assistance to any State which may annually propose to administer a program for the control of predatory animals. To qualify for assistance under this section, any such State program must be found by the Secretary to meet such standards as he may, by regulation, establish: *Provided, however,* That the Secretary shall not approve any such State program which entails the field use of chemical toxicants for the purpose of killing predatory animals or the field use of any chemical toxicant which causes any secondary poisoning effect for

the purposes of killing other mammals, birds, or reptiles: *Provided further, however*, That he may approve a State program which entails such emergency use of chemical toxicants as he may authorize, in each specific case, for the protection of human health or safety; the preservation of one or more wildlife species threatened with extinction or likely within the foreseeable future to become so threatened, or for the prevention of substantial irretrievable damage to nationally significant natural resources.

(b) An annual payment under subsection (a) hereof may be made to any State in such amount as the Secretary may determine: *Provided, however*, That no such annual payment shall exceed an amount equal to 75 percent in the first year, 50 percent in the second year, or 25 percent in the third year, of the cost of the program approved under subsection (a) hereof: *And provided further*, That no such annual payment to any State shall exceed \$300,000 in the first fiscal year following enactment, \$200,000 in the second fiscal year following enactment, or \$100,000 in the third fiscal year following enactment. No payment otherwise authorized by this section shall be made to a State whose share, in whole or part, of the cost of the program approved under subsection (a) hereof is to be paid from funds not appropriated by its legislature.

(c) There is hereby authorized to be appropriated for the purposes of this section \$3,000,000 in fiscal year 1973, \$2,000,000 in fiscal year 1974, and \$1,000,000 in fiscal year 1975.

SEC. 5. (a) No person shall (1) make field use of any chemical toxicant on any Federal lands for the purpose of killing predatory animals; or (2) make field use on such lands of any chemical toxicant which causes any secondary poisoning effect for the purpose of killing other mammals, birds, or reptiles: *Provided, however*, That nothing in this section shall be deemed to affect the administration of lands held in trust for Indians.

(b) Notwithstanding subsection (a) hereof, the head of a Federal department, agency, or establishment may authorize on lands subject to his administrative jurisdiction the emergency field use of a chemical toxicant for the purpose of killing predatory animals or of a chemical toxicant which causes a secondary poisoning effect for the purpose of killing other mammals, birds, or reptiles, but only if in each specific case he makes a written finding, following consultation with the Secretaries of the Interior, Agriculture, and Health, Education, and Welfare, and the Administrator of the Environmental Protection Agency, that an emergency exists that cannot be dealt with by means which do not involve use of chemical toxicants, and that such use is essential—

(1) to the protection of human health or safety;

(2) to the preservation of one or more wildlife species threatened with extinction or likely within the foreseeable future to become so threatened; or

(3) to the prevention of substantial irretrievable damage to nationally significant natural resources.

(c) Any person convicted of any violation of this section, or of any regulation promulgated under this Act, shall be fined not more than \$10,000 or imprisoned for not more than one year, or both.

SEC. 6. Heads of Federal departments, agencies, or establishments are hereby authorized to issue such regulations as may be necessary to carry out the purposes of this Act.

SEC. 7. There is hereby repealed in its entirety the Act of March 2, 1931 (7 U.S.C. 426-426(b)), pertaining to the eradication and control of predatory and other wild animals.

SEC. 8. Nothing in this Act shall be construed as superseding or limiting the authorities and responsibilities of the Administrator of the Environmental Protection Agency under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended.

SEC. 9. Except as otherwise provided in section 4 hereof, there is hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this Act.

Senator Moss. Mr. Thomas Garrett, representing Friends of the Earth and Defenders of Wildlife. Is Mr. Garrett here?

I don't see Mr. Garrett. He may place his statement in the record, or if he should come tomorrow, we will try to make time for him then.

That completes the list of witnesses this morning. We will have a hearing in this same room tomorrow morning for additional witnesses on this important matter before us.

I think what we have heard this morning indicates that the matter has many problems yet to be resolved, and we are pleased with the witnesses who have come to give us their views so that the committee may deal with those problems and the conflicts of interest that exist.

We will now be in recess until tomorrow.

(Whereupon, at 12 noon, the hearing was adjourned, to reconvene at 10 a.m., Tuesday, August 8, 1972.)

## FEDERAL ANIMAL DAMAGE CONTROL ACT OF 1972

TUESDAY, AUGUST 8, 1972

U.S. SENATE,  
COMMITTEE ON COMMERCE,  
ENVIRONMENTAL SUBCOMMITTEE,  
*Washington, D.C.*

The subcommittee met at 10 a.m. in room 5110, New Senate Office Building, Hon. Frank E. Moss, presiding.

Present: Senator Moss.

Senator Moss. The hearing will come to order. As is customary now, we are under great pressure of time, and we must proceed with expedition. I have a brief opening statement that I intended to make. I will ask that it be inserted in the record.

### OPENING STATEMENT BY SENATOR MOSS

This is a continuation of the hearings begun yesterday on H.R. 13152, S. 3334, and related bills dealing with control of predators. Yesterday we heard testimony from the Department of the Interior stating that they are optimistic about new, nontoxic methods used for the control of predators. They also reported that the Department had increased their efforts to help livestockmen in the West by setting up a special office in Denver this spring, and that losses to sheepmen when averaged over the entire West, did not appear to be higher than previous years.

Mr. John McKean, testifying for the Western States Association of Game and Fish Commissioners and the International Association of Game, Fish, and Conservation Commissioners, supported this position by saying that populations of species do not grow rapidly enough to have caused tremendous increases in predation this year.

Yesterday, we heard broadbased support for the ban on the use of poisons from Senators, the Administration, and associations, arguing that poisons had limited effect in controlling predators, that other methods could be used, and that society valued the preservation of species threatened by poisons.

Today I am sure that we will hear some strong opposition to those views, as well as further support. Our first witnesses will be a panel of representatives from associations of wool growers. Gentleman, we welcome you to the witness stand.

I was going to comment briefly on testimony that we had yesterday, which was of great importance, but today we have a very full list of witnesses to be heard, and we want to hear them. I would ask the witnesses, if possible, to follow my lead and insert in the record their

prepared texts and summarize them for us as best they can, touching the points that need to be emphasized in order that all may have a chance to testify.

I also will order that the record be kept open until the 25th of August for additional statements that may come in. This is prompted in part by the request of my own Governor who called me on the phone yesterday saying he could not be here, but he would like to file a written statement.

I granted that, and told him the order would be made that he could file his statement in writing and it would be part of the record. That same courtesy will be extended to others who may wish to have their statement presented for the committee to study.

We will begin today on our hearing by recognizing the Honorable Lloyd M. Bentsen, Jr., Senator from Texas. Incidentally, I just came from another hearing over which I was presiding, and the senior Senator from Texas was testifying down there. This must be Texas day.

We are very pleased to have Senator Bentsen here this morning. I understand he has with him a fellow Texan that he would like to introduce to us.

#### **STATEMENT OF HON. LLOYD M. BENTSEN, JR., U.S. SENATOR FROM TEXAS**

Senator BENTSEN. Thank you for the opportunity to appear before you on this important piece of legislation. Your concern and interest in this has long been known as your contributions have, also.

I have the pleasure of introducing this morning a friend of mine, Mr. John Cargile, who is of San Angelo. He is the president of the Texas Sheep and Goat Raisers Association. This is a man who has been in the livestock and ranching business since he was old enough to sit on a horse.

He is a man who has long been interested in conservation of wild-life. It is a practice of practically all ranchers to try to see that they are protected, in conditions in which they can propagate. This man has a concern for the problem. I think he is an objective man, a man intimately familiar with the sheep industry, and I think he will make a contribution in his comments before this committee.

I have some remarks of my own, and in line with the recommendations of the distinguished chairman, I will introduce those for the record if I may.

#### **STATEMENT OF HON. LLOYD M. BENTSEN, JR., U.S. SENATOR FROM TEXAS**

Mr. Chairman, I want to thank you for permitting me to testify before this Subcommittee today. I am only sorry that these hearings did not precede the President's Executive Order limiting chemical toxicants for predator control instead of following it.

I certainly do not want to debate the findings of the study done by the Advisory Committee on Predator Control which prompted the President's Executive Order. However, I cannot allow some of the conclusions made by the study to go unchallenged.

My experience as a rancher and farmer, and my associations with leading veterinarians in the State of Texas, have convinced me that some chemical methods are both effective and selective in the control of predators, and much sounder in the ecological and humane sense than some of the alternatives which would follow if this legislation as proposed now is adopted. For example, the

carcass of an animal killed by the cyanide gun does *not* cause secondary poisoning in other animals. A gas cartridge is embedded in fetid bait which is attractive only to the predatory animal. The animal's pulling on this bait triggers the mechanism firing the gas directly into the animal's lungs where it there evaporates immediately after being fired.

There is no more humane method of control. The killing is both instantaneous and painless, while other methods like foot traps are notably ineffective, indiscriminate and often brutally painful. I mention this kind of humane killing and secondary poisoning effect because I know these were of considerable importance in the President's decision to ban chemical toxicants. I, therefore, must question the total ban put into effect by the Executive Order. And while I agree with the motivation of sincere individuals who want to preserve wildlife, I question the effect of the legislation as now written.

Mr. Chairman, to pretend that predators do not do extensive damage to livestock and other wildlife is a mistake. Anyone familiar with the practical problems of ranching can recite the numerous animal losses attributable to predators.

In 1971, the Texas Crop and Livestock Reporting Service in conjunction with the Statistical Reporting Service of the United States Department of Agriculture reported that 32% of all sheep deaths in Texas during the period from January 1 to July 1 were directly attributable to predators. A similar study done in 1967 by the Cotton Economic Research Service using statistics from the Texas Department of Agriculture and the United States Department of Agriculture estimated that the initial agribusiness loss from predators to be almost \$5 million in my State alone. I hope the Commerce Committee will realize the significance of predator damage to the sheep and wool industry in Texas, and the possible disastrous ramifications the President's Executive Order could have on those directly and indirectly involved with the industry.

I commend my House Colleagues for their understanding of this situation. The Committee on Merchant Marine and Fisheries recommended increased funding for the Administration's bill transferring the predator control program from the Federal Government to State Governments.

In comparison with the Administration's bill, the House-passed bill would extend indefinitely the period in which federal financial assistance would be available to a state for implementation of an improved predator control program rather than the original three-year time period as suggested by the Administration.

It also increases to 75% in the first two years and 50% indefinitely in succeeding years the maximum share of state program costs rather than the original Administration formula of 75% the first year, 50% the second year and 25% the third year with nothing thereafter.

It increases to \$300,000 in the first two years and to \$200,000 indefinitely in succeeding fiscal years the maximum amount that could be paid to any single state. The Administration bill would have allowed only \$300,000 the first year, \$200,000 the second year, and \$100,000 the third year, with nothing thereafter.

I strongly recommend that this Committee take similar action and increase the Administration's bill to the equivalent House figures or to insert higher figures. If not, state governments will have to assume the monetary burden for a program that, if under-funded, could be plagued both by ineffectiveness and abuses.

Mr. President, let me re-emphasize my strong feelings about protection of wildlife. I do not favor extinction of a species. However, at the same time, I do not favor removing sensible tools that can do a job better, more humanely and without affecting the food chain. I am convinced that with limited and strictly supervised controls that certain chemicals, like the cyanide gun can actually enhance the balance of nature. Certainly an over abundance of coyotes could be as potentially dangerous to the ecological chain as could too few of these animals.

The President's Executive Order effectively took away what traditionally had been a government sponsored program in cooperation with individual states and the livestock industry to control the very real damage done by predators. But now the government has an obligation to assist in this transition period when it turns over to individual states the responsibility for predator control.

The sheep and wool industry has been dependent in the past on the government, more specifically, the Department of Interior for assistance with predator control programs. The President's Executive Order did stop the use of chemical toxicants in these programs, but it did not stop the damage that continues by

predators to domestic stock and wildlife. An ineffectual predator control program will seriously threaten other wildlife, such as deer and antelope.

Mr. Chairman, I applaud the efforts of conservationists and their conscientious attempts to eliminate the needless slaughter of wildlife. As a rancher, I have always appreciated the aesthetic enjoyment derived from the raising and care of animals. And as a man who has backpacked through some of the most beautiful country in Texas and other parts of the United States, my love for the outdoors has always been enhanced by the sight of wildlife roaming free in a natural setting.

What is reasonable is that this Subcommittee be attentive to the real problem that exists for the sheep and wool industry, and to take purposeful action to assist that industry to overcome the prohibition of a program upon which it has heavily relied.

Senator BENTSEN. I would like to present Mr. John Cargile. I have another hearing that I have to attend. As you say, this is Texas Day.

Senator MOSS. Thank you very much. We are pleased to welcome you, Mr. Cargile, and we are going to have others of your colleagues come and join you at the table. We will be most pleased to hear your testimony.

I think Senator McGee is here and would like to introduce one or two of his fellow citizens from Wyoming. Senator McGee, would you come forward? We are going to have the woolgrowers sit as a panel. We have several of them here, and I would like to bring them up now.

Mr. Cargile, remain at the table, if you will, sir. Mr. Vivion is the president of the woolgrowers and he is accompanied by a number of woolgrowers representing various States of the Union. I understand Wyoming has the greatest sheep population, is that correct?

Senator MCGEE. That is correct.

Thank you, Mr. Chairman. Lloyd introduced Mr. Cargile, who has been in the business since he was old enough to sit a horse. I am still not able to sit on a horse, but I am still trying.

I have a very eloquent, telling, and decisive statement on this question that I would like to have put in the record.

Senator MOSS. Very good, it will be placed in the record.

#### STATEMENT OF HON. GALE MCGEE, U.S. SENATOR FROM WYOMING

Senator MCGEE. I have two colleagues here to speak of, and I do that for a reason. They are both former students of mine at the University of Wyoming. Vern Vivion is the president of the National Wool Growers; Bill Mau is the president of the Wyoming State Wool Growers. The reason that I wanted to put in my 2 cents worth at the same time as these former students is that we have been involved with this question very deeply for a rather long time, as has the chairman of this committee.

For right or wrong reasons, however they turn out, we developed in the sheep industry in Wyoming a dependence on some of the deterrents in predator control which are now being questioned. We understand the difficulties and the problems that we now face in the wake of some of these chemicals.

But my point is that after 20 years or more of dependence we do plead for some understanding as we try to make our own adjustments and our own changes to shift over to another kind of approach. The men that I know in this industry are as interested as you are and as

I am in arriving at this new structure, whatever we may in our collective wisdom decide it ought to be.

But we are only asking that we not be wiped out now, that we be assisted in this transition. It is very difficult. There are many things we don't know yet about the predator question. We are all very mindful of its complexities. We are still looking for answers. I have just come from my own Agriculture Appropriations Committee, in which we have supplied some extra funds above the Bureau of the Budget, an old line these days, demanding that it be spent on new research in breakthroughs on predator controls, on repellants, for example, and other things that can help us to keep in balance the whole problem of environmental good sense.

So it is with that in mind that I wanted to present Vern Vivion and Bill Mau in particular and their colleagues. I will take credit for the whole choir that is assembled here. I am involved in foreign relations, and I have a battle there. I hope I might be forgiven for leaving before the eloquent testimony.

Senator Moss. Thank you very much, Senator. You certainly may be excused. I understand the demands on all Senators at this time. Your remarks that you have prepared in writing will be in the record, and we are pleased to have you come and introduce your two fellow citizens from Wyoming.

(The statement follows:)

STATEMENT OF HON. GALE MCGEE, U.S. SENATOR FROM WYOMING

Mr. Chairman, thank you for the opportunity to testify here today before your Subcommittee on the problem of predator control legislation. As you are probably aware, the problems generated by the federal predator control program have been of long-standing interest to me, and I have spent considerable time reviewing existing and alternative policies during hearings conducted before my Appropriations Subcommittee on Agriculture, Environmental and Consumer Protection.

On February 8 of this year, President Nixon radically altered the federal program that had existed for some 30-odd years, by issuing Presidential Order No. 11643, whereby certain poisons were banned from use in animal damage control efforts. Subsequently, the Environmental Protection Agency suspended and cancelled the registration of thallium sulfate, 1080, strychnine, sodium cyanide and their derivatives.

The President's interest in this problem was dubious, and the action was certainly more expedient than enlightened. The policy outlined in the order, on the whole, disregarded the advice offered by the Advisory Committee on Predator Control, better known as the Cain Commission, which had been established by the Secretary of the Interior and the Chairman of the Council on Environmental Quality for the purpose of prescribing a more sensible predator control program for the Federal Government. The Presidential Order is completely unexplainable in terms of the recommended courses of action offered in the Cain Commission report.

Therefore, I come before you today to recommend that you reject the Administration's proposal, a proposal which I understand as one intended for the implementation of the President's Executive Order in terms of legislation. I ask that you lay the foundation for a constructive, effective and sensible predator control program, and forsake the temptation to patch a political football that promises another fifty years of fake passes and razzle-dazzle.

If we are to ever solve the controversy encircling predator control, we must devise a policy based on an intimate understanding of the control techniques at hand, their effectiveness, the true nature of predators, the relationships of predators to livestock losses; in short Mr. Chairman, we need a policy that is based on scientific fact and sensitive to the true needs and tolerance of the agricultural community and the environment.

I do not believe that our present course can even begin to do this. Mr. Chairman, during the course of the hearings I conducted, it became evident that there is no area quite so vague, no point of greater soreness between the livestock grower and the conservationist, than the question of the actual extent of losses of livestock due to the depredations of predators. I am confident that the pursuit of answers to questions such as this would go far toward the understanding of the real scope of this problem, as well as the eventual construction of a sound and effective policy to deal with predators. Quite frankly, I feel it is foolish to create a program in response to problems whose real nature and dimensions are yet to be explained.

Mr. Chairman, I conclude by once again asking that this committee meet that problem before proposing an answer. Authorize an intensive and purposefully directed research program so that we may begin sooner to create the kind of predator control program that is so desperately needed. Help us to solve the predator control controversy, not begin it all over again. Give us a bill that will give us the answers rather than more questions ten years hence.

Senator Moss. Not to be outdone, Ray Staley is president of the Utah Wool Growers, and Ed Marsh, the Washington representative, is also a Utah man, and Mr. Palmer is here, too. We are well represented this morning. I am sure all the western Senators would be proud to be here this morning to introduce the representatives from the various States.

Wool growers, of course, are from the West. That is where the wool and sheep industry is concentrated, and where the great concern arises about the problem that is under hearing in this committee, the control of predatory animals. The ones who are perhaps most concerned are those in the woolgrowing business, because sheep and lambs are the principal victims of the predators about which we are concerned.

Yesterday we had some very excellent testimony from the Federal departments, and also the fish and game representatives of the States. This morning we have a panel of witnesses that are representing the woolgrowers. Then we are going to hear from a number of the conservation organizations' representatives. This ought to be a very interesting hearing.

Mr. Vern Vivion, president of the National Woolgrowers, has been introduced by Senator McGee. I wish you would identify the gentlemen at the table so that the reporter may know the order in which they sit and be able to attribute to the proper person any comments they may make in response to a question, but also so that I may be acquainted, and try to associate the right face with the right name here.

STATEMENT OF VERN VIVION, PRESIDENT, NATIONAL WOOLGROWERS ASSOCIATION; ACCOMPANIED BY EDWIN MARSH, WASHINGTON REPRESENTATIVE, NATIONAL WOOLGROWERS ASSOCIATION; DAVID SMITH, SECRETARY, MONTANA WOOLGROWERS ASSOCIATION; WILLIAM MAU, PRESIDENT, WYOMING WOOLGROWERS ASSOCIATION; WILLIAM HOFFMAN, PRESIDENT, COLORADO WOOLGROWERS ASSOCIATION; JOHN CARGILE, PRESIDENT, TEXAS SHEEP AND GOAT RAISERS ASSOCIATION; WILLIAM BONDE, EXECUTIVE SECRETARY, CALIFORNIA WOOLGROWERS ASSOCIATION; RAY STALEY, PRESIDENT UTAH WOOLGROWERS ASSOCIATION; MARCELLUS PALMER, EXECUTIVE SECRETARY, UTAH WOOLGROWERS ASSOCIATION; AND R. J. RICH, PRESIDENT, IDAHO WOOLGROWERS ASSOCIATION

Mr. VIVION. Thank you, Senator. We have the president of the Idaho Woolgrowers Association, Roscoe Rich on the far right; next to him, we have Bill Bonde, and next to him we have Bill Hoffman, president of the Colorado Woolgrowers Association.

You have already been introduced to John Cargile, of the Texas Sheep and Goat Raisers Association. You have also been introduced to Bill Mau; and we have Dave Smith, who is executive secretary of the Montana Woolgrowers Association, and I would suspect that you know and recognize the executive secretary of the National Woolgrowers, Ed Marsh.

Your constituents and colleagues from Utah are not here yet. I hope they are not lost in the building, but I am sure they will be here shortly, Senator.

Senator Moss. I hope they will come in.

Mr. VIVION. I hope we could briefly skip over the prepared statements. I would like to say, and it might be trite, Senator that we are, I think, in a ecological drama today. The farmers and ranchers have been on the stage of this drama probably from the day that the first bit of living was scratched out from Mother Earth.

Even though the stage and the scenery have changed some, I think the farmer and rancher are still the main characters in this drama of ecology.

New actors are coming on stage now. They have the spotlight. I think at this point they are upstaging us, and we welcome them on the stage of this great ecological drama. But, as we move on into act II, and act III, of this, I think it may be more than just a play or a drama, we will be talking about the drama of life, and I think when the accolades are given and the final reviews of this drama are written, I think that probably it won't be whether we finally produce some sheep or whether we finally preserve the coyote, but I would submit that finally the accolades will go to those who have proven that they can provide for human needs of a civilization and at the same time preserve the environment and the ability to provide the needs of the future.

In other words, I think we have a dual role as producers to provide for a civilization, for the continuance of a civilization, and I think we have a responsibility to do this through a means that will also preserve for future generations the heritage and the environment of which we are proud today.

I would like to refer just briefly to a statement of Senator Bayh yesterday. He said that he had visited the West and he felt that we had a beautiful country, and he, of course, said that he was in your beautiful State. We think that we have a beautiful country in the West, and I am sure that you believe this, and we have been running livestock in the West for over a hundred years.

We have been controlling predators in the West for over 50 years, and I am glad the Senator recognizes the fact that we still have a beautiful country.

We have been accused of poisoning other animals when the fact is as the director from the Oregon Game Commission said yesterday, we have the greatest and healthiest game herds, in the West that we have ever had.

So where are these animals that we are supposed to be decimating, that we are supposed to be poisoning? If I might submit, Senator, they are in the West, they are where they should be, out on the plains, propagating in great numbers, and I think that we, as ranchers, are part of this, because we can take pride that we have played our part in preserving and improving our grazing lands.

Now, to briefly touch on our testimony, I would say that our organization is the national spokesman for the farmers and ranchers of the United States who produce lambs and wool. Our association is composed of 23 sheep-producing associations with members in 25 States, where approximately 17 million head of sheep and lambs are raised, and today, Senator, we appear in opposition to the bill which is before you, not that we do not recognize the work that has gone into this bill, and we feel that we have had some input into it, but at present, the conflicts that are built into the present legislation, the Executive order, the EPA order, we see no way of resolving these through hastily passed legislation.

Our industry is a substantial livestock business. The inventory of sheep and lambs in the United States as of January 1, 1972, was valued by the Department of Agriculture at \$423,500,000.

Wool produced in the United States during 1971 totaled 172 million pounds, and this is a value of \$31,165,000; and dressed lamb meat production last year was 554 million pounds.

Lambs and sheep are notoriously defenseless domestic animals. They are preyed upon by other animals. Their principal enemy predator, of course, is the coyote, but they are fatally injured by bobcats, bears, and other predators.

In excess of one-quarter of a billion acres of Federal land are used in grazing sheep and cattle. In recognition of the serious predator problem, the Federal Government has, for 57 years, engaged in a program of predatory animal control.

I would like to say that many times, Senator, the Bureau of Sport Fisheries and Wildlife have been accused of not following the Leopold report that was published in 1964. It is our belief that our predator program began to fall apart after the implementation of that, because

those people sincerely tried to implement the Leopold report, and in doing this, I think that our program began to fall apart.

In the absence of development of nonlethal control methods, such as the use of chemosterilants and repellants, sheep growers have found that toxic chemicals provide the only effective means of keeping their flocks from being severely decimated.

In some areas, even with the use of toxic chemicals, the toll from coyotes and other predators has been so severe that farmers and ranchers have been forced out of sheep production.

To prove that we are not exaggerating the dire need for toxic chemicals to control heavy predator depredations, let me quote from the U.S. Department of the Interior draft environmental statement on H.R. 13152, dated February 8, 1972. I quote from pages 41 and 42 of that statement:

1. Federal Lands. It has been estimated that poisons account for about 80 percent of all predatory animals that are killed annually by the department's current programs \* \* \*

The remainder, 20 percent, are killed by such methods as shooting, trapping and denning. Since poisons will be prohibited from field use for killing predatory animals on federal lands, 80 percent of the predatory animals now being killed annually may live to play active roles in range land ecosystems and other habitats which they occupy, unless other control efforts are intensified.

I think that this would be the essence of the National Woolgrowers Association's testimony, that we cannot, at this point, survive as an industry, and that is a fact—that 80 percent of the coyotes taken are taken through the means of toxic chemicals—and that we cannot survive at this point without these, and we are asking for some time, as Senator McGee said, to adjust to some new methods, and hopefully effective methods.

So I would like to at this point interrupt my testimony and ask that the State representatives testify, so that you might have a feeling before you leave, Senator, of the seriousness of this, not only on a national level, but right down to the grassroots, where our people are being affected.

I see we have your colleagues from Utah here now.

Senator Moss. Welcome. We are very glad you are here. We thought maybe you were lost, but I am glad you are in the fold now.

Mr. VIVION. I would like to ask John Cargile if he would present some of the feelings of Texas.

Senator Moss. We will be glad to recognize Mr. Cargile, and of course your full statement is in the record. You may emphasize the parts you would like to.

Mr. CARGILE. Thank you, Senator. I will comment briefly to attempt to give some insight into the situation in Texas.

Most of the testimony that I have heard in the past has related to the Western States that have large amounts of Federal land. We do not have that situation in Texas. All the land is primarily privately owned land. I am president of the Texas Sheep and Goat Raisers Association. We represent 17,000 sheep and goat owners in Texas who own 5,600,000 sheep, or an average of about 330 animals per person. These are a group of small producers by and large. They are very dependent upon the production of these sheep and goats for their livelihood, and we feel this bill, H.R. 13152, seriously threatens their ability to continue in business.

To give you an insight, Texas sheep and goats are raised in 73 of the 254 counties in Texas. These counties are located in a cluster out in the western part of the State. They are contiguous, all together. They are subject to terrific predator pressure from the outside, because predators are not very well controlled outside of the sheep and goat country, so the greatest pressure is on the outlying sheep and goat raising counties, and this has been true all these years.

We have had an effective program with the use of all tools that are available. However, to illustrate how difficult it has been to maintain the situation in the past, I will recite from figures from four of the outlying counties, Culberson, Jeff Davis, Brewster, and Presidio Counties. In 1960, those counties produced 2,014,000 pounds of wool, and in 1970, they produced 442,000 pounds of wool, or a decrease of 78 percent.

These counties I happen to be quite familiar with. I used to ranch in Culberson County. They are in a semiarid area, with about 10 inches of rainfall, and a large percent of this land that was used for the production of sheep and goats is lying idle today, because the people could not continue there to economically produce sheep and goats, and it just doesn't lend itself to any other grazing activity.

So we have lost the economic production and a taxpaying base in those counties, and this is happening in other counties as well.

Now, to compare that with the interior counties where there is good protection and has been, Sterling, Concho, and others, these counties produced over 4 million pounds of wool. In 1970, they produced 3,943,000 of wool, a decrease of 14 percent. But I assure you, Senator, if this program is interrupted as this legislation is proposing, and we lose 80 percent of our control of predators, that you will see the same thing happen over the whole area that has happened in these outlying counties that I have just recited to you.

Now, we are continuously challenged to testify as to our assertions of losses, and it seems hard to document that. In my testimony there is a research report prepared by Dr. Maurice Shelton; Maurice is a scientist for Texas A. & M. University at the McGregor Station, where he conducted a research program relating to productivity of sheep and goats for many years.

However, in doing this work, he kept a detailed report identifying the cause of death of all animals they lost there at McGregor. This report summarizes the causes of death of these animals.

Now, McGregor is in an area where they have predator problems, but they were carrying on a good predator control program, as is common to the whole area, but in spite of this, they were losing 2 percent to 10 percent annually of their sheep and goats to positively identified coyote and other predator kills. They would go out every morning and examine any animal that was dead and determine cause of death. If there was any question about this, it was put down as unknown. All these statistics come from those that were positively identified, so I can hardly see how there would be any question where there would be any error in this scientific report.

Predator losses amounted to 35 to 40 percent of all losses on the station, and in one instance they had a pasture that had 100 goats in it over to the side in an outlying area where they could not protect

them, and those goats failed to raise any young goats there for several years, because the predators ate all of them.

Senator MOSS. The predators down there are coyotes?

Mr. CARGILE. Primarily coyotes. We do have problems with bobcats. The bobcats are all controlled through trapping rather than poisoning, so they are not adaptable to these other programs.

One thing in this bill that concerns us, in Texas the producers put about half a million dollars of their own funds annually into this predator control program. Many of the other States do this at various levels, and I don't have the figures, but I am sure that over the whole United States there are several million dollars today put into the program by producers.

The wording of this bill is such that it would jeopardize the ability of the producers to continue to contribute their money, and that is a strong thing to me, because ordinarily the Government doesn't seem to care to fund things that the people are willing to fund for themselves, and we are willing to do this; but this bill would question our ability to continue to help fund this program, and I think that is a direct result of one of the recommendations of the Cain report which stipulated that they would not like to see producers use any more of their money in predator control because they would have too much voice in the program. We would like to continue to put our money in the program. We want to pay our part of the way.

Senator MOSS. Thank you very much for your statement, Mr. Cargile. They are rather dramatic figures that you present with respect to losses to predators. The outside counties get the pressure of predators from outside, you say, because beyond where the sheep and goats are raised, no one is making any predator suppression; is that right?

Mr. CARGILE. That is correct, to a large degree. There had been some control work done, but as the Federal Government has already retrenched their program over the years, that has not continued well enough to protect these outlying counties.

Senator MOSS. I appreciate that. I am going to have to interrupt briefly, and I will be back in just a few minutes. We can do it either way. We can have a brief recess and I will come back, or if you would like to continue, I will have Mr. Braithwaite, who is my assistant on this, continue the hearing. I will just slip back in place as soon as I can.

Mr. VIVION. Senator, we certainly do recognize your other responsibilities, and we also recognize the importance of your position on this committee, and if it would be all right with you and the group, we would be glad to sit here and wait for you.

Senator MOSS. Well, we will declare a 10- or 12-minute recess, and I will try to be back in that length of time.

(Recess.)

Senator MOSS. We will resume. We will now go back to our hearing.

Before I hear the next one of your witnesses, I want to place in the record the testimony of the Farm Bureau, which was to be delivered, but has been submitted in writing, and will be placed in the record in full, and I do appreciate the efforts of the Farm Bureau in putting together this fine statement and their willingness to put it in the record rather than take up the time of delivering it orally.

(The statement follows:)

STATEMENT OF CLIFFORD G. MCINTIRE, LEGISLATIVE DIRECTOR, THE AMERICAN FARM BUREAU FEDERATION

Mr. Chairman and Members of the Subcommittee: The hearings being conducted by this Subcommittee relative to predator control are important to farmers and ranchers engaged in livestock operations in many states. The members of the Subcommittee are to be commended for their careful consideration of this issue. Many farmers and ranchers are involved in the business of raising cattle and sheep on private and public land. They have an interest in wildlife management, and they are currently providing a major portion of the game and wildfowl habitat of this country. They manage and own important family business enterprises which involve substantial personal investments. The end product of their year-round endeavors is a product for the market—cows, sheep, lambs, or wool.

Production of these farm commodities begins when a lamb or calf is "dropped" on the range or pasture. Each animal is vital to the success of the enterprise. It logically follows that protection of that young animal from disease and predators is essential.

The legislation before this Subcommittee is important because it could affect many of the decisions to be made in the field of predator control by federal and state governments and by the livestock producers to whom animal predation is a serious management problem.

The American Farm Bureau Federation is a nationwide general farm organization representing 2,057,665 member families in 49 states and Puerto Rico.

At the most recent annual meeting of the American Farm Bureau Federation, held in Chicago in December, 1971, the elected voting delegates of the member State Farm Bureaus adopted the following policy on Predator Control:

"Some measure of predatory animal control is necessary in order to achieve proper livestock, wildlife, and land management. It is also necessary to control predators that are carriers of infectious diseases such as rabies.

"We therefore pledge our support and cooperation with livestock producers, sportsmen, and other interested persons to seek new means of predator control. We urge the continuation of all present predator control practices and urge Congress to take immediate steps to provide adequate funds for effective predator control and research. We also endorse research through the American Farm Bureau Federation Research Foundation in developing new predator control devices and documenting the losses of livestock and game animals and the resultant economic losses."

Included in Farm Bureau are many thousands of farmers and ranchers engaged in livestock operations including many in areas where animal predators are a serious management problem. Many use the renewable grazing resources of the federal public lands under permits granted by the Forest Service and the Bureau of Land Management. The Executive Order of the President dated February 8, 1972, and the proposed regulations published in the Federal Register of March 1 and March 24 by the Bureau of Land Management and the Forest Service, respectively, have a direct relationship to the use of the federal lands and predator control.

The action of the Environmental Protection Agency under date of March 10, involving the suspension and cancellation of federal registration of 18 products used in controlling predatory animals plus one product registered for use in rodent control, adversely affects control methods, commonly and effectively used on both public and private lands.

On March 15, 1972, the American Farm Bureau Federation, in a letter to President Nixon, expressed concern with respect to the Executive Order and the action taken by EPA. A copy of this letter is attached. We respectfully request it be considered as a part of this statement.

In line with policy previously stated we strongly support the objectives set forth in Sec. 3 of H.R. 13152, relative to an expanded program of research.

It is our recommendation that any state cooperating with the Secretary under the terms of this bill be allowed to designate the state agency that shall administer a program for control of predatory and depredating animals. Sec. 4(a) should be amended to allow the state this latitude by striking from this section the requirement that the state agency be that dealing with wildlife management. The state legislature should have the authority to make this designation.

Provision is made in Sec. 4(b) for annual payments to the states not to exceed 75 percent of the cost of approved programs for the first two years and not to exceed 50 percent in each succeeding year.

SEC. 4(b) states that no federal funds shall be available to a state whose share in whole or part is to be paid from funds not appropriated or otherwise authorized by its legislature, and that not more than 10 percent of the required state funds may be derived from the sale of hunting, fishing and trapping licenses or permits. It is not clear to us if the word "authorized" includes or excludes the use of funds that may be contributed by farmers or ranchers; or funds derived from assessments made by entities other than the state such as counties, municipalities, or districts. We recommend latitude be provided in the language of the bill that would allow flexibility as to the source of funds used in a cooperative program with federal funds.

We object to the repeal of the Act of March 2, 1931, pertaining to the eradication and control of predatory and other wild animals.

We feel that the federal government, as the sovereign owner of one-third of the nation's land, has a management responsibility for the use of these land resources that cannot be avoided. Management of predator animals is a part of that responsibility. National policy relating to the management of these lands recognizes grazing as one of the important uses in the national interest.

About 36 percent of all federal land is grazed by livestock, and about 73 percent of the federal land that is grazed is located in the eleven Western states. In 1966, eight percent of the 66 million grazing beef cattle in the United States and 42 percent of the 21 million sheep grazed on federal lands.

In addition, the federal government has long shared in direct and cooperative research and control programs relating to many diseases, pests, and predators in the federal, nonfederal, and private sectors of our economy.

We strongly believe that the federal government, both as landlord of federal land and as a cooperator in programs on public and private land use, should continue in a position of responsibility and cooperation in both research and control programs to keep losses to predators to a reasonable minimum.

We have very serious reservations relative to the provision of Sec. 4(d) wherein the head of a Federal department, agency, or establishment may authorize, on land subject to his jurisdiction, the conduct by a state of an operational program for the control of predatory and depredating animals. It is the responsibility of the Federal agency that manages land owned by the Federal government to protect users of the land from predators and depredating animals consistent with the uses being made of the land under the agency's program of management. We seriously question if a Federal agency and a state agency can in reality develop a workable program of predator control on Federal lands, with the program to be administered by the state agency.

Wildlife values are important and must be recognized in our efforts to provide a sense of balance of values in management programs. But productive capability is also essential. The bill as passed by the House of Representatives strengthens existing programs of research in predator control in cooperation with all interested states. We suggest the bill be revised to allow financial resources to be drawn from federal, state, and private sources in a cooperative program of predator control; and also continue the federal government's direct responsibility in the management of predatory animals on all federal lands, consistent with the multiple uses provided for in the land management program of the federal agencies. We appreciate the opportunity to present these views. If we can be of further assistance to the Subcommittee we shall be happy to respond within our ability to any request.

Attachments:

AMERICAN FARM BUREAU FEDERATION,  
March 15, 1972.

The Honorable RICHARD M. NIXON,  
*The White House,*  
*Washington, D.C.*

DEAR MR. PRESIDENT: Developments of recent weeks relative to the continuing ability of farmers and ranchers to use effective chemical controls against livestock and crop predators are cause for very deep concern on our part.

The elected voting delegates of the member State Farm Bureaus to the 53rd annual meeting of the American Farm Bureau Federation in December, 1971, adopted policies on wildlife pests and predator control as follows:

## WILDLIFE PESTS

Blackbirds, starlings, and similar pests are causing serious damage to crops and property in many areas. They are a hazard to aviation and a carrier of diseases to humans as well as livestock and crops.

This problem is increasing over a wide geographic area. Intensive research efforts at state and federal levels and prompt use of all practical recommendations and methods to eradicate these pests are fully justified.

We continue our strong support of this program, as supervised by authorized personnel, and recommend that adequate funds be made available to the Department of the Interior for this purpose. However, since a solution has not yet been found, we strongly urge that Congress provide the needed money to construct a blackbird and starling research facility and increase further the amount of money allocated for both research and control work.

## PREDATOR CONTROL

Some measure of predatory animal control is necessary in order to achieve proper livestock, wildlife, and land management. It is also necessary to control predators that are carriers of infectious diseases such as rabies.

We therefore pledge our support and cooperation with livestock producers, sportsmen, and other interested persons to seek new means of predator control. We urge the continuation of all present predator control practices and urge Congress to take immediate steps to provide adequate funds for effective predator control and research. We also endorse research through the American Farm Bureau Federation Research Foundation in developing new predator control devices and documenting the losses of livestock and game animals and the resultant economic losses.

The American Farm Bureau Federation Board of Directors, in session on March 7-9, 1972, decided that:

The American Farm Bureau Federation and member State Farm Bureaus take immediate and all appropriate steps toward the implementation of the 1971 AFBF delegate body action on this vital issue, with emphasis on:

(a) Some measure of predator control is necessary for livestock and wildlife production, land management and infectious disease control.

(b) Urge continuation of all present programs with adequate funding by Congress until improved methods are developed.

(c) Research through the American Farm Bureau Research Foundation.

We pledge full cooperation with all groups who seek to improve the existing predator control programs. We believe the approach in the Presidential executive order will create serious irreversible problems for both wildlife and livestock management unless corrective modifications are initiated.

It is most serious and unfortunate that your Executive Order of February 8, 1972, entitled "Environmental Safeguards on Activities for Animal Damage Control on Federal Lands," in Section 1, item (3), strikes very heavily against the longtime efforts of federal-state cooperative programs in the control of damage caused by animal and bird predators and other wildlife pests. That these pests are causing serious losses in certain crop and livestock operations—totalling millions of dollars—is a fact seemingly ignored by the Executive Order.

The effect of the Executive Order governing the use of chemical toxicants for predator control on federal lands has been recently broadened by the suspension-cancellation by the Environmental Protection Agency of pesticides registered for use in controlling predators as announced in a press release dated March 10. These executive and administrative decisions will force redirection of management in the range livestock industry, some field crops' operations and other land uses that are serious beyond accurate calculation at this time. To revert to predator control methods proven inadequate thirty years ago hardly seems the proper solution to problems in the context of the improved production methods of today's agriculture.

The Environmental Protection Agency's release of March 10 seems to say that it is the policy of that agency to differentiate between rural and urban areas in decisions relative to the cancellation and/or suspension of registration of chemicals for rodent control. We appreciate that many wildlife species and some rodents are not common to both rural and urban areas; however, protection of humans is important in rural as well as urban areas and denial of use of a material should be equally applicable.

While we appreciate that these decisions have been taken in what has been concluded to be in the best interest of the public at large, we believe them to be unwise. Adequate consideration has not been given to alternative transitional methods that would avoid economic losses to the livestock industry.

These actions place on the federal agencies and the executive department a heavy responsibility to effectuate a workable program of predator control that will preserve the economic capability of farmers and ranchers to produce quality food and fibre. Effective management of wildlife can also be threatened by excessive numbers of predators.

It is vitally important that rural areas be treated equitably in decisions relative to pest control and other environmental matters.

Sincerely,

WILLIAM J. KUHFUSS,  
*President*

Senator Moss. Thank you very much. We will then proceed, Mr. Vivion.

Mr. VIVION. Thank you, Senator. We are certainly appreciative of your presence here, and we didn't mind the delay at all.

Maybe it would be well if you could hear your constituents from Utah. I am sure that you are aware of the problems, but I think they may have a couple of little points they may want to point out to refresh your memory on what is going on in Idaho. We could call on Mr. Staley.

Senator Moss. Mr. Staley, we will be pleased to hear from you, and we are glad you are back here.

Mr. STALEY. Senator, we are pleased to be back here and to present our testimony.

Vern is still going to have me from Idaho. It is a good State, however. He is fighting the same battles we are.

Senator, our problems, I think, have grown up since April in our State. Losses that are being sustained by predators since the start of the lambing season are just out of proportion to what they were a year ago, and I am sure the Governor is well aware of this, because we met with him Friday afternoon, and Joe Francis and Bud Phelps. I am not saying that Bud has the same feeling we do, but I am sure he will with his wildlife in the near future, because wherever I have traveled over the State of Utah, and I have met with every local organization in the State that has had a meeting, I hear the same thing, or just about a repetitious statement from all the people, especially in the areas of the counties that had quite a deep snow, and then the crush came, the big predation on their deerherds.

In lambing, in one band of my own, 960 lambs there, in 43 days, they killed 230 lambs.

We called the Fish and Wildlife trapper, and he came up and measured the teeth marks on the lambs, and took pictures and everything, and then when they got the helicopter in there, they found lots more lambs than we found, and they shot one coyote there. I found 20 lambs and one ewe killed in one morning. This would be in the previous 24 hours.

We built fires; we shot firecrackers. We built fires until I thought the fire warden was going to have me in jail; and I didn't care, because I was going to protect my livestock here. And these coyotes would come right down into the firecrackers, and it is illegal to use firecrackers in the State of Utah, as I am sure you are well aware. Don't ask me how I got the firecrackers.

Still, the predation kept up. Since they killed one coyote that I assume was doing a lot of the damage, they have just been killing one or two, or two or three a day, and if I get out of there with 350 head of lambs killed out of that 900 head, I am going to feel lucky. At the head of the Beaver River, they are having losses, but not to this big an extent.

The loss of our neighbors increased from 100 to 300 lambs, from the time they went on their lambing grounds until they went on their summer range. This is a blowup since April.

Senator Moss. Where are you running this band where you expect to have these losses?

Mr. STALEY. It is on the Wyoming line, I am sorry to say. This is in the area east of Coalville, but we have two bands west of Coalville, and along the reservoir company, from Henefer up, those people have just about the same percentages of loss.

Then up where the Provo River comes down, those outfits are having big problems. In the Echo Canyon area, it is about the same proportion. I just came down from a meeting at Ephraim, and west of there, there were about 350 lambs lost per band there, from the time they went out until they went on to the summer range. This is what I hear all over.

Bill Cunningham, a cowman, the other day testified that he hardly sees a fawn or a deer now, that they are killing his calves weighing as much as 300 pounds. The coyotes chase them around and round until they wear them out, and then the cows chase them, but the coyotes finally kill them. This was his testimony at the Capitol the other day.

Then what is pathetic are our small flock operators in Duchesne-Roosevelt area, and in the Summit County area, where there are a lot of small farms. They do their farming in fenced areas, and these people are losing from 20 to 50 percent of their lambs out of those little bunches of farm flocks, and they are really up in arms, and the momentum is getting up. In the last 30 days, the people are just desperate.

Senator Moss. Is this great increase in kill coming just this year, since April?

Mr. STALEY. Other years there have been bands over the State that have had terrific losses, and other bands that wouldn't. Take, for instance, this one that I had these losses on, a neighbor between Hatches and mine, Hatches' outfit were losing about 300 head out of this band, and our losses were not quite that heavy, about 230, and in the band right between them, within 2 miles, there were none. So this is the way it sometimes shows up.

So if somebody goes out and takes a survey of a band of sheep and says he took a spot check, and if he is careful how he takes his spot check, he can report there are no losses.

This is very true, because sometimes a man right in the middle will not have very many losses and others next to him will have terrific losses. I don't know how you account for this kind of losses, but this is the way it happens, and I am sure it happens in other States the same way.

Senator Moss. Your experience is that you can't frighten them off very well with fires?

Mr. STALEY. Temporarily you can chase them over to the neighbor and let them eat his sheep. That is what they figure you are doing. They are going to eat in one place or the other. If you have a killer, I think frightening them away isn't the answer. It might help you tonight, but I don't know what it will do to the neighbor that night.

Senator MOSS. I understand from what you say that the game herds are down, deer and other game are down, which you think might also be directing the predator more on to your sheep?

Mr. STALEY. Art Smith in the Pine Valley Experimental Station, a professor at Utah State, has been studying them for the fish and game people in Utah, and I think one cat, they put one of those radios on him, killed 80 or 90 antelope. I don't think they have any fawns left. Art Smith admitted this the other day. I didn't think he would, but he did.

I don't know whether you are aware of the Four Corners study done in the Cedar City area. We talked to those boys last week, and they have skinned out and taken pictures and authenticated, just like John Cargile reported on Texas. This is a study by Utah State University, and they found 80 lambs killed out of one band. These aren't all that are being killed, but they are absolutely identified as kills without a doubt. Others, where there was a doubt they marked as "unknown."

So they just came to us, to the Range Society, at the Great Basin Experimental Station the other day.

Then, the studies that Utah, Idaho, and New Mexico and some of the others have made, show losses comparable to these losses. But one thing that makes us feel kind of bad is that we have fields that go out in our desert ranges where last winter we have private trappers, and bounty trappers, and the cat hides are way up in value, and they set cat traps and would catch coyotes, which we don't object to. With the fixed-wing aircraft and these things, they kept the losses down somewhat.

So the bureau comes and says that if you don't have a 2-percent loss, or five kills within 1 week, we won't provide control over the area. So you work your heart out to keep the numbers down, and then you get penalized for controlling it and keeping them down. But I went to the State director, and I hope that has changed that attitude.

Mr. VIVION. I wonder if we could have Marcellus Palmer summarize some of the Utah problems.

Mr. PALMER. Mr. Chairman, Senator Moss, it is certainly a pleasure to visit with you on this end of our great country, and as executive secretary of the Woolgrowers. Mr. Staley and I represent some 900,000 breeding ewes in the State of Utah.

In preparing to come back here, my wife, who is an enthusiast about crafts and arts made a picture that I would like to leave for the Senator, and I would like to have this captioned "Telling This As It Could Be."

Senator MOSS. Thank you. I will be glad to have it. I will have to hang that on my wall.

Mr. PALMER. We fail to see the urgency of this legislation. The target features have already been zeroed in, and our means of survival came to an abrupt halt when our main tool was taken away.

We are not out to exterminate the coyote. We wouldn't be facing the challenge we are today if the program had not been diluted as it

has. It is interesting to note what has happened over the past 40 years to our big game herds, and this as occurred during a predator program.

In 1932, we harvested in Utah 7,000 deer, and in 1970, we harvested 102,000, and the proportionate figures are available from State records indicating the same thing happened with our elk and our antelope herds.

Range lands have improved over the years, and we have about the same total livestock numbers in Utah now that we did 40 years ago. But this has occurred. We think our predator program has worked, and it has helped people outside the industry as well as in.

We oftentimes are questioned about the figures that we have of our losses, and who knows better than the sheepman who sees them from day to day.

An independent study was made, and I am making that a part of my report here, by Dr. Darwin Nielson of Utah State University, and a copy of it is attached to my statement.

The research indicated that a \$3½ million loss in 1969 was sustained by the wool growers of Utah. We do not have an acceptable answer at this time. We want sound and acceptable answers to this challenging problem. Time may well help us reach the light at the end of the tunnel. We are sure it will appear with meaningful research and tools to bridge the gap until it appears. Thank you.

Senator Moss. Thank you very much, Mr. Palmer, for your statement, and together with the attachment, the whole statement will be in the record in full. I appreciate it, and, Ray, your statement will be in the record also.

Mr. VIVION. I would like to call on Dave Smith, executive director of the Montana Woolgrowers Association.

Mr. SMITH. Thank you, Senator Moss. It is a pleasure for me today, because I am a native son of Utah, to have the privilege of appearing before you representing the 3,000 members of the Montana Woolgrowers Association.

My written statement has been handed to you, and I would ask that it be included in its entirety in the hearing record.

Senator Moss. It will be in the record in full.

Mr. SMITH. I will attempt to highlight parts of this prepared statement in the interests of time today.

My statement principally deals with our feelings in regard to the Cam Committee report as it relates to your deliberations on H.R. 13152 and S. 3334. Might I just cite a few of our comments in that regard?

This report, Senator, directly resulted in removal by Presidential order of all those tools which have proved to be reasonably effective in dealing with predators.

Unless this order is rescinded or alternative measures can be found in the very near future, this action appears to spell the death knell of one of man's oldest and time honored industries, that of raising livestock and especially sheep and goats on the western ranges of our land.

It only seems logical that any document with such far-reaching consequences could be subjected to critical review. The hastiness and secrecy with which the report was prepared suggests that it was not

subjected to this review process before it was submitted through channels to the President of the United States.

We submit that the tone of the report could have been predicted on the day the Committee was appointed. Secretary Morton, the Secretary of the Interior, and Mr. Russell Train, the Chairman of the Council of Environmental Quality, described the Committee in question as being composed of seven distinguished scientists. Although not stated, one might expect members of this Committee to be open minded or without prejudiced or preconceived positions with respect to the subject of their investigation. However, a trip to the library to consult the most recent issues of such publications as *Who's Who in Science* or *American Men of Science*, fails to provide any information on three of the seven members of this Committee.

This brings into question the applicability of the term "distinguished" in our opinion, and of the four who were identified on the Committee, all have been professors of wildlife biology, or some related fields and have been active members of several organizations which have been avowed enemies of the sheep industry for many years.

Our question, of course, then, is how could such a group of people be expected to prepare an unbiased report? We are also struck by the incongruity of the influence in the report that is held in the minds of many people that it is somehow a noble and heroic gesture to shoot an animal for fun or amusement, but it is a moral or legal crime to destroy an animal to protect our interests or our economic well-being.

Yesterday, Senator Moss, Mr. Reed pointed out that the reason for our not having an opportunity to comment and review on the Cain report was because it was preempted by the Presidential order of February 8.

Mr. Reed's apparent desire to convey to us that his apparent non-awareness of what is going on in the White House seems to draw a real conflict, in my mind, with regard to his remarks regarding the lifting or the alteration of the ban.

It is rather comical that we should be considered so naive as to think that on February 8 Secretary Reed knew nothing about the action the President was going to take, and then all of a sudden on August 7 he has the channels of communication to confirm that in no way will the Presidential order be lifted or altered in any manner.

I suppose, Mr. Chairman, the real tragedy seems to be in the wholesale indictment of the sheep industry as being the apparent sole users of toxic chemicals when actually the industry is probably the most minor of all users.

In fact, use of toxicants in large metropolitan areas of this country far exceeds the use in the range lands of the west.

When I recently asked a Department of Interior official the reason for discrimination through the restricted use of toxicants for predatory animal control programs and no restriction of toxic chemical use in highly populated areas to control rats, the reply I received was "rats are not a socially acceptable animal. Coyotes are."

In closing, may I cite for you a few alarming figures? Montana's 1972 lamb crop is estimated at 709,000 head.

That is 6 percent below the 1971 crop, and also the smallest lamb crop since records began in 1924.

Since 1962, each year's lamb crop has been smaller than the year before. The same pattern continues in the production of wool in our State. Wool shorn and to be shorn in the United States during 1972 is estimated at 151.5 million pounds. This is a decrease of 4 percent from 1971 production of 159.1 million pounds, and this pattern continues from year to year.

Our producers in Montana, Senator Moss, attribute a great deal of this decline to the problems of increasing predatory animal depredations on flocks. We believe that H.R. 13152 and its companion Senate bill in all its complexity and far-reaching consequences, deserves much more consideration and study before enactment into law.

Our people ask for your consideration in this light, and thank you sincerely for letting us appear before you today.

Senator Moss. Thank you very much, Mr. Smith, for your testimony. Some of the figures which you have given us which apply especially in Montana are of great concern. We are declining in our production of lambs and wool at the same time that our population continues to expand.

That seems incongruous.

Mr. SMITH. That is a very important point, sir, and especially when we think of the great responsibility we have as suppliers of meat to the Nation. It does take on great significance.

Senator Moss. Thank you very much.

Mr. VIVION. Senator, we will hurry along, and most of the States are not going to be repetitious on different points. I would like to point out that the wool industry and sheep people are generally individualistic, but no problem has united the industry more solidly than the predator program, and even though I can speak, I think we have individual State problems that should be pinpointed.

Senator Moss. Yes; I am glad to hear from the representatives of the various States. We recognize the very great importance of the legislation that is now before us, and we certainly want to be as informed as we can possibly be before we take any action at all.

Mr. VIVION. Thank you very much, Senator.

Bill Mau, president of the Wyoming Woolgrowers, has a few remarks from his statement.

Senator Moss. We are glad to hear from you, Mr. Mau.

Mr. MAU. We are happy to be here, Senator, and we are grateful to you for having us here. My statement is going to be very brief. I do have a complete statement I would like to have included in the hearing testimony.

Senator Moss. It will be in the record in full.

Mr. MAU. My name is Bill Mau, I am president of the Wyoming Woolgrowers. We are the second largest sheep raising State in the Union. Senator McGee when he first saw me today said, "Well, you're back again."

Since the eagle incident, I have testified in four or five hearings on the predator problem, and I begin to think I am a professional testifier, even though I have no experience. I would like to address my remarks to some of the statements made yesterday.

In particular, there was a statement by Senator Bayh, the good Senator from Indiana, who also has testified at several of the hearings I

have been at, and frankly, I cannot appreciate his remarks and some of his tactics, such as scare tactics.

In one statement he said yesterday that one ounce of 1080 could kill or would kill 200 human beings. This is probably true. I submit that one car could kill 200 human beings if they were lined up 10 feet apart on a road.

So it is not the poison or the car, it is the application by man that causes the damage. Some language I heard yesterday was "indiscriminate use." We have heard this a thousand times from different people, "an imminent hazard" to man. The following is a quote from a letter of Mr. Spence Smith, Acting Director of the Bureau of Fisheries and Wildlife to Senator McGee, "Over 10 years of use in the United States, have been four suicidal deaths and 12 accidental deaths definitely involved sodium compounds and four deaths involving sodium fluoroacetate."

"None of the deaths were associated with the Bureau's Predator Control Program," and so on.

These things, as you can understand bother us. We are made the villains, and we do not think we are. I would like to give a few figures here on the use of 1080 in the United States and in the Western United States. We were told that in the 20 Western States, 400 pounds of 1080 were used in 1971.

Of this, 40 pounds were used in the Predator Control Program; 360 pounds were used by the Forest Service. Primarily, the Forest Service used this poison in protecting their new seedlings on the forest, and there was much more 1080 used by the Department of Agriculture, the Forest Service, than there was in any predator control program, approximately 10 times as much.

Thirteen percent of the 1080 used in 1971 was used in the Predator Control Program; 87 percent was used by the Forest Service and for rat control in our urban areas. So you see we are not the users of 1080 or the villains some people would have you believe.

I would also like to comment on a few remarks of Mr. Reed, with all due respect to the Department of Interior and Mr. Reed and Mr. Morton, I do not believe they know what is going on in the Western States.

After the Executive order and after the ban on interstate shipment on toxicants, they came up with a crash program to supposedly satisfy the woolgrowers. The program consisted of an accelerated program of fixed wing and helicopter control in mountainous areas, primarily in Wyoming.

This is a pilot project there, with which you may be familiar. I met with these people 4 or 5 days ago, and it is nothing but an exercise in failure. The approximate cost per coyote, they did get nine coyotes with the helicopter, is \$250 per animal.

They are nearly broke. They are using next year's money, so I really believe that there is no credence at all to this program. They are just dangling it in front of our eyes to try to substitute a program in place of our poison program.

I am going to close this, Senator, but in conclusion, I would like to say to you that this country cannot afford the luxury of losing our livestock and our wildlife while we sit around and argue the merits of poison as a predator control.

We do not need laws passed that will hamstring our agricultural industries. We need acceptable tools to control depredation and our livestock and game herds. It is that simple.

I challenge you and this committee and all of Congress to act in a prudent way. Do not take away now what we need until we are provided something better with which we can accomplish a job with unobjectionable results.

Thank you.

Senator Moss. Thank you, Mr. Mau. You indicate that passage of this bill is unnecessary because of the Executive order and EPA's suspension action, but wouldn't this legislation actually help you live with the Executive order by authorizing increased funding for predator control by non-toxic means?

Mr. MAU. I do not believe so.

Senator Moss. You don't think so?

Mr. MAU. No.

Senator Moss. Your statement seems to indicate that only a form of population control of coyotes can limit sheep losses by keeping the coyote population stable and at a low level. How does this policy of wanting to kill off coyotes square with the Cain Committee's report that only a few animals out of the coyote population are responsible for this problem?

Mr. MAU. It is my assumption that the Cain Committee is wrong.

Senator Moss. Is it your observation and belief that any coyote with the opportunity will prey upon sheep and lambs?

Mr. MAU. Yes, sir, given the chance, they will.

Senator Moss. Therefore, you think that their numbers should be reduced to the lowest number possible?

Mr. MAU. I don't know what the correct number would be. I think the density should be at a plateau whereby we could live with the coyote. I don't want to eradicate the coyote. If it is in the bill, and it was one reason why they wanted to repeal the act of 1931, to get rid of the word "eradicate." We do not want to eradicate the coyote. We want to control him to a density level where we can live with the coyote.

Senator Moss. Thank you very much.

Mr. VIVION. Thank you, Senator.

In commenting on that 1931 act, perhaps I could call on the president of Colorado Woolgrowers Association.

Senator Moss. Yes, sir.

Mr. HOFFMAN. The statement I have I would like entered in its entirety, and I will summarize it.

Senator Moss. Very good, Mr. Hoffman.

Mr. HOFFMAN. I am William Hoffman from Montrose, Colo. I speak to you today as a sheep rancher whose entire income is from the operation of a family sized sheep ranch which uses both private and public lands. I also speak to you as president of the Colorado Woolgrowers Association representing the majority of the sheep operations in Colorado.

At their convention last week the sheepmen of Colorado unanimously passed a resolution opposing the passage of H.R. 13152 and S. 3334.

Since the Predator Control Act of March 2, 1931 (7 U.S.C. 426-426b), now in effect authorizes the Secretary of the Interior to conduct a program of research and also authorizes the Secretary of the Interior to provide assistance to and to cooperate with the States in the control of predatory animals, we see no need for this proposed legislation.

A cooperative program under the 1931 act has been in effect in Colorado for many years between the Colorado State Department of Agriculture and the Bureau of Sports Fisheries and Wildlife of the Department of the Interior. Under this agreement sheepmen are the largest single contributor to this program.

Since predators destroy other domestic animals including turkeys and calves as well as many deer, elk, antelope and game birds, the agreement is cooperative and beneficial to many others in the State besides the sheepmen. We support this type of cooperation, and we also support cooperative funds for research in the problems of predator control. The Predator Control Act of March 2, 1931, already provides for such research and assistance in a cooperative manner.

Mr. CHAIRMAN. I have traveled through the State of Colorado recently, and I will have to take exception to the statements made yesterday that predator losses since the ban of toxicants have not increased. In Colorado, I find the reverse is true. Sheepmen are suffering increased losses to the coyote in general.

S. 3334 provides that the Secretary will not authorize any payment to a State for assistance in the control of predatory animals if any part of the funds for the State program is not appropriated or otherwise authorized by its legislature.

This restrictive limitation would prevent the immediate cooperation of the industries suffering from animal and rodent damage. Increased State funds would have to be sought in order to keep the same type of program that we have now. While all this legislation is being processed, the coyote will continue to multiply making control increasingly difficult.

S. 3334 and H.R. 13152 are not necessary to restrict the use of chemical toxicants on public lands as the Executive order of February 1972, and the Environmental Protective Agency restriction of interstate shipment of chemical toxicants for predator use on March 10, 1972, have already accomplished this.

Sheep losses to predators are increasing in Colorado as a result of the ban on toxicants for predator control. These losses will continue to rise as the coyote populations continue to increase. Therefore, we believe that there should be no action taken by the legislature for at least a year in order to assess the full effect of the Presidential order and how the existing restrictions of toxicants will affect the predator populations and the livestock and wildlife losses.

We question whether the use of chemical toxicants is as dangerous as the public had been led to believe. If these toxicants are so dangerous that it was necessary to issue a Presidential order banning their use rather than going through the legislature for this authority, why can these same toxicants be used in high density urban areas for the control of rodents, and why are they still allowed on Indian lands?

If they are safe enough for use in protecting endangered species of wildlife or to prevent damage to natural resources, why are they not acceptable to protect our dwindling meat supply? The production of

food will always be a vital and basic need of the people of our country, and livestock are still the only way we know of turning grass—the greatest natural resource we have—into food and fiber for the people of this country.

We who live on the sheep ranges of the West are concerned about our environment. We live close to the land and can foresee worse problems for our land than the grazing of sheep and the control of predators.

We already see not some, but many, sheepmen going out of business because of the increasing predator losses. The coyotes do not disappear when the sheep are gone. They change their diet from lambs to deer or calves.

The sheepman is gone, but the problem remains. Sheepmen own many thousands of acres of private land interspersed within the public lands of Colorado. These private lands have been used primarily for grazing by sheep and wildlife.

When the sheepmen are forced to sell these lands, in most cases the new owners are land speculators, developers, and large corporations. The family sized ranch unit and the personal concern for this piece of land will be gone forever.

A reasonable control program will allow many of these families to remain on the land and save our beautiful mountain country from being exploited by men who are interested only in making a fast buck.

These facts are already evident to people in the West. We feel certain that in another year environmentalists everywhere will begin to see that there are many things that are worse for the mountain lands than grazing sheep and controlling predators; therefore, we urge this committee to wait until the full impact of the Executive order and the EPA directive is known before legislative action is taken.

The purpose of H.R. 13152 and S. 3334 are stated as follows:

Authorize the Secretary of the Interior to assist the States in controlling damage caused by predatory animals; to establish a program of research concerning the control and conservation of predatory animals; to restrict the use of toxic chemicals as a method of predator control; and for other purposes.

I have pointed out here that the Secretary of the Interior already has the authority to assist in control and already has the authority to establish research.

The President and the Environmental Protection Agency have already restricted the use of toxic chemical as methods of predator control.

With these facts in mind, we do not see any urgent need for passage of this bill, and we believe that the legislature will be better able to make a wise decision in this matter after all of the facts are available.

Thank you, Senator.

Senator Moss. Thank you very much for your good statement. We appreciate your coming here to testify for us. I may have a few questions I would like to ask later, but let's go ahead and continue.

Mr. VIVION. Thank you. We will go to California and the executive secretary of the California Wool Growers Association, Bill Bonde.

Mr. BONDE. It is a pleasure to be here. I am a rancher and sheepman from the central part of California, and also executive secretary of the California Wool Growers Association, the oldest agriculture association in the State, with the third largest production, and we process more sheep and lambs than any other State in the Union.

The California sheep industry is against banning the use of specific chemical toxicants as stated in the two bills. The sheep industry feels that it should not be singled out by banning of these chemicals for protection of these flocks from predator losses until a suitable chemical is available.

California, Senator, has 21 million people, and has many other problems that our neighboring States do not have. There are programs which do not use chemicals, but there are times and places throughout the year that a chemical toxicant is necessary to maintain our program.

This, primarily, would be the coyote getter. It is a mechanical device. It does not leach off into the soil. You can map it for placing and pickup also. We feel this type of a tool should not be placed with the other chemical toxicants.

In fact, the average coyote litter in California has increased over the years. It used to be from three to five. It is from seven to nine. The average coyote lives 2 years longer. So you can multiply these figures and come up with an enormous number. In the county of Los Angeles, one of the most populated areas in the United States, 600 coyotes were taken in 1970.

Many of these were females and their litters found between the freeway roads, in the city limits of Los Angeles. They have adjusted to man, and we do not want to eradicate them. We want to control them.

The coyote is a fabulous animal and commands a lot of respect, but we do want to control it where the need is; and with 21 million people, we realize the problems.

On my own ranch last year, I lost 20 ewes, and all the coyotes did was kill them and take the unborn lambs from these ewes. This is not a pleasant sight to see.

I would like my full testimony placed in the record.

Senator Moss. Your statement will be in the record in full, as will all of the statements submitted here.

Mr. VIVION. Thank you, Senator. I would like to ask Roscoe Rich, of the Idaho Woolgrowers Association, to comment on his testimony.

Senator Moss. Mr. Rich?

Mr. RICH. Senator Moss, I am R. J. Rich, president of the Idaho Woolgrowers, representing 2,400 members, testifying in opposition to S. 3334 and H.R. 13152. I represent quite a segment of the small populated State of Idaho, good, hard working, sincere people, who are trying their utmost to produce a living for themselves and their families and produce food and fiber for the good citizens of the United States.

Quite a good number of these members are of Basque descent and Mexican-American descent. We are in an age where we are talking about minorities. Many of our members are from minority groups. I feel sincere in saying that we sheep people are in a minority group.

Of the land in the State of Idaho, 64 percent is federally owned. I represent 632,000 breeding ewes, which was the figure in 1971. This has dropped from 2,418,000 in 1910.

Eighty percent of these ewes at sometime during the year use Federal lands under jurisdiction of the Bureau of Land Management or the Forest Service. They also graze part of the year on privately owned lands.

We feel sincerely that the Federal Government has responsibility in some measure for predator control, as the fees continue to increase, that the management and control of predators is in some measure their responsibility.

It was stated yesterday that the chemical toxicants were broadcast. I don't quite understand this. In the State of Idaho, all chemical toxicants, almost all, at least to my knowledge, are used by qualified, trained personnel of the Fish and Wildlife Service, and only placed where a proven loss has occurred.

These stations are posted and signs have to be put up in the adjacent area to warn and alert the public of their use.

The word "broadcast" I don't quite understand, but I am sure it is a scare tactic that has been presented to the public in an effort to dramatize the use of these chemical toxicants. And 1 percent of the 1.080 poison produced in the United States is used upon the Federal ranges for predator control. Also, 22 or 23 percent is used for rat control in the urban areas. If it is a health hazard and a hazard to man on the Western ranges, and the mountains of the West, it certainly seems to me that it is more of a hazard to man in its urban use in the East.

I think we have been discriminated against, and I think these facts should be brought out so that the public, and particularly our Government here in Washington, understands this.

Aerial control is a good tool in some areas. In our lower areas where we don't have the tremendous pine forests, it is a good tool, and we can use this very effectively and restrict the use of chemical toxicants.

But in our high mountain areas that we have in the Western States, aerial control is not a tool, it is not effective, it cannot be used, and we have to have some other means.

One thing that I think has not been brought out at this hearing and other hearings I have been to is predator control as a tool of range management. We have had vast research and education on range management.

You cannot practice good range management in the sheep industry and also somewhat in the cattle industry in the West without predator control. In the past, when we had large predator numbers, the herders took the sheep to camp at night, bedded them around the camp, and thus misused the range in trailing and moving them around.

In the past 8 or 10 years, they have been allowed, or have been able to bed the sheep out on the mountain and not take them in. If the predators increase, as we are sure they will under the present program restrictions, the managers will again instruct their people to take the sheep to the camp and bed them where they can protect them.

Senator, I have given to the staff a management survey of the year 1971-72 just recently concluded in Idaho. It is a preliminary survey and I ask that it be included in the record. It shows that the lamb loss in Idaho during the management year 1971-72 was 32,000 lambs and some 12,000 ewes. I think this is vastly too large a loss, and it will increase, if this bill is passed and the present program proceeds. I think that the people of the United States can make a great deal better use of ranges as a food source, rather than for raising coyotes and other predators.

Senator Moss. That may be printed in the record.

(The information follows:)

ESTIMATE OF DIRECT COSTS OF LOSSES TO SHEEPMENT (UNREALIZED INCOME & LOSS OF INVENTORY) 1971-72 MANAGEMENT YEAR SURVEY

Note: Inventory Value (SRS-USDA) Approximates Replacement costs.

No. Ewes Reported—178,988—33% of all breeding ewes in state or 41% of all breeding ewes in range operations

Total No. breeding ewes in Idaho 544,000 (SRS-USDA)

Estimated No. Breeding ewes in range operations—435,000

(Range operations estimated to include 80% of all breeding ewes in state)

Ewe Losses Reported on Survey (@SRS Jan. 1, 1972 Inventory Value of \$30.00)

Predator Losses.—5251 ewes x \$30.00—\$157,530

Disease & Other Losses.—14820 ewes x \$30.00—\$444,600

Lamb Losses Reported on Survey (Value—Average 90# lamb at 30¢ per pound)

Predator Losses.—12764 x 90# x 30¢—\$344,628

Disease and other losses.—31,590 x 90# x 30¢—\$852,930

Total Reported losses—lambs & ewes

Predator Losses—5251 ewes & 12,764 lambs—\$502,158.

Disease & Other Losses.—14,820 ewes & 31,590 lambs—\$1,297,530

Projected losses for 100% of range operations for the 1971-72 management year

Predator Losses.—\$502,158/.41—\$1,224,775—28% of total losses

Disease & other losses.—\$1,297,530/.41—\$3,164,707—72% of total Loss

Total Losses \$4,389,482

CORRELATION OF IDAHO STUDY WITH UTAH AND NEW MEXICO STUDIES, UTAH AND NEW MEXICO DIRECT LOSSES ADJUSTED TO IDAHO METHOD OF COMPUTING LOSSES

	Number of ewes surveyed	Number of ewes in State	Total direct losses	Loss per ewe
Idaho.....	180,000	544,000	\$1,224,775	\$2.25
Utah.....	135,000	820,000	1,338,240	1.63
New Mexico.....	200,000	600,000	1,377,000	2.29

Mr. RICH. Thank you. I also have a report from the Idaho Fish and Game Department, Mr. Joseph Greeley, director, which states that in 1930, 8,709 deer were harvested in the State of Idaho and 779 elk.

In the year 1969, which is the latest complete record available 78,000 deer were harvested and 17,000 elk. Reports show an estimated game population of 400,000 deer and 95,000 elk. This is a vast increase since the time of the Great Wilderness of 1930.

A great deal of this, I am sure, is due to adequate predator control. A great many things have been said about conservation. Conservation without use is not conservation, it is waste. We people in the livestock industry of Idaho and the rest of our population in this sparsely populated State that has approximately eight people to the section, feel that we cannot afford the luxury of not using all the lands, Federal, State, and private lands in the State of Idaho.

We also cannot afford the luxury of misusing it.

(The information follows:)

REPORT: IDAHO FISH AND GAME—APRIL 5, 1972

[Provided by Mr. Neilsen at direction of Joseph Greenley, Director]

Best estimates for the years 1929 and 1930 reported in the bi-annual report.

Both years—The estimated game harvested: 8709 Deer, 779 Elk, 140 Goats, 9 Big Horn Sheep, 83 Bear.

No report on game population for those years.

*Report based on check station and questionnaires for 1968*

Game population in Idaho in round numbers :	Harvest based on questionnaire
400,000 Deer-----	78, 000
95,000 Elk :	
Highest year ever-----	17, 000
Average year-----	15, 000
40,000 Bear-----	3, 000
6,000 Antelope-----	1, 500
3,000 Mountain Goat-----	160
2,500 Big Horn Sheep-----	50
1,800 Moose-----	75
1,000 Cougar-----	129
30 Caribou in Idaho in winter only-----	no kill

No figures available for 1930 alone. Figures for 1968 provided for other uses.

Mr. RICH. Forage is an annual renewable resource. Properly managed and properly used, it can be harvested every year indefinitely, as long as time goes on. This is the single biggest agricultural resource in the State of Idaho, livestock. We have to use forage, and we have to have the tools to use it intelligently and adequately.

I talked with Senator Church from our great State this morning and he said that he had contacted Assistant Secretary Reed on this problem. Secretary Reed stated that he would like to meet with Senator Church and explain all the alternatives to the restrictions on chemical toxicant use.

Senator Church stated that Assistant Secretary Reed had not come to his office, had not talked to him about it, so he, therefore, assumed that Assistant Secretary Reed had not found any alternatives as yet, and that it was a stalling tactic, and that he did not like it.

It has been stated that the coyote's main food is rodents, rabbits, et cetera. A coyote's main food is whatever is available. He would rather kill a lamb and sit down and eat it than to catch eight or 10 rabbits. This is the history of this intelligent animal.

I don't think we could exterminate it. I am not so sure he is not smarter than man. If he lives in the city of Los Angeles on the free-ways and adjusts, I don't think there is any way to exterminate him.

Senator, I appreciate the chance to meet with your committee. Thank you.

Senator Moss. Thank you, Mr. Rich. I can testify that the coyote is a durable animal, because we have been trying to reduce his numbers for years and he is still around in the populated areas, as you say, as well as out in the wild mountainous area.

Mr. Vivion, does that complete it?

Mr. VIVION. Yes, sir. If I might, Senator, I would like to say that we appreciate the tolerance of the other participants in the hearing on our lengthy presentation, but I think, as stated, it is of great concern.

We cannot pass over this lightly. Just briefly, I would like to say that our opposition to this bill could be stated in a very short sentence, and that is that the bill is not a control bill. It is a preservation bill. We have stated that we cannot live with total preservation of the coyote, unless some method is developed that might keep him away from killing our livestock.

For your consideration and from our observations in the country, Senator, I would like to say that we look forward to the term "repe-

lant" as a hopeful tool, but as a lover and I hope a raiser of wildlife and, in particular, wild game, I would be concerned about protecting just my livestock by a repellent, because I would fear for the propagation of our great wildlife herds in the West, because coyotes will have to go somewhere for food, particularly in the years that the rodents are not high in population or when the rabbits are not.

So we look for a repellent. We hope that we are going to have it. But I would question if we can put all our faith in preserving the environment and particularly the wildlife in the West if we just depend on that one item.

I would like to comment that this is not new for us. We were testifying 10 years ago in Washington asking for funds for research. We knew this was coming, Senator. We did not like the idea of toxicants, poisons. It is repugnant to us. We were here 10 years ago asking for research funds, and we had no help from conservation groups or anyone. Consequently, we did not get them.

We were able, in 1970, to obtain some funds for research. That was just 2 years ago. We did get the funds approved by Congress, and the administration froze those funds.

We think it would be inappropriate at this time to rush into legislation to fill a gap that has been created, and it is a gap. We want to work out the best solution, the best method of predator management, that we can. We will assist anyone, but I think that we are going to have to have some time to do this.

I think that Mr. McKean said yesterday, as did Mr. Reed, in their testimony you might find two or three places that they said "the facts are not in. We can't assess it yet, what has happened."

Senator, we cannot assess it, either. We cannot, at this time, give you a final answer that that is the way to go. I wish we could. The administration doesn't have the answer, and it is their bill. So I would urge you and your committee members to take a serious look at this bill and recognize it for what it is, a preservation bill, and defer action on it at this time; and let us all, then, spend some time on figuring a way that we can preserve the sheep industry, and also preserve the environment and the heritage which is great to America, including as much wildlife as possible.

Thank you very much for your tolerance, Senator.

Senator Moss. Thank you, Mr. Vivion, and all of you gentlemen. This has been a very interesting and enlightening part of our hearing. I can understand your great concern, and I appreciate your coming to discuss it so candidly and, yet, compressing your statements so that we did have time to get in a good bit of what you wanted to say. There is no question but that you are faced—we are all faced—with a great problem, but it is even closer to you because you personally are in the livestock business. You represent a great many other people who are in that business and this is where the impact of this legislation would be.

I wonder, are you generally in favor of putting the responsibilities for control chiefly in the States, rather than having it in the Federal Government?

Mr. VIVION. I think, Senator, that we would recognize that the management of wildlife, of resident wildlife species, certainly remains the responsibility of the States, and I think that we could not give greater credit to a group of people who have done a great job in

managing the wildlife than most, and, in fact, probably all, of the State wildlife agencies.

We think, of course, that it is a State responsibility. We would say that the agricultural aspect must be an important part of any State action, because it is an agricultural problem, and yet it is a wildlife problem.

We think it is a dual responsibility, but more of it might be handled by the States. The Federal Government does have responsibility on Federal lands, unless they want to turn this over to the States, but the history has been that they would not turn over this authority.

We would ask that it be turned over to the States so that there would not be the dual authority and the dual responsibility of passing the buck. We think that can be worked out.

Senator Moss. Well, the States to have the responsibility of managing the wildlife, the resident wildlife there. With that responsibility residing in the States now, I wondered if the predator control would not be better residing with the States, too, rather than with the Federal Government. Is that your view?

Mr. VIVION. I would say that our association and our State associations would agree that more should be handled by State programs.

Senator Moss. You are calling for more in-depth research, in accordance with what Secretary Reed said. In effect, he apologized for the fact that the department had not put money into research and said at one point in his testimony that he really did not know the answers to a good part of this problem, and they must get on with it.

I wonder, does this fit with what Senator McGee was saying, that we need time to make the transition? Is that the point of view pretty much of your association?

Mr. VIVION. It is, and I think this is what Senator McGee was getting at, Mr. Chairman, because I know that in his Agriculture Subcommittee he has pushed for some additional funds for research in the area that many of us in this room are concerned about, and that is the predator-prey relationship and the socioeconomic facts and research on new tools.

So it is a very broad thing he is looking for, and I would say this certainly reflects our thinking, also.

Senator Moss. Would this idea of indemnity for loss of sheep accord with your views at all? It has been suggested that we might have a program to indemnify livestock operators who lost animals to predators.

Mr. VIVION. Senator, I think I could assure you that I would go out of the sheep business and I think most livestock producers would, because we are not going to find ourselves in a position of raising dead animals, where we would go out every morning and pick up a half a dozen or even a pickup load of dead lambs and bring them into a government agency for payment.

It is repugnant to us, and I think it is something we would not want to live with, and we would just phase out of the business.

Senator Moss. Is there a particular percentage of loss that you in the industry figure on that you can tolerate, and beyond that it is too high?

Mr. VIVION. I would say prior to 1964, when the Leopold report was implemented, that we were upset, but I would suspect that our losses were down around 1 percent to 1½ percent, depending on the year, because in different years we have different losses. We felt that was intolerable.

I would have to say at this point, Senator, most of us would sure like to go down to the 1 or 1½ rather than the 5, 6, or 7 percent that we are experiencing today.

Of course, when you talk about averages some of our people are getting in the 12, 14, and 15 percent category.

Mr. RICH. Mr. Chairman, may I make one statement?

Senator Moss. Yes, Mr. Rich.

Mr. RICH. We have been asked this question many times; what percent we can tolerate. I think it is an unfair question. I don't think it has any basis. What percent can a banker tolerate being robbed? In other words, can he afford to lose 7 percent of his total deposits each year, or 3 percent, or 5 percent, or whatever it is.

It is the same circumstance, the same question exactly. I don't think he can tolerate 7 percent, 5 percent, or any certain percent, and we can't tolerate it, either, sir.

Senator Moss. We must recognize—I think all the witnesses recognize—that there is no possibility of eradicating the predator, that there is going to be some loss. I was just trying to explore where the level might be.

Mr. RICH. I appreciate what you are trying to arrive at by this question and we have been asked this many times. It is a difficult question, because how much theft would a grocery store or a 5 and 10 cent store tolerate, and how much theft can a bank tolerate, and how much loss can we tolerate from predators?

We can't answer the question.

Senator Moss. Since there are losses, we have to deal with them in an economic way, perhaps even by insurance and other ways there are to guard against it.

But it is a very difficult problem.

I certainly appreciate your very enlightening testimony. I guess Ed Marsh is about the only one we missed there. Ed, do you want to put in 2 cents worth?

Mr. MARSH. No, Senator, I have nothing to add but appreciate your giving me the opportunity.

Senator Moss. I talked with you a good bit, and you can put anything in the record you want. Was there some other matter now?

Mr. RICH. Mr. Chairman, I would like to take a couple of seconds. I have something I missed. It was stated that 1 ounce of 1080 poison would kill 200 people. This is a resistance table. It takes 1.4 ounces of properly treated 1080 meat to kill a coyote; 8 pounds 8 ounces of properly treated meat to kill a human being. I would like to submit this.

Senator Moss. That may be submitted for the record.

(The table follows:)

1080 RESISTANCE TABLE

Species treated	Resistance rating	Milligram <sup>1</sup> of 1080 per kilogram body weight	Average weight in pounds	Ounce of properly treated station bait to kil.
Coyote.....	1.0	0.1	30.0	1.4
Dog (domestic).....	1.0	.1	30.0	1.4
Cat (domestic).....	3.0	.3	3.0	.4
Fox.....	3.0	.3	12.0	1.6
Bobcat.....	6.6	.66	22.0	6.6
Prairie dog.....	10.0	1.0	3.0	1.2
Bear.....	10.0	1.0	300.0	<sup>2</sup> 136.0
Mink.....	10.0	1.0	3.0	1.4
Marten.....	10.0	1.0	3.0	1.4
Maggie.....	13.0	1.3	.5	.3
Badger.....	15.0	1.5	19.0	1.30
Man.....	20.0	2.0	150.0	<sup>2</sup> 136.0
Raccoon.....	20.0	2.0	24.0	<sup>3</sup> 21.8
Golden eagle.....	50.0	5.0	10.0	<sup>4</sup> 22.7
Chickens.....	70.0	7.0	4.0	12.7
Hawks.....	100.0	10.0	2.5	11.3
Great horned owl.....	100.0	10.0	3.5	15.8
Black vulture.....	150.0	15.0	5.0	<sup>5</sup> 34.0
Opossum.....	600.0	60.0	8.0	<sup>6</sup> 218.0

<sup>1</sup> Lethal dose.<sup>2</sup> 8 lbs. 8 oz.<sup>3</sup> 1 lb. 5.8 oz.<sup>4</sup> 1 lb. 6.7 oz.<sup>5</sup> 2 lbs. 2 oz.<sup>6</sup> 13 lbs. 10 oz.

Senator Moss. It is treated meat, and not poison alone, but it is an enlightening contrast to show that the amount of poison in the meat has to be relatively high and in a large amount to be fatal, either to man or to animal.

Mr. BONDE. Senator, we talk about losses that have occurred since the poisoning program has been discontinued. This in some areas has had some increase, but we have not seen anything yet until next spring when there will be no measures to curtail or control them by poison this fall.

So our big problem will occur next year. People say 5 percent loss is a great loss, and everybody sustains some loss, but it could be 30 percent next year since the Government reports poisons have been responsible for 80 percent of predators killed, and I think this is what we have to be looking for in the future.

Senator Moss. That is a good point to make, Mr. Bonde, and I think we must recognize that there is likely to be an increased loss from predators next year because of the discontinuance of the program of using toxicants in control, without something to replace it, some step-up, and there has been some testimony about the ineffectiveness of aircraft and other means that are used.

So it does present a very, very serious problem. Thank you all very much, gentlemen; I appreciate your coming and your testimony.

Mr. VIVION. Thank you.

(The statements follow:)

STATEMENT OF VERN VIVION, PRESIDENT, NATIONAL WOOL GROWERS ASSOCIATION

Mr. Chairman and Members of the Committee, my name is Vern Vivion. I live in Rawlins, Wyoming, and I raise sheep. I am President of the National Wool Growers Association, and I appear today in behalf of that Association in opposition to S. 3334 and H.R. 13152.

Our organization is the national spokesman for the farmers and ranchers of the United States who produce lambs and wool. Our Association is composed of 23 sheep producer organizations with members in 25 states where approximately 17,000,000 head of sheep and lambs are raised.

Our industry is a substantial livestock business. The inventory of sheep and lambs in the United States as of January 1, 1972 was valued by the Department of Agriculture at \$423,500,000, consisting of 18,482,000 head. Wool produced in the United States during 1971 totaled 172,000,000 pounds grease basis, valued at \$31,165,000, and dressed lamb meat production last year was 554,000,000 pounds.

Lambs and sheep are notoriously defenseless domestic animals. They are preyed upon regularly with devastating effect by other animals. Their principal enemy predator is the coyote, but they are also fatally injured by bobcats, bears and other predators.

In excess of one-quarter of a billion acres of Federal land are used for grazing sheep and cattle.<sup>1</sup> In recognition of the serious predator problem to sheep and livestock in general, the Federal Government has for 57 years engaged in a program of predatory animal control.

In the absence of development of new non-lethal control methods, such as the use of chemo-sterilants and repellents, sheep growers in the large range areas of our country have found that toxic chemicals provide the only effective means of keeping their flocks from being severely decimated. In some areas, even with the use of toxic chemicals, the toll from coyotes and other predators has been so severe that farmers and ranchers have been forced out of sheep production.

To prove that we are not exaggerating the dire need for toxic chemicals to control heavy predator depredations, let me quote from the U.S. Department of the Interior Draft Environmental Statement on H.R. 13152, dated February 8, 1972. I quote from Pages 41 and 42 of that statement:

*"1. Federal lands*

"It has been estimated that poisons account for about 80 percent of all predatory animals that are killed annually by the Department's current programs. . . .

"The remainder (20%) are killed by such methods as shooting, trapping and deening. Since poisons will be prohibited from field use for killing predatory animals on Federal lands, 80 percent of the predatory animals now being killed annually may live to play active roles in range land ecosystems and other habitats which they occupy, unless other control efforts are intensified."

This statement, prepared by the Bureau of Sport Fisheries and Wildlife, seems to be a little inconsistent with a statement made at House hearings on this bill by Assistant Secretary Reed, under whose jurisdiction the Bureau operates. Mr. Reed stated:

"Some of our critics scoff at the idea that livestock losses to predators can be reduced to tolerable levels by shooting and trapping."

We ask, is an 80 percent increase in predatory animals, which Secretary Reed's Bureau anticipates, going to bring about a "tolerable" level of livestock losses? Mr. Chairman, let us assure you that sheep farmers and ranches, already saddled with a 17-million-dollar per year loss from predators in principal sheep growing states, cannot survive with 80 percent more predatory animals than now exist.<sup>2</sup> Damage will also be intolerable with the present predator population without toxic chemicals as management tools.

We are losing over \$46,000 per day. On this basis, wool growers will have lost over \$92,000 of their lambs and sheep to predators during the two days of these hearings; and they are prohibited from using any chemical toxicants to combat them.

The history of the present predicament is briefly as follows. On February 8, 1972, the President without citing any particular evidence but "in furtherance of the policies of the National Environmental Protection Act of 1969" and the "Endangered Species Conservation Act of 1969" issued Executive Order No. 11643.

This order restricts the use on Federal lands of chemical toxicants for the purpose of killing predatory animals or birds; and it directs the heads of agencies to take such steps as are necessary to prevent the field use of such toxicants.

<sup>1</sup> In excess of 7,000,000 head of sheep graze on public lands.

<sup>2</sup> According to an economic report on predator losses to sheep published in May 1971 by Robert N. Reynolds and Orvis C. Gustad, Staff Specialists, Division of Wildlife Services, Department of the Interior, the sheep industry lost to predators, animals valued at \$16,955,820 in the year 1970.

Subsequently, on March 10, 1972, E.P.A. Administrator, William D. Ruckelshaus, announced that he had issued an order under authority in the Federal Insecticide, Fungicide and Rodenticide Act, which suspended and cancelled the registration for use of strychnine, cyanide and sodium fluoroacetate (1080) ; in prairie and rangeland areas for the purpose of predator and rodent control<sup>3</sup>. There was no hearing prior to this action by E.P.A. The order was published in the *Federal Register*, March 13, 1972.

In his preamble to the suspension order, Mr. Ruckelshaus stated that in the Spring of 1971 his agency had "made a public commitment to review the status of registration" for these chemicals, arising from "grave concern surfaced by the reported deaths of some 20 eagles killed by the misuse of thallium sulfate." As a result of the same concern the Interior Department had previously appointed a committee under the chairmanship of Dr. Stanley Cain "to initiate a thorough review of the Government's Federal predator control program." The report of the committee was released in February of this year.

In addition to the findings of the Cain Committee was released in February of this year.

In addition to the findings of the Cain Committee and a "review" of the situation by E.P.A., the agency received "a detailed petition" submitted by "several distinguished conservation groups urging that the registration of these compounds be cancelled and suspended immediately."

The Cain Report appears to be the principal basis for the E.P.A. order of March 9th. It "dealt at length with the effects" of the subject poisons on animals. The E.P.A. presumed "indiscriminate baiting over wide, unpoliced areas" with these poisons, adding that "while the effects of prairie baiting are, for the most part, not documented, the Cain Group has suggested the present evidence may well understate the true damage." E.P.A. took "administrative notice" of the "realities" of secondary and accidental animals poisoning.

Mr. Ruckelshaus stated that "measured against these obvious threats to wildlife are only undefined and speculative benefits," and "the Cain Committee has noted the absence of any meaningful information on the efficacy of poison baiting, especially in relation to the economic loss caused by predators to the sheep industry." He continued that "This absence of any meaningful data of benefits derived from the use of these highly dangerous poisons which pose a marked potential threat to the environment renders these registrations suspect."

The condemnatory tone of E.P.A.'s statement presumes that "potentially endangered species" which are "becoming rare" are being eliminated *solely* as a result of the indiscriminate use of these poisons. Such is not the case. It states that there are "apparent alternatives available" to the use of poisons and concludes that "no apparent circumstances exist to counterbalance this distinct hazard and suggest that the possibility of irremediable loss is outweighed by the harm that might occur from their non-availability during a period of suspension."

The position of the Department of the Interior and its recommendation of H.R. 13152, also based on the Cain Report, reflect the same general thinking, the same lack of factual data, and the same need for serious research. The Department exceeded recommendations of the Report to give the States primary control of the proposed program, "since practical aspects of the problem demanded more forthright action than the [Cain] Committee recommended." (H. Rep. p. 6).

The Department's position is summarized in the testimony of Assistant Secretary Reed at the House Subcommittee hearings:

"No longer can we indiscriminately kill predators just because their way of life compels them to eat other animals. No longer can we use control methods

<sup>3</sup> 1080, or sodium monofluoroacetate is one of the most effective, most selective predator control tools available. It is an extensively researched chemical and substantial scientific data is available on it. The Interior Department's Bureau of Sport Fisheries and Wildlife in 1971 issued a comprehensive report entitled "A Review of Sodium Monofluoroacetate (Compound 1080)—Its Properties, Toxicology and Use in Predator and Rodent Control." Only 10 percent of the 1080 manufactured in the United States has been used for predator control. The balance is used for urban rat control, and export. To a limited degree it has damaged some nontarget species, but its effectiveness and selectivity is maintained with the canine family and its use for coyote control has been effective. We agree that adequate safeguards should be taken to assure its use under strict control of qualified personnel who are trained in its safe application. We hope an effective nontoxic substitute will be promptly developed. But until this happens the sheep industry will face staggering losses and in many areas could be forced completely out of business if qualified personnel are not permitted to use this vital control tool.

that are nonselective and place in peopardy nonoffending animals, predators and nonpredators alike. No longer can we ignore the fact that predators have social, esthetic, recreational and economic value. No longer can we, at the national level, assume responsibility for a program that is clearly a responsibility of the individual States."

We believe the social and esthetic value of the coyote, for what it is worth, must be weighed against the value of raising livestock to feed and clothe the people of this nation. Coyotes, far from being an endangered species are actually increasing in number.

We would like to direct our testimony specifically to H.R. 13152 as it was amended and passed by the House. The House Committee on Merchant Marine and Fisheries, Subcommittee on Fisheries and Wildlife Conservation heard our objections.

Both the House Report (H. Rep. B92-1218, page 5) and the House debate (Congressional Record, July 17, 1972, page 6579) indicate that the bill satisfies the concerns expressed by the National Wool Growers Association. Such is not the case as a review of our testimony before the House Committee will reveal. We respectfully direct that testimony to your attention. We would like to commend the House Committee for its efforts in adding language to the bill to overcome these objections. Our Executive Committee was in session the day the House Committee reported H.R. 13152, and we discussed in detail the Committee amendments. Following careful consideration we found that, unfortunately, we had no choice but to continue our opposition.

The House Committee, at the request of the Association, amended H.R. 13152 and added language at the end of Sections 4(a) and 5(b) to provide for emergency use of chemical toxicants to prevent "major damage" to domestic livestock where other means of predator control will not prevent such major damage.

Unfortunately, Section 9 of the bill would, for practical purposes, nullify the effectiveness of these emergency provisions. It provides that "nothing in this Act shall be construed as superseding or limiting the authorities and responsibilities of the Administrator of the Environmental Protection Agency under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended." We are advised that the above amendments would only permit emergency use of those toxicants on which registrations of manufacturers have not been suspended by the E.P.A. order last March. We know of *no* effective toxicants for the control of predators that are not on E.P.A.'s suspended list of 19 products. Even if such a toxicant were available, the procedure that the head of a Federal agency would be required to follow to obtain approval for its use is so complicated and time-consuming that a sheep flock could be completely wiped out by predators before such approval might be obtained.

A second major objection to H.R. 13152, as amended, is that it would repeal the Act of March 2, 1931, pertaining to the eradication and control of predatory and other wild animals. That Act sets forth the authority and the responsibility of the Federal Government to assist in controlling damage caused by predatory animals. While it is true that funds are provided in the bill for the Department of the Interior to continue assisting the States, one of the purposes of the present bill is to turn the predator program over to the States and it is our feeling that with the repeal of the Act of 1931, the Department of the Interior will attempt to curtail its activities in predator control as rapidly as possible. This is the expressed aim of the Secretary of the Interior and of the House Committee as stated in its report on the Bill (H. Rept. 92-1218, page 15).

Our fundamental objection is that the bill, without an adequate basis in fact, halts the use of the major effective control of predators and offers no substitute. In many areas of the western states chemicals are the only effective means presently available to keep predators from wiping out entire flocks of sheep. The bill offers long-term research. We support research, but we object to banning the most effective means of control before research develops better ones.

Although we recognize nature's savage methods, we should not as producers, be expected to raise livestock to satisfy the killing instincts of predators. We deplore having to see lambs, day after day, torn open by coyotes, with their entrails dragging the ground, left to an agonizing and inhumane death.

Our members, perhaps to a greater degree than the average American, live with and are vitally aware of ecological problems of the range and the relationships between wild and domestic animals. Some of our members are members of distinguished conservation groups.

We urge now, as we have in the past, a meaningful program to find satisfactory and physically and economically practical solutions to the problem of destructive predatory animals—a program developing through research more selective means to preserve both domestic animals and wildlife.

We have lived with predator problems for many years and have seriously sought assistance in solving them. Despite our efforts, can you believe that in the last fiscal year the total amount devoted by the Federal Government to research on this problem is \$215,000? The Department of Agriculture is spending only \$90,000 for research through universities. This program resulted from our successful effort in obtaining an appropriation of \$125,000 for predator control research by Agriculture. The Department of the Interior in the last fiscal year spent only \$125,000 to be allocated in three large areas of research on nonlethal control methods, coyote behavior, and predatory animal ecology.

Ten years ago we were able to secure appropriations for research on chemosterilants. Just last year we requested \$500,000 in the Interior appropriations bill for research, and no action was taken on this request. Two years ago we succeeded in having \$150,000 added to the Agriculture appropriations bill for research into new control methods. Then the Administration froze these funds, and they could not be used.

Now the same Administration which froze funds for research and ignored our requests would be in this bill authorize the Secretary of the Interior to conduct a greatly expanded research program to determine new methods of controlling damage caused by predators. The program is late, but we commend the Administration for finally endorsing research as a means of finding new, effective non-toxic control methods to replace the use of toxic compounds for control.

The problem is that the bill absolutely halts the most effective and vital control tool now available—the use of toxic compounds—before research has developed something effective to take their place.

The livestock industry has not been given proper consideration in this matter. Last summer when Interior Secretary Morton announced the appointment of the Cain Committee to study predator control problems, he denied livestock producer representation on the committee. He said, however, that he would absolutely guarantee that the Committee findings would be given a full hearing and opportunity for review by the livestock industry and all other interested persons. This guarantee was not kept.

At the time the Cain Report was released, the Department of the Interior sent the present bill to the Congress banning toxic chemicals on Federal lands and phasing the Federal Government out of predator control.

We had met with Secretary Morton in early February of this year, but we were not told: (1) that the Cain report would be issued simultaneously with the submission of a bill banning use of chemicals for predator control; or (2) that within less than a week the President would issue his Executive Order banning toxicants on Federal lands, or (3) that E.P.A. would within a month completely ban chemicals from Federal and private lands for predator control.

Secretary Morton told us we could present our views to the Congress—a moot question when the chemicals have already been banned by the President and the E.P.A.

What are the reasons for such hasty actions based largely on emotions rather than fact?

The members of this Committee are undoubtedly familiar with examples of industries within your own states which are threatened with or have been stripped of protection because the Federal Government, in an effort to satisfy emotional demands for a better environment, has required industry to move too fast with alternatives. The sheep industry will be left with no practical alternative but to wait and watch its flocks decimated while the research we have urged for years gets under way. Such an emotional approach to ecology will, in our opinion, do serious if not irreparable harm to the livestock industry.

Interior Department testimony suggests:

"We are going to learn a number of new things which we have not had to learn. \* \* \* in the last few months, we have gained a great deal of confidence that the airplane is one of our answers \* \* \* They will also invest in some very fine trained dogs. \* \* \* A very experienced trapper \* \* \* can go to the dead bodies of the sheep and within a very short time get the predator that was responsible." (H. Rep. 92-1218, pages 8, 9)

What will happen to the sheep industry during this experimental stage?

There are many practical questions to be answered such as the high cost of control by airplane, the practicality of using dog packs, or of relying upon the

limited number of trappers in a crisis. Testimony reveals that a trapper in a western state may be responsible for an area as great as 8,000 square miles.

The Department of the Interior has stressed the economic and esthetic value of predators. We have already shown their economic value has been a negative one from the standpoint of the livestock industry.

Sheep and lambs are natural resources too! They deserve serious consideration in any efforts to change the ecological balance.

Our industry faces serious problems. We respectfully direct your attention to an article appearing in the New York Times on Sunday, July 23, 1972. This article was reprinted in the Congressional Record on August 1, 1972 (Page S12445) at the request of Senator Hansen, and a copy is attached to this statement for the convenience of the Committee. It reports that this nation's sheep inventory has declined from 33 million in 1959 to 18.5 million in 1972 and that there is little or no incentive left, and that without some sensible form of predator control the outlook is extremely pessimistic.

Mr. Chairman, we are beginning to believe the Administration has decided that the sheep industry is expendable. From the controversial and somewhat contradictory report of the Cain Committee upon which we were not given opportunity to comment and make recommendations—through the almost simultaneous Executive Order—followed by the E.P.A. ban—to the Administration's submission of this bill—we submit there has been no serious consideration given to livestock as an agricultural asset.

We note a passing reference to livestock in Forest Service testimony before the House Subcommittee. (H. Rep. 92-22, page 302). But, where are the Department of Agriculture and Department of Commerce analyses on possible effects on production, supply, costs, price to the public, of lamb, wool, by-products? What effect will these proposals have on the industry, the national economy, our livestock position in the world market, our balance of payments? We respectfully submit the Administration has not provided the answers.

Despite recent Federal action we continue to believe that the sheep and lamb industry is an important national resource using natural grass resources in semi-arid regions that would otherwise go to waste. In addition, the industry provides my family and some 200,000 other families a means of livelihood.

Our industry, the concerned Departments of Government and independent committees are in complete agreement on *one* point—the need for additional facts and research. We are very anxious to cooperate fully with all agencies of the Federal Government and States and with other interested parties in continuing to develop reasonable solutions to predator control.

More facts are required. Time should be given to assess the results of the Presidential and E.P.A. orders on toxicants. Time is required for development of alternative control methods through research. Following the experience gained in the next six to twelve months, hopefully, Congress will be able to draft its *own* more realistic and practical bill for predator control, if one is needed.

We say, *if needed*, because the Department of Interior already has the legislative mandate to *control* (not merely eradicate) predators in the very Act of March 2, 1931, which it here seeks to repeal. Had it obtained the funds to engage in the research we have been urging in recent years the problem could now be much closer to solution. To unlock the stable door *before* the research is completed, in our opinion, is a very unwise course.

We urgently request that prior to action on this bill, the Subcommittee make a thorough analysis of the Cain Report. We believe that after study of the Report and the Executive and E.P.A. orders resulting from it, this Subcommittee will decide that it is unwise to legislate the present complete ban on a vital existing predator control tool before research has developed a satisfactory alternative.

Therefore, we respectfully urge this Subcommittee to defer action on the bill in this session of the Congress.

Thank you for your considerate attention.

[From the Congressional Record, Aug. 1, 1972]

Mr. HANSEN. Mr. President, the New York Times of Sunday, June 23, 1972, contains an interesting article entitled, "Sheep Flock at Low," written by Mr. Kurt Knox.

The article, bearing a Cheyenne, Wyo., dateline, stated that nationally the sheep industry inventory set an all time low according to the Department of Agricul-

ture. There were 33 million sheep in the United States in 1959. There are now only 18.5 million in the country as of early 1972.

Reasons for this dropoff in numbers of sheep and the effect it is having on the rancher and the average citizen are the subject of the article. Through interviews with several Wyoming citizens who are engaged in the sheep industry, the author presents some insight into America's sheep industry today.

In order that Senators might have a fuller understanding of the sheep industry today and its potential for the future, I ask unanimous consent that the article be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

[From the New York Times, July 23, 1972]

#### SHEEP FLOCK AT LOW

(By Kurt Knox)

CHEYENNE, WYO.—For generations Wyoming sheep families have grazed their flocks on the prairie grass of the high plateau west of here. But in the last decade a number of threats to their traditional way of life have developed.

Nor is the trend peculiar to Wyoming. Nationally the sheep inventory has declined to the lowest in the nation's history—18.5 million in early 1972 from 33 million in 1959, according to the Department of Agriculture.

The all-polyester, double-knit fabrics "clobbered us and the wool market fell out of bed," Verne Vivion explained. Mr. Vivion, a sun-tanned, third-generation rancher from Rawlings in south central Wyoming, is president of the National Woolgrowers Association and a big sheep-raiser. In fact, mill use of raw apparel wool plummeted from the 1960-64 average of 255 million pounds annually to 115 million pounds in 1971.

Still, there is no consensus for the plight of the sheep herd. Some cite the greater consumer demand for beef than lamb, which has caused some ranchers to concentrate on cattle.

Curtis Rochelle, another Rawlings rancher, says his No. 1 problem "is the coyote. I estimate my losses to coyotes run around \$30,000 a year." He also cites lack of efficient labor and Government ownership of land as problems.

The dimmest outlook for sheep came from John Etchepare, who is in charge of the Warren Livestock Company, while his father, Paul Etchepare, recuperates from a heart attack.

"There is no incentive left," he said flatly. "The only incentive is some return for time and investment. The sheep industry is a tremendously time-consuming agricultural endeavor. It is not an eight-to-five job, and it never will be. When there is no return, you are not going to get young people to stay in the business. They are going to go elsewhere."

But Mr. Vivion, for one, calls himself "more optimistic than pessimistic," although he agrees that "a lot of people will go out of the sheep business before it turns around," an event he suggests might come within five years, provided the industry practices improved management and more cross breeding to produce larger lamb crops.

"We could be facing a world-wide wool shortage in the next year, if demand continues," he said, because of "unsatisfactory" polyesters and "some new polyester fabrics requiring the use of wool as a base" to give them the right feel and warmth.

Wool prices have already rebounded to the 40-cent-a-pound level from last year's 10-cent level: In addition under the Wool Act of 1954, sheep producers are eligible for Federal incentive payments, which have been fixed at 72 cents a pound through 1973, the same as in 1970 and 1971. Based on this year's average price, 40 cents, the incentive a rancher selling at that price would receive is 32 cents, or 80 per cent of his selling price and consequently anyone else—whether he sells above or below average—is also eligible for an incentive of 80 per cent of his selling price, so that his actual return may be more or less than 72 cents.

Mr. Vivion's optimism is not unqualified. He does attach the proviso, "if we can look for some type of predator program which is sensible."

The use of poisons on Federal lands was banned last year. Prior to that one common method of combatting coyotes was leaving animal carcasses poisoned with thallium sulfate for the coyotes to find.

Now the predators are sometimes shot and sometimes trapped. In addition the state is considering setting up a program, for sheep ranching is important to Wyoming's economy, and with 1,711,000 head, it ranks second only to Texas' 3,524,000.

But none of the sheep operators favored a plan advanced in some government circles to reimburse them for predator losses from public monies. For instance, Mr. Rochelle, who runs up to 30,000 sheep in summer and 16,000 in winter, along with 2,000 cattle on 300,000 acres, called the plan "stupid," even though it was he who rated coyotes as the greatest problem. He said he feared there "could be a lot of abuse."

But not everyone is equally perturbed by the coyote. Mrs. M. L. Foster, whose husband is a former Laramie County commissioner and a veteran rancher, said losses from coyote attacks in the last two years have been small.

They run some 400 sheep annually on average, which for Wyoming is a relatively small-scale operation, but have no intention of giving up raising sheep, even though last year's 10-cent-a-pound price was "not enough to pay for the shearing."

This year the Fosters have received a 25-cent-a-pound down payment for their wool, and Mrs. Foster noted that price "keeps coming up all the time." She expects it to reach 35 to 40 cents.

She added that sheep were a good hedge crop when some other farm-ranch crops might not pan out, and that she and her husband did not have help problems "because we are a family operation." Their ewes are Corriedales.

While sheep have declined in the United States, they have multiplied abroad, but most ranchers discounted import competition as a reason for the decline here, citing domestic factors instead.

Mr. Vivion, the National Woolgrowers Association president, said, "I think (currently) the economic picture favors the raising of cattle, but not everybody can change overnight. Much of this range is primarily adaptable to sheep. Sheep can live where cattle can't and do better.

"It is pathetic to think we wouldn't have them to convert the great Western grasses. I really don't think it will happen. I think we are going to survive this." But when the decline in sheep is reversed, Mr. Vivion expects a large part of them will be found on Eastern farms.

Perhaps one of the most important influences likely to mitigate against further major declines in Western sheep flocks is reluctance to abandon a traditional way of life.

Then too, as Mr. Vivion said, "Wool is a good product and lamb is a good product."

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#### STATEMENT OF JOHN CARGILE, PRESIDENT TEXAS SHEEP AND GOAT RAISERS' ASSOCIATION

Mr. Chairman, my name is John Cargile, and I'm President of the Texas Sheep and Goat Raisers' Association which represents over 17 thousand producers in Texas who own 5,600,000 sheep and goats, or an average of 330 head each. As you can see, they are mostly small operators whose livelihood from the production of sheep and goats now stands in serious jeopardy, and whose livelihood from this source will be even more gravely threatened if this bill, H.R. 13152, becomes law.

The production of sheep and goats is conducted principally in 73 of the 254 counties in Texas. These 73 counties are concentrated in Southwest Texas. From 1960 to 1970 we have seen a substantial reduction in numbers of sheep and goats in the peripheral counties due to predator pressure, with a much smaller contraction of numbers in the interior counties where the predator problem is slight. To illustrate, Culberson, Jeff Davis, Brewster and Presidio counties produced 2,014,000 lbs. of wool in 1960 and 442,000 lbs. in 1970, a decrease of 78%. These are counties on the outside, subject to the greatest predatory pressure. Sterling, Concho, Irion and McCulloch counties—well-protected interior counties—reported 4,537,000 lbs. of wool in 1960 and 3,943,000 in 1970, a decrease of 13%. If the use of toxicants to control depredation is permanently denied our industry in Texas, there is little doubt that the entire industry will go the way of the exterior counties which could not control the large numbers of coyotes and other predators depredating upon them. Today chemical toxicants account for 80% of the predators that are eliminated.

The action taken earlier this year by the Executive Department and the Environmental Protection Agency was based upon the Cain Report, and it would appear that this bill stems from the same source. I submit as an exhibit with my testimony some observations on the Cain Report.

The prohibition of the use of cyanide coyote-getters—M-44—demonstrates how emotional and illogical some of the recommendations of the Cain Report are. The M-44 is the most humane method available today to eliminate coyotes, and it is highly selective. It leaves no environmental pollutant and has no secondary poisoning effect, yet it was lumped in with no justification because it is a chemical.

I further submit as an exhibit with my testimony "Predator Losses in One Flock of Sheep and Goats". This scientific research report negates the assertion that coyotes do not kill sheep and goats in significant numbers. It further demonstrates that reasonable control is difficult to achieve when all the known tools and methods are available and that effective predator control is impossible today without the use of toxicants.

In short, Mr. Chairman and members of the committee . . . to enact this bill on such flimsy and incomplete evidence would be tragic. We wholly endorse the Bill's requests for research funds, and the search for better control methods . . . WITHOUT the use of poisons and toxicants if possible. But we seriously question the motives of ANY legislation which specifically prevents producers from putting some of their own money into the kitty with the Federal Government to control predators . . . as this bill would.

But if millions of dollars of research money . . . from ANY source . . . were available tomorrow morning . . . and the people and equipment to use it . . . any new, reliable controls to replace those which have been snatched away from us hurriedly and unexpectedly and without even a chance for comment from us are years away by even the most charitable of projections!

What are sheep and goat raisers to do in the interim, Mr. Chairman? The methods which have been taken from us on the strength of this incomplete evidence represented more than 80 per cent of our technical ability to control the single greatest threat to our flocks. And I emphasize that even with toxicants and poisons and coyote getters we were just barely able to keep coyote populations within the bounds of reason. Without them we're laid almost totally bare of protection until equally effective or better controls are researched and developed. Every production cost we incur has skyrocketed, but we're still getting no more for sheep and goats than we were twenty years ago . . . and any daily market report will document that! We can't afford to hire an army to go out and shoot coyotes at night . . . even if they could find them!

So I repeat, what are we to do in the interim? This is the grave question I refer to Mr. Chairman and the members of the committee . . . in declaring to you that our industry . . . which economists tell us makes a total contribution of nearly a hundred and twenty-five million dollars to our state's economy every year . . . stands in serious jeopardy.

I thank you for your interest and for this opportunity to present the position of the sheep and goat producers of Texas. In closing let me leave no doubt in your minds of our opposition to this bill. The coyote is not on the list of endangered species. In fact . . . its populations are rising. We urge you to kill this bill in committee.

#### A CRITIQUE OF THE CAIN COMMITTEE REPORT

The recent report to The Council on Environmental Quality and The Department of the Interior by The Advisory Committee on Predator Control (commonly called the Cain Committee Report) has had far reaching consequences so far as the livestock industry of the United States is concerned. This report has directly resulted in the removal by Presidential Order of all those tools which have proved to be reasonably effective in dealing with predators. Unless this order is rescinded or alternative measures can be found in the very near future, this action appears to spell the death knell of one of man's oldest and time-honored industries—that of raising livestock and especially sheep and goats on the Western ranges of this country. It only seems logical that any document with such far-reaching consequences should be subjected to critical review. The hastiness and secrecy with which this report was prepared suggests that it was not subjected to this review process before being submitted through channels to the President of the United States.

We submit that the tone of this report could have been predicted on the day that the Committee was appointed. Secretary Morton (Secretary of the Interior) and Mr. Russell E. Train (Chairman, Council on Environmental Quality) described the Committee in question as being "composed of seven distinguished scientists." Although not so stated, one might expect members of this Committee to be open-minded or without prejudice or preconceived positions in respect to the subject of their investigation. A trip to the library to consult the most recent issues of such publications as who's who in Science or American Men of Science fails to provide any information on three of the seven members of this Committee. This brings into question the applicability of the term "distinguished." Of the four which could be identified, all have been Professors of Wildlife Biology, Ecology, or some related fields and are active members of several organizations which have been avowed enemies of the U.S. Sheep Industry for years. How could such a group of people be expected to prepare an unbiased report?

In a foreword to this report it is stated that this committee had contact with nearly 400 persons in the process of preparing the report. The appendix to this report contains a list of 183 organizations and 310 people who were contacted or had an input into this report. As was true of the composition of the Committee, a study of these lists provides considerable insight into the nature of the report likely to be forthcoming. Of the 183 organizations contacted a total of five might be expected to represent the viewpoint of the sheep industry, which 54 might be expected to represent an opposing point of view. In the latter group are included such organizations as the North American Association for the Preservation of Predatory Animals. An additional 34 organizations might be expected to be sympathetic to the overall livestock industry. However, included in this number are all contracts with the Agricultural Extension Service in the various states. It is significant that most of the latter contacts were with persons from states such as Arkansas, Georgia and Florida, which have neither a significant sheep industry or significant coyote population. Also, many of the Extension specialists contacted are wildlife specialists and not animal scientists. Similarly, in the list of persons contacted there is a significant deficit of people who might be expected to represent producer interests in such important livestock producing states as Texas and Wyoming. In contrast, the list contains a large number of names of people representing such organizations as the Sierra Club, Rachael Carson Trust, Friends of the Earth, Environmental Defense Fund, Inc. and National Audubon Society.

In the report itself the Committee seems to recognize the need for some type of predator control by pointing out the historical and long-standing conflict between man and large carnivores. However, a series of recommendations are presented which, if adopted, would make it impossible to conduct any effective control programs with presently available technology.

In a look at specific recommendations the first suggests that *all funds* used for predator control be that appropriated by Congress and by the Legislatures. This would seem to be a breach of the freedom of the individual or lesser political subdivisions to take actions deemed to be in their own interest.

The second item recommends that all toxic chemicals be withdrawn from registration for use in predator control. No one can take issue with the desirability of doing this, but at present this is the only effective means of removing predators from large areas. It is poor planning to discard a tool until it has been replaced by a better one. The Committee appears to place emphasis on the use of traps. Coyotes presently occupy over a billion acres of land in the West, South and Midwest. It is illogical to believe that enough traps or sufficient skill can be employed in their use to entice any significant number of coyotes to put their foot in a steel trap when this large land area exists as an alternative. The Committee appears to make a distinction which permits the use of poison for rodent, but not predator control, when of the two, predators must be more damaging.

The third recommendation suggests that only qualified Wildlife Biologists be employed as the field force in predator control. This recommendation appears to be designed more to provide employment for the larger numbers of graduates being turned out of departments of Wildlife Science of the various universities than to provide any solution to the predator problem. It is well known that the number of college graduates in Wildlife Science far exceeds the number of jobs available in this field. However, it is obvious that these youngsters do not possess the skill necessary to make successful predator trappers. Even if they are willing to put in the long hours necessary to obtain this skill, the time delay would be considerable.

The fourth recommendation concerns the establishment by the Extension Service of trapper training programs. Few could find fault with the intent of this recommendation, but any thinking person must realize that it is likely to be largely ineffective in controlling the large number of coyotes which abound today.

The fifth recommendation relates to the establishment by Congress of a means of alleviating the economic burden of livestock producers who experience heavy losses by predators. Some action in this connection is likely to be taken by Congress, and the authors do not wish to prejudice these actions by commenting on this recommendation; however, we cannot refrain from commenting on a statement made by the Committee to the effect that the predators were not responsible for the decline in range livestock numbers but rather that the primary factor was competition from livestock raised in total confinement. In fact, the numbers of breeding herds of beef cattle, sheep and goats managed in total confinement are relatively insignificant at the present time.

Items six and seven have to do with the control of predators on Federally owned lands. Few people can disagree with the philosophy that these Federally owned lands should be managed to provide the maximum good for the maximum number of people. In the minds of most people this implies a shifting of public lands from agricultural to recreational purposes. Coincident with any such shift there are certain responsibilities which should be faced.

As a nation we need to decide to what extent we can afford to set aside large segments of our natural resources for purely recreational purposes and arrange to put charge on this use adequate to compensate for the losses to the economy in agricultural income. Another important aspect is the fact that Federally owned tracts of land should not be permitted to serve as breeding grounds for predators and other noxious species which spread to privately owned lands. Predators do not respect property boundaries. In many areas, such as that which surrounds the Big Bend Park area in Texas, it has long been impossible to run sheep on privately owned lands, and it has recently become hazardous even for breeding cattle due to calf losses to predators. The Federal government should be required to prevent this from happening, and the requirements for doing this should be considered a part of the price in establishing parks or wilderness areas.

Items 8, 9 and 10 propose to regulate how producers may handle the predator problem on privately owned land. We submit that producers should be allowed to manage their own resources unless it can be determined or demonstrated that they are doing harm to individuals outside their property boundaries.

Items 11, 12 and 13 recommend that research into methods of predator control and related ecological problems be funded and retained in the Bureau of Sport Fisheries and Wildlife. We can find no fault with the desirability of doing research in these areas or that the Bureau should continue to be a major participant in this research. However, the Bureau has had this responsibility for many years and has not provided an answer to this problem. Thus it appears to be time to broaden the base of research to bring in some different viewpoints, skills and lines of attack.

Items 14 and 15 relate to the matter of protecting endangered species. By devoting considerable space to the subject of endangered species on a report on Predators, the Committee is attempting to blame this on the livestock industry or the Predator Control Program. This cannot be substantiated or documented in a single case. A typical case is the Texas red wolf. No extensive predator control programs are in effect in the presumed habitat of this animal. It is doubtful that this animal should be listed as a separate species. However, if this is done, it is obvious that the major reason for decline of this species is that it is being hybridized out of existence by interbreeding with the coyote.

In the overall report the Committee devotes considerable space and effort to the subject of estimating sheep losses to predators and relating this to the cost of control programs. As logical as this would seem on the surface, we suggest that this method of appraisal is self-defeating insofar as the livestock industry and predator control efforts are concerned. If control efforts are made more effective and animal losses go down, the costs expressed as a function of these losses become progressively higher and possibly subject to greater criticism. On the other hand, if losses increase, producers are forced out of business. These shifts will also occur too rapidly to permit identification of trends relating predator density to losses or shifts in enterprises. Most studies have suggested losses ranging from 3 to 10 percent. We suggest that there is an automatic cutoff operating in which producers experiencing losses greater than this immediately go out of business, and those continually experiencing loss in this range eventually terminate their operations. This appears to be, as indicated by producers themselves, a major

factor in the decline in sheep numbers. Data on actual losses in the absence of control programs cannot be obtained from producer owned flocks as they cannot absorb the losses entailed. This type of data can only be obtained from adequately supported research programs. We suggest that the expense of predator control programs should more equitably be expressed as a function of the total animal population being protected and not only sheep and goats, but cattle, poultry and certain game species should be included.

Finally we believe the nature of this report was substantially influenced by sportsman groups or agencies which represent sportsman's interests. We are struck by the incongruity of the inference in the report and that held in the minds of many people that it is somehow a noble and heroic gesture to shoot an animal for fun or amusement, but that it is a moral or legal crime to destroy an animal to protect our own interests or economic well being.

#### PREDATOR LOSSES IN ONE FLOCK OF SHEEP AND GOATS

(By Maurice Shelton)<sup>1 2</sup>

Considerable discussion and controversy have been generated over the predator problem in recent times. One of the difficulties has been the lack of documented evidence of losses to predators. Complete documentation of losses, even in a single flock, will likely never be obtained. Coyotes, and most other predators, are almost completely nocturnal and are also extremely sensitive to man's presence. For these reasons observation of anything except an occasional case of predation is out of the question.

From 1948 to 1971 a research flock of sheep and Angora goats was maintained by the Texas Agricultural Experiment Station at McGregor. This station is located on the eastern fringe of the sheep and goat producing area of Texas. From September 1, 1957, to September 1, 1971, this flock was under the direct supervision of the author. During this period an attempt was made to record all death losses and, insofar as possible, the causes of these losses. For the most part the animals were observed and losses recorded on a daily basis. Although daily veterinary assistance was not available, trained field workers were able to diagnose a high percentage of the losses. Frequent causes of losses which could be reasonably accurately diagnosed included mastitis, dystocia, pregnancy disease, fleecy worms, screw worms, tetanus, enterotoxemia, freeze losses, founder or overeating of high energy rations, photosensitization, starvation of baby lambs, injury by men or equipment, and losses to predators. In the early years this flock was grazed adjacent to a town of approximately 5,000, and town dogs proved to be a serious problem. In 1955 the flock was moved to areas located approximately five miles from town, and dogs no longer proved to be a problem. However, beginning in the early 1960's, losses to another predator came into the picture. Initially the animal was called a red wolf, but they were later referred to as coyotes. It is now considered that this animal or the population involved as an admixture of the coyote and red wolf representing various degrees of hybridization between the two. Observation indicates that the population tends more to the red wolf which is normally larger than the coyote. This may explain in part the fact that they readily kill mature sheep or goats; whereas, coyotes tend to prey much heavier on lambs. The distinction may be largely a matter of semantics. Since the animals have the same chromosome number and readily interbreed, they may simply represent different ecotypes of the same animal.

The skeptic is likely to ask how it is known that coyotes or wolf (coywolf or coywolves) were the source of the problem instead of dogs. The evidence is circumstantial only; as in eight years of dealing with this problem only one coyote was observed feeding on a freshly killed sheep carcass. However, in the minds of these involved there is no doubt as to the cause of the problem. Listed below is circumstantial evidence indicting coywolves instead of dogs.

1. Coyotes or wolves are almost completely nocturnal; whereas, dogs will sooner or later be found in the flock during daylight hours and can be eliminated.
2. Coyotes (and/or wolves) rapidly become efficient killers and go for the jugular vein; whereas, domestic dogs almost never learn this. Many individual wild predators suck or lick blood only and do not eat the flesh of the sheep. In

<sup>1</sup> Professor, Texas A. & M. University, Texas agricultural experiment station, formerly located at McGregor and currently located at San Angelo.

<sup>2</sup> The author wishes to acknowledge the assistance of Mr. J. D. Naler who recorded most of the losses and carried out most of the control measures.

these cases fang punctures of the jugular vein are the only evidence of predation; whereas, dogs largely slash and tear.

3. Wild predators seldom kill more than one or two animals at a time and can often do this without seriously disturbing or scattering the flock. By contrast, dogs often kill and may mangle many animals in the flock, scattering them badly in the process. Coywolves have been observed to kill several animals at a time only when they are challenged. Ordinary domestic sheep often do not represent a challenge. The experimental flock concerned contained at time various crosses of Mouflon and Barbados (wild-type sheep) on the more common breeds. These were often preferentially killed and several would often be taken (at one time 9 head) apparently for the sport of killing.

4. Wolves or coyotes have been repeatedly taken (killed or captured) in areas where predation was occurring. When this happened predation would invariably cease until new predators moved into the area. By analogy dogs were identified as the cause of a problem only three times in eight years, and in each case they were also observed to be active during the daylight hours.

#### EXTENT OF LOSSES

In tables 1 and 2 the losses to predators are shown for the five year period (1967 to 1971, inclusive). These losses are shown in actual numbers and also as a function of the total losses and the total flock size. These data indicate that 3.4 and 4.9 percent of the total inventory of sheep and goats, respectively, were lost to predators annually. Losses to predators represented 36.3 and 40.8 percent of the total losses for the two species. Interpretation of these data in proper perspective requires some additional information. Losses to predators are somewhat underestimated. Unless the carcasses were observed early after kill and before vultures arrived on the scene, death due to predation could not be accurately determined. Lambing and kidding occurred in confinement and lambs or kids dead at birth or those dying shortly after birth are not included in losses or in the inventory count. The losses approximate what might be called post marking losses. The number of breeding ewes or does would closely approximate one-half the inventory since lambs or kids, replacement stock and breeding males are included in the inventory.

TABLE 1.—SHEEP LOSSES TO PREDATORS AND OTHER CAUSES, 1967-71<sup>1</sup>

Year	Average inventory number	Losses to predators	Percent inventory	Other losses	Percent inventory	Total losses	Percent inventory	Losses to predators as a percent of total losses
1967	1,708	60	3.51	86	5.04	146	8.55	41.10
1968	1,805	72	3.99	156	8.64	228	12.63	31.58
1969	1,715	32	1.88	81	4.75	113	6.59	28.32
1970	1,744	67	3.84	105	6.02	172	9.86	38.95
1971	1,649	59	3.58	81	4.92	140	8.49	42.14
Summary	8,621	290	3.36	509	5.90	799	9.27	36.30

<sup>1</sup> All losses represent essentially post marking losses as lambing and kidding occurred in confinement.

TABLE 2.—GOAT LOSSES (PRIMARILY ANGORA, BUT 1971 LOSSES INCLUDED SOME SPANISH GOATS)<sup>1</sup>

Year	Average inventory number	Losses to predators	Percent inventory	Other losses	Percent inventory	Total losses	Percent inventory	Losses to predators as a percent of total losses
1967	557	29	5.21	282	14.72	111	19.93	26.13
1968	527	14	2.66	32	6.07	46	8.73	30.43
1969	380	8	2.11	9	2.37	17	4.47	47.06
1970	288	29	10.07	5	1.74	34	11.81	85.29
1971	147	13	8.84	7	4.76	20	13.61	65.00
Summary	1,899	93	4.90	135	7.11	228	12.01	40.79

<sup>1</sup> All losses represent essentially post marking losses as lambing and kidding occurred in confinement.

<sup>2</sup> Losses for this year were unusually high for a number of reasons which are incidental to the subject under discussion except that they appear to reduce predator losses when the latter is expressed as a percent of the total.

Thus, if losses to predators are expressed as a function of breeding ewes, the values would approximately double. These losses occurred despite intense efforts to control predators and to prevent predation. Since this was an experimental flock, the amount of effort expended on control measures was generally greater than an individual producer could afford. A majority of the losses were mature sheep or goats, as the young animals were given greater protection. Had no protection been provided, loss of young would no doubt have exceeded 50 percent with the total loss being a function of the ratio of sheep or goats to predators. Two small flocks of goats located adjacent to the research area experienced 100 percent losses among the offspring for several years until the flocks were discontinued.

It should be pointed out that this station is located on the fringe of the current sheep and goat producing area of Texas and, as such, is exposed to more coyote predation than most flocks located in the traditional sheep producing area that are surrounded by other sheep producers. Therefore, the losses to predators are relatively high, however, as producers on the fringe areas are forced out of business, predation will undoubtedly increase in the areas in the more central part of the sheep and goat producing area.

These data indicate heavier losses of goats than sheep. This should not be taken as evidence that goats are more susceptible to predation. In this case sheep were the more valuable species and were given greater protection. Losses in a mixed population tended to be in the order of kid goats, lambs, mature sheep and mature goats. Shorn animals are killed in preference to those in full fleece regardless of species.

Management procedures for preventing predation consisted of use of lights, bells, repellants, fencing or confining at night. Only the latter two proved of lasting value. Predators were often temporarily restrained by other procedures, but they readily adapted to the new environment.

#### PREDATOR DENSITY AND CONTROL PROCEDURES

In a period of eight years approximately 200 coyotes (wolves or coywolves) were taken by various means. The number is approximate because after initial successes no particular effort was made to search out and record all coyotes taken by poison or cyanide guns. The areas grazed by sheep and on which control was practiced initially composed approximately 6000 acres, the grazing area was eventually reduced to less than 1000 acres as predation became more of a problem. This calculates out to approximately 25 coyotes taken per year. At any given time no more than one to five or six coyotes appeared to occupy this area, but as they were removed others moved in from a large reservoir located south and east of the station. Seldom would more than 60 days elapse until the area would be reoccupied after it had been cleared. Control procedures included guns (including calling and headlighting), steel traps, coyote getters and poison (strychnine). Of the approximately 200 animals taken, two were shot by guns, approximately 12 were taken by steel traps and the remainder by coyote getters or poison in approximately equal numbers. The amount of effort expended in the various control measures was about the same, thus indicating the relative cost of removing coyotes by the various procedures.

#### STATEMENT OF RAY STALEY, PRESIDENT, UTAH WOOL GROWERS ASSOCIATION

Mr. Chairman and Members of the Senate Commerce Committee: My name is Ray Staley, and I am President of the Utah Wool Growers Association. Our economy very much hinges on agriculture yet in Utah, and this predator issue has us in a position of not knowing where to turn. We experienced a definite decline in the effectiveness of 1080 following the Leopold Report, submitted as a part of the Land Law Review Commission Findings. The buildup in coyote numbers is a result of that dilution of an effective program of predator control, which was the most selective method available.

I myself have devised some schemes that have been effective so far on my sheep during the winter months. But commencing at lambing time, and throughout the summer months, our losses have continued to increase. Day to day observations point out where the young lambs are disappearing to. This year in one herd alone, with a known count of 960 heads of lambs, we lost 230 lambs in 43 days. Predation is still going on with that herd. This is occurring in a fenced range where we didn't have any predator loss last year.

I cannot continue in my chosen vocation with such an erosion of my income. The economics of the business will cast the die of my demise no matter what I do in opposition, if predation continues. My neighbors in Summit County are likewise experiencing increased predation; and a number have sold their remaining sheep and quit the business the past year. This includes small family operators with from 50 to 200 head. These are in fenced pastures on the respective farms.

Many of our operators are in the cattle business as well, and are experiencing calf losses, even up to 300 pound calves. We likewise see heavy predation on game animals as well. We haven't begun to see the heavy impact since our predator program included the use of 1080 this last year.

Mr. Chairman, we question the need for this legislation at the time.

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STATEMENT OF MARCELLUS PALMER, EXECUTIVE SECRETARY, UTAH WOOL GROWERS ASSOCIATION

Mr. Chairman: It is good to meet with you on this end, and participate in this hearing of the Commerce Committee, representing the Wool Growers of Utah as their Executive Secretary. Some 900,000 breeding ewes comprise the industry in our State and all segments of agriculture share our concern over the explosive build-up Coyote numbers in recent years. We concur with the statements made by our National Association and the affiliate states, that there is cause for alarm. Particularly after this year, the incidence of predation during the lambing season just past; is the worst since the early 1940's.

We fail to see the urgency of legislation at this time. The target features have already been zeroed in; and our means of survival came to an abrupt halt. Mr. Chairman, we have been ignored and are still being ignored. If we were not environmentally conscious, our people would not be into the fourth generation of operation. The operator who follows his stock from day to day is in the best position to know where his lambs are going.

We are not out to exterminate the coyote. Were it possible, we would not be facing the challenge we are today, so soon after the control measures were diluted. Our producers have been hit so hard and so fast they are reeling from the impact. They don't want to give up; but can they hold out until relief comes?

It is interesting to note what has happened over the past 40 years with our big game herds, and this has occurred during the Organized Predator Control Program. In 1932, we harvested 7,000 deer in Utah; while in 1970 the harvest had increased to 102,000. We note a similar increase in Elk and Antelope harvest as well. There are about the same total livestock numbers in the state now as there were 40 years ago. Has it been beneficial to those outside of our industry? We think so!

The range lands of the state have improved under the loose herding concept, with organized predator control. This is now changing as our people return to the tight herding or corraling at night concept. This is not in the best interest of good range management. We have no choice but to protect our herds in this manner.

Continually our loss figures are questioned by those who have no experience with livestock management. Nor do they have any scientific data to back their contentions. Our people do know how many lambs are dropped, and they can get a very good estimate of what to expect from observations at shearing time. By good breeding, culling, and selection, lambing percentages have been increased in recent years. But this avails us nothing if the lamb crop is syphoned off as they come.

An independent study was conducted in our state that points out the serious nature of predation. I refer to the study conducted by Dr. Darwin Nielson and David Curle at Utah State University covering the fiscal year 1969. No one has come up with research to disprove these findings, but the countryside is ablaze with loose, unsupported comments in opposition to the facts reported there. This research confirmed a loss of 3½ million dollars to our sheepmen that year. I wish to include that research information as a part of my comment here. Lambs taken at lambing time certainly will not be on the scales at shipping time.

We do not have acceptable answers at the moment. We want sound acceptable answers to this challenging problem. Time may well help us reach that light at the end of the tunnel, which we are sure will appear with meaningful research and tools to bridge the gap between.

Attachments:

## PREDATOR COSTS TO UTAH'S RANGE SHEEP INDUSTRY

(By Darwin Nielson and David Curle)

The existence of the range sheep industry depends on adequate predator control. Total loss to Utah's economy from predator loss is calculated at \$3,538,846 annually. The statistics in this article would be similar in many states. Darwin Nielson is associate professor of the department of agricultural economics at Utah State University, Logan, and David M. Curle a graduate student who received his master's degree after preparing this report.

Utah is one of the few states that still has a large range-sheep industry. In 1967 gross income from sheep and lambs was over 12.9 million dollars. This industry, like most of agriculture, has its problems. Some of its more pressing problems are: (1) high cost of inputs used in sheep ranching; (2) relatively low lamb and wool prices when compared to input costs; (3) difficulties in obtaining labor, especially herders; and (4) losses caused by predators.

This report deals with the economic losses incurred by Utah sheep ranchers due to predators. Data used to estimate economic losses were collected by personal interview with 20 per cent of the range-sheep operators in the state. The data are for the fiscal year 1969.

The questionnaire was designed to obtain data on death losses caused by factors other than predators before losses were mentioned, thus minimizing bias in reporting predator losses. Since this study covered only a period of one year, there was no attempt made to check or verify every reported loss. The enumerator reminded each respondent that he should report only kills made by predators. Most ranchers indicated that they reported only those sheep, killed by predators, that had been seen by themselves or their hired men. At various times during the year (shearing, lambing, weaning, trucking, trailing, etc.), sheepmen have an opportunity to get a head count on their entire herd. Estimates made when sheep were counted placed the number killed but not found at between two and three for every sheep verified as having been killed by predators. Thus, there is little reason to believe that reported losses are biased upward any more than there is to believe that they are biased downward.

## DEATH LOSSES DUE TO PREDATORS

Ranchers sampled in this study owned a total of about 135,000 ewes. In order to make comparison over time and between ranches or among areas of the state, death losses have been calculated per 1,000 head of ewes in the breeding herd.

The average loss for the state was 61 ewes and lambs killed per 1,000 ewes in the breeding herd. There was a considerable amount of variation in these figures between ranchers: with a high predator loss of 267 head per 1,000 ewes on a ranch with 2,600 head of ewes to a low of 3 head per 1,000 ewes on a ranch with 3,200 head of ewes. There did not seem to be any relationship between size of breeding herd and death losses per 1,000 ewes.

A breakdown of the death losses by different predators is given in Table 1. Predation by coyotes was the most serious predatory problems in Utah. Seventy-one per cent of total sheep killed by predators were lambs, and 29 per cent were ewes. The sample indicated that about 2,688 head of ewes and lambs were killed on Bureau of Land Management (BLM) land, 1,753 head were killed on Forest Service (FS) land and 5,166 head were killed on private lands. A percentage breakdown of these losses is as follows: 28 per cent BLM, 18 per cent FS and 54 per cent private land. Ewe and lamb losses were analyzed to determine the season of the year when predation was most serious. Lamb losses were heaviest in the spring and summer seasons with 48 per cent (3,277 head) in the spring and 36 per cent (2,434 head) killed in the summer. Ewe losses were the heaviest in the winter with 46 per cent (1,266 head) being killed during this season. Only 9 per cent (260 head) of the ewe death losses occurred in the summer.

The survey indicated that very few sheep were only injured by predators. Only 59 head of ewes and lambs were reported as being injured by predators and survived.

## ECONOMIC LOSSES FROM PREDATION

The sample used in this study covered 20 per cent of the range sheep in the state. Therefore, losses for the state can be estimated by multiplying the losses determined from the sample by 5.0. Total loss of ewes and lambs was 9,607 head for the sample giving a total for the state of 48,035 ( $5.0 \times 9,607 = 48,035$ ). These losses are broken down as follows: lamb losses were 34,270 head and ewe losses were 13,765 head.

TABLE 1.—NUMBERS OF EWES AND LAMBS KILLED BY PREDATORS IN UTAH, FISCAL YEAR 1969<sup>1</sup>

Predator	Number of ewes and lambs killed	Percent of total	Number of lambs killed	Percent of total	Number of ewes killed	Percent of total
Coyote.....	7,507	78	5,542	81	1,965	71
Cougar.....	868	9	655	10	203	8
Bobcat.....	131	1	131	2	0	0
Eagle.....	338	4	388	5	0	0
Dog.....	424	4	56	1	368	13
Bear.....	207	2	67	1	140	5
Other.....	82	1	5	-----	77	3
Total.....	9,607	-----	6,854	-----	2,753	-----

<sup>1</sup> These data report losses from the sample not the population.

In making an economic evaluation of predator losses to the range sheep industry one has to determine a value to place on the sheep lost to predators. Should lambs be valued at their market value at the time they were killed or what they would have been worth at normal marketing time? It is our contention that they should be valued at the value they would have at normal market time. Ranch operating costs are essentially the same with or without predator problems, i.e., operating costs do not decrease as the number of sheep is decreased by predators. If anything, predator problems significantly increase operating costs. A rancher has to feed and care for the ewe 12 months of the year whether the lamb is on the ewe until sale time or killed by a predator before it is sold. In most cases he pays the same for summer forage for a ewe and a lamb as for a dry ewe. Essentially when a lamb is killed the rancher loses the value the lamb would have at sale time minus the cost of marketing. When a ewe is killed he loses the market value of the ewe and in some cases the lamb would also die because of the death of the ewe.

Based on ewe and lamb marketings in Utah in 1968 the average weight of lambs at market time was 95 pounds per head. The average price paid for lambs was \$23.50 per hundredweight in 1968. Good breeding ewes have been selling for \$25 to \$35 per head over the past few years. Therefore, lambs are valued at \$22.33 per head and ewes at \$25 per head. It is assumed that young and old ewes were killed by predators so that an average value of a producing ewe would be appropriate. With these values and an estimate of the total number of sheep killed in the state one can estimate the value of lambs and ewes lost.

Based on the above figures the total value of lambs lost was \$765,249 (\$22.33 per head  $\times$  34,270 head) and \$344,125 (\$25 per head  $\times$  13,765 head) for ewes killed by predators. The sum of \$1,109,374 provides an estimate of total direct losses of Utah sheep ranchers to predators. However, there are other factors that must be considered when estimating the total economic loss to the economy of the state.

The losses reported here occurred while a comprehensive program of predator control was in progress. (We have no idea of what the losses would be if no predator control was practiced). Thus, ranchers have to add the costs of predator control programs to predator losses. A 65-mill levy has been placed on the assessed value of sheep to provide funds for the Utah Department of Agriculture for predator control. In fiscal year 1969, this levy provided \$152,781 for predator control. Again this is a direct out-of-pocket cost to ranchers because of predators.

Ranchers also have their own private control programs which cost them more money. Data were collected in the survey to determine expenditures made for hiring of professional hunters, paying private bounties for predatory animals killed on private ranges. It was estimated that Utah ranchers spend \$56,330 for private control practices. Range-sheep ranchers often donate money and bait sheep to the Division of Wildlife Services to be used in their control programs. This amounted to \$4,458 for fiscal year 1969.

Of course ranchers did not have to pay taxes on the ewes that were killed by predators. This reduced the taxes paid by ranchers by about \$2,845 and should be subtracted from the losses.

The act of spending money is not an isolated, terminal event. A dollar spent by one unit or sector of the economy will have a chain effect. This same dollar will be a payment or a receipt to another sector where part of it will be spent, which will

in turn be revenue although smaller, for other economic sectors. In theory, this chain reaction would be infinite but, quantitatively, it eventually phases itself out. The extent of this change in the revenue stream that was generated by the initial transaction can be determined quantitatively by means of a "multiplier."

If predation was eliminated from the range-sheep industry, exports from the livestock sector of the economy of the state could be expected to increase by \$1,109,374 annually. The total effect of an increase in spending depends on the sector income "multiplier." Income multipliers for the livestock sector vary depending on the size of the economy being studied. We shall consider the state of Utah as the economic base of activity. State income multipliers range from about 2.00 to 4.00 depending on the situation and the assumptions made. In Utah the type II income multiplier for the livestock sector was estimated at 4.33 by a study at the University of Utah.\* For purposes of this report we will assume an income multiplier of 3.00.

Because the \$152,781 that ranchers pay in property tax for predator control, the \$56,330 that they spend on private control and the \$4,458 that they donate to buy bait sheep will all be recirculated in the economy of the state, they should not be used in calculating the economic loss to the state of Utah by use of the income multiplier. They should, however, be added in after the multiplier has been used, because they are losses to the individual ranchers. This leaves \$1,109,374 on which to apply the income multipliers.

A tabular account of the calculation of the economic losses to sheepmen and to the state economy is shown in Table 2.

TABLE 2. *Economic losses to sheep ranchers and to the state of Utah economy, fiscal 1969*

Type of loss:

Direct losses:

Lambs -----	\$765, 249
Ewes -----	344, 125
Total direct losses-----	<u>1, 109, 374</u>

Control costs:

Sixty-five mill levy-----	152, 781
Private predator control costs-----	56, 330
Donations and bait sheep-----	4, 458
Total control cost-----	<u>213, 569</u>
Reduction in property taxes-----	2, 845

Net control costs----- 210, 724

Sheep ranchers total loss----- 1, 320, 098

Loss base for calculating total economic impact----- 1, 109, 374  
Income multiplier----- 3. 0

Primary and secondary income losses to Utah economy----- 3, 328, 122  
Net control costs----- 210, 724

Total loss to Utah's economy----- 3, 538, 846

If one uses the type II multiplier for the livestock sector reported by Bradley (1968) the loss to Utah's economy could be as high as \$5,014,313 annually.

PREDATOR CONTROL PROGRAMS

Sheep ranchers practiced some type of control on 64 per cent of the rangeland grazed by their sheep. The cost of their control measures was estimated at \$56,330 (Table 2). The success of the control programs can be approximated by the number of predators taken. These data are summarized in Table 3.

\*Bradley, Iver E. and James P. Gardner, "Utah Industry Study, an Application of Input-Output Analysis," Utah Economic and Business Review, XXVIII, No. 2, February 1968.

TABLE 3.—NUMBER OF PREDATORS KILLED BY RANCHERS, UTAH, FISCAL 1969

Predator	Number killed	Percent of total
Coyote.....	1,245	81.6
Mountain lion.....	50	3.3
Bobcat.....	20	1.3
Eagle.....	85	5.6
Domestic dog.....	115	7.5
Bear.....	10	.7
Total.....	1,525	100.0

Ranchers spent an average of \$36.94 per predator taken.

Bounties were an important part of the predator control program in fiscal 1969. The Utah Department of Agriculture paid bounties on 4,732 predators (2,677 coyotes and 2,055 bobcats). Total bounties paid amounted to \$20,458 which made the control cost \$4.32 per predator turned in for bounty. A summary of the bounties paid in Utah over the past few years is given in Table 4.

TABLE 4.—NUMBER OF PREDATORS AND BOUNTIES PAID, UTAH, 1915-69

Fiscal year	Number of predators bountied	Total cost
1915.....	18,437	\$31,908
1920.....	17,519	69,914
1925.....	(1)	(1)
1930.....	17,366	96,422
1935.....	(1)	(1)
1940.....	(1)	(1)
1945 <sup>2</sup> .....	15,569	94,448
1950 <sup>2</sup> .....	4,665	36,389
1955 <sup>2</sup> .....	4,715	23,128
1960 <sup>2</sup> .....	6,156	24,624
1964 <sup>3</sup> .....	2,906	5,423
1969.....	4,732	20,458

<sup>1</sup> No bounty paid.

<sup>2</sup> Calendar year.

<sup>3</sup> 1965 data not available.

Source: The files of the U.S. Department of the Interior, Utah District, Division of Wildlife Services, and the Utah Department of Agriculture.

Another very important predator control program in the state is that being carried out by the Utah District, Division of Wildlife Services. A summary of their predator control and expenditures is given in Table 5.

TABLE 5.—NUMBER OF PREDATORS KILLED AND EXPENDITURES, UTAH DISTRICT, DIVISION OF WILDLIFE SERVICES, FISCAL 1920-69

Fiscal year	Number of predators killed	Expenditures
1920.....	3,759	\$68,152
1925.....	1,825	63,821
1930.....	1,938	58,140
1935.....	4,226	65,881
1940.....	16,719	81,322
1945.....	5,614	90,161
1950.....	4,070	151,068
1955.....	3,557	155,054
1960.....	3,800	224,943
1965.....	3,723	245,783
1969.....	2,810	298,871

Source: Files of the Utah District Division of Wildlife Services.

Because lethal agents are used a report on the total number of predators killed is not possible. Recovery of predators taken by lethal methods may be as small as 10 per cent of the actual number killed. In 1969 predacides (1080 and strychnine) were responsible for a recovered catch of 69 predators. Coyote getters took an additional 706. Both of these tools are used with a high percentage of animals killed but not recovered.

In 1964 the Secretary of the Department of the Interior appointed an Advisory Board on Wildlife Management. The Secretary accepted the report of this board, called the Leopold Report, on June 22, 1965 and on July 1, 1965, the Division of Wildlife Services was organized as a successor to the Division of Predator and Rodent Control.

The Leopold Report recommended "a complete reassessment of the goals, policies and field operations of the Division of Predator and Rodent Control, with a view to limiting the killing program strictly to cases of proven need, as determined by rigidly prescribed criteria."

Although no data are directly available that will allow a comparison of the levels of depredation upon sheep and lambs by predators before and after the acceptance of the Leopold Report by the Secretary of the Interior, it is possible to compute the costs of predator control by the new Division of Wildlife Services and compare these with the control costs of the old Division of Predator and Rodent Control. The number of predators reported by the Division between fiscal 1965 and fiscal 1966 was reduced by 27 per cent. (Table 6).

TABLE 6.—NUMBER OF PREDATORS AND EXPENDITURES, DIVISION OF WILDLIFE SERVICES, UTAH DISTRICT, FISCAL 1960-69

Year	Number of predators killed	Expenditures
Division of Predator and Rodent Control:		
1960.....	3, 800	\$224, 943
1961.....	4, 473	227, 178
1962.....	3, 702	248, 464
1963.....	4, 260	254, 012
1964.....	4, 180	244, 012
1965.....	3, 723	245, 783
Division of Wildlife Services:		
1966.....	2, 732	248, 824
1967.....	2, 310	297, 189
1968.....	2, 277	305, 245
1969.....	2, 810	298, 817

Source: Files of the Utah District, Division of Wildlife Services

Prior to 1965 the Division of Wildlife Services employees made a serious effort to recover animals taken through their efforts. After 1965 there was a de-emphasis on the need to recover these animals. Reduced funds and manpower, added to the emphasis on problems rather than "scalp counts," caused this change in direction.

The range sheep industry is important to Utah. Its continued existence depends on methods and means of controlling predators. The losses reported above took place with a substantial on-going program of predator control. What magnitude would these losses reach if the present controls were stopped? Respondents to the questionnaire reported that predators were on the increase, especially the coyote. This would indicate the problem could get more intense over the next few years. Research should be done to see how death losses due to predators change over time. We should find out if it is in fact getting worse and how much worse.

#### STATEMENT OF DAVID A. SMITH, MONTANA WOOL GROWERS ASSOCIATION

Mr. Chairman, my name is David A. Smith and I am Secretary-Treasurer of the Montana Wool Growers Association. I reside in Helena, Montana.

The Montana Wool Growers Association is a service organization and represents some 3000 producers of lamb and wool as well as allied industry people in Montana. We are a voluntary organization and proud of our history which dates back to 1883.

Mr. Chairman, this is the third time our growers have directed me to appear in their behalf in opposition to H.R. 13152 (S. 3334) the Administration's Predator Animal Control bill. May I briefly point out our continual objections.

When the President issued Executive Order #11643 on February 8, 1972, the livestock industry in general was extremely shocked. We felt the decision the President made in issuing the order was based upon emotionalism and biased information coming to him from certain advisors. His action too, we assumed, was based upon conclusions made by his appointed investigation team known widely as the "Cain Committee" in their report entitled, "Predator Control 1971—Report to the Council on Environmental Quality and the Department of Interior by the Advisory Committee on Predator Control".

I would like to include in the record a few observations with regard to the Cain Report, especially as they relate to your deliberations on H.R. 13152 (S. 3334).

This report has directly resulted in the removal by Presidential Order of all those tools which have proved to be reasonably effective in dealing with predators. Unless this order is rescinded or alternative measures can be found in the very near future, this action appears to spell the death knell of one of man's oldest and time-honored industries—that of raising livestock and especially sheep and goats on the Western ranges of this country. It only seems logical that any document with such far-reaching consequences should be subjected to critical review. The hastiness and secrecy with which this report was prepared suggests that it was not subjected to this review process before being submitted through the channels to the President of the United States.

We submit that the tone of this report could have been predicted on the day the committee was appointed. Secretary Morton (Secretary of Interior) and Mr. Russell E. Train (Chairman, Council on Environmental Quality) described the committee in question as being "composed of seven distinguished scientists". Although not so stated, one might expect members of this committee to be open-minded or without prejudice or preconceived positions in respect to the subject of their investigation. A trip to the library to consult the most recent issues of such publications as Who's Who in Science or American Men of Science fails to provide any information on three of the seven members of this committee. This brings into question the applicability of the term "distinguished". Of the four which could be identified, all had been Professors of Wildlife Biology, Ecology, or some related fields and are active members of several organizations which have been avowed enemies of the U.S. Sheep Industry for years. How could such a group of people be expected to prepare an unbiased report?

In a forward to this report it is stated that this committee had contact with nearly 400 persons in the process of preparing the report. The appendix to this report contains a list of 183 organizations and 310 people who were contacted or had an input into this report. As was true of the composition of the committee a study of these lists provides considerable insight into the nature of the report likely to be forthcoming. Of the 183 organizations contacted a total of five might be expected to represent the viewpoint of the sheep industry, while 54 might be expected to represent an opposing point of view. In the latter group are included such organizations as the North American Association for the Preservation of Predatory Animals. In addition, 34 organizations might be expected to be sympathetic to the overall livestock industry. However, included in this number are all contacts with the Agriculture Extension Service in the various states. It is significant that most of the latter contacts were with persons from states such as Arkansas, Georgia and Florida, which have neither a significant sheep industry or significant coyote population. Also, many of the Extension specialists contacted were wildlife specialists and not animal scientists. Similarly, in the list of persons contacted there is a significant deficit of people who might be expected to represent producer interests in such important livestock producing states as Texas, Wyoming and Montana. In contrast, the list contains a large number of names of people representing such organizations as the Sierra Club, Rachael Carson Trust, Friends of the Earth, Environmental Defense Fund, Inc. and National Audubon Society.

In the overall report, the committee devotes considerable space and effort to the subject of estimating sheep losses to predators and relating this to the cost of control programs. As logical as this would seem on the surface, we suggest that this method of appraisal is self-defeating insofar as the livestock industry and predator control efforts are concerned. If control efforts are made more effective and animal losses go down, the costs expressed as a function of these losses be-

come progressively higher and possibly subject to greater criticism. On the other hand, if losses increase, producers are forced out of business. These shifts will also occur too rapidly to permit identification of trends relating predator density to losses or shifts in enterprises. Most studies have suggested losses ranging from three to ten percent. We suggest that there is an automatic cutoff operating in which producers experiencing losses greater than this immediately go out of business, and those continually experiencing loss in this range eventually terminate their operations. This appears to be, as indicated by producers themselves, a major factor in the decline in sheep numbers. Data on actual losses in the absence of control programs cannot be obtained from producer owned flocks as they cannot absorb the losses entailed. This type of data can only be obtained from adequately supported research programs. We suggest that the expense of predator control programs should more equitably be expressed as a function of the total animal population being protected and not only sheep and goats, but cattle, poultry and certain game species should be included.

Finally we believe the nature of this report was substantially influenced by sportsman groups or agencies which represent sportsman's interests. We are struck by the incongruity of the influence in the report and that held in the minds of many people that it is somehow a noble and heroic gesture to shoot an animal for fun or amusement, but that it is a moral or legal crime to destroy an animal to protect our own interests or economic well being.

Further Mr. Chairman, when the Cain Committee was formed the Administration promised the livestock industry and other interested parties, an opportunity for a full review and hearing on the report. Such a review and hearing has never been called, and yet, at the same time the report was publicly released the Department of Interior sent a bill to the Hill banning use of all lethal agents for predator control on Federal lands and phasing the Federal Government out of predator control.

While H.R. 13152 has been amended substantially in the House, it now simply writes into law the Presidential Order, an order we feel was ill advised and did not give Congress an opportunity to study the problem and make a determination.

Early last February a delegation of wool growers met with Secretary Morton and at that time were not told the Cain Report would be issued simultaneously with submission to Congress of a bill banning the use of lethal agents for predator control. This same group was not informed that within less than a week of the above-mentioned action the President would issue an Executive Order banning the use of toxicants on Federal lands and that one month after the Executive Order an order would be issued by EPA removing toxic chemicals from all manufacturers, leaving a complete ban on these chemicals from Federal and private lands, if used for predator control.

The final blow to the industry has been the proposals by the Bureau of Land Management and Forest Service to cancel grazing permits if any of the aforementioned orders or actions are violated in any manner whatsoever.

The real tragedy Mr. Chairman, seems to be in the wholesale indictment of the sheep industry as being the apparent sole users of toxic chemicals when in actuality the industry is probably the most minor of all users. In fact, use of toxicants in large metropolitan areas of the country far exceeds use on the rangelands of the West.

When I recently asked a Department of Interior official the reason for discrimination through the restricted use of toxicants for predatory animal control programs, and no restriction of toxic chemical use in highly populated areas to control rats, the reply I received was "rats are not a socially acceptable animal, coyotes are".

In closing let me cite to you some most alarming figures. "Montana's 1972 lamb crop is estimated at 709,000 head, six percent below 1971 and the smallest lamb crop since records began in 1924. Since 1962, each year's lamb crop has been smaller than the year before. A record high crop was established in 1932 with 2.7 million head. During the late forties to early sixties lamb crops ranged from 1.1 to 1.3 million head." Quite naturally, wool production has also declined. "Wool shorn and to be shorn in the United States during 1972 is estimated at 152.5 million pounds, grease basis. This is a decrease of 4 percent from 1971 production of 159.1 million pounds." This pattern continues from year to year.

Producers in Montana attribute this decline to the problem of predatory depopulation on their flocks which they say is increasing. H.R. 13152, its complexity and far-reaching consequences, deserve much more consideration and study before being considered for enactment into law. Our people ask for your consideration in this light and thank you for letting us appear before you today.

## STATEMENT OF WILLIAM P. MAU, PRESIDENT, WYOMING WOOL GROWERS ASSOCIATION

My name is William P. Mau. I am a sheep rancher in western Wyoming and currently serving as President of the Wyoming Wool Growers Association.

The Wyoming Wool Growers Association serves as the spokesman for the sheep industry in Wyoming, the nation's second largest sheep raising state.

The sheepmen in Wyoming are opposed to the Administration's bills H.R. 13152 and S. 3334. Their opposition is primarily based on the fact that both pieces of legislation are redundant legislation. The President's Executive Order of February 8, banning the use of all lethal agents to control predators, accomplished what this legislation is attempting to do.

The Environmental Protection Agency's order to suspend and cancel the use and interstate shipment of cyanide, strychnine, 1080 (sodium fluoroacetate) and suspension of the registration of all products containing thallium sulfate of March 9, accomplished what this legislation is attempting to do.

Granted amendments to H.R. 13152 recommended by the House Merchant Marine and Fisheries Committee and adopted by the House of Representatives on July 17 allude to the possibility of using chemical toxicants "for the prevention of major damage to domestic livestock in an area where he (Secretary of the Interior) determines that other means of predator control will not prevent such major damage."

However, H.R. 13152 as passed is not acceptable to those whose livelihood depends upon the marketing of as many lambs as possible from their flocks. The July 7, 1972 issue of Outdoor News Bulletin published by the Wildlife Management Institute adequately put into words why the sheep industry cannot live with this legislation. I quote from page 4 of the above mentioned publication:

"Instead of a 3-year program as originally proposed, the committee (House Merchant Marine and Fisheries Committee) settled on permanent cooperative arrangements between Federal and state wildlife agencies to restrict control to the least possible amount and to use methods consistent with accepted principles of wildlife management."

First and foremost, Wyoming's sheep industry's number one problem is the tremendous number of sheep and lambs lost annually to predators, namely coyotes. Any further restriction on predator control will wipe out the industry.

For the past six years the U.S. and Wyoming Departments of Agriculture have conducted loss surveys in Wyoming as to the number of sheep and lambs lost to predator animals. The following are the numbers of head of sheep and lambs lost to coyotes annually in Wyoming, and the value of the losses.

Year and number of head :	Value
1965—66,900	\$944, 100
1966—82,200	1, 156, 200
( <sup>1</sup> )	
1968—56,300	877, 600
1969—80,600	1, 395, 000
1970—95,000	1, 636 300
1971—88,600	1, 432,800

<sup>1</sup> Survey was not conducted for 1967.

Coyotes account for approximately two-thirds to three-fourths of the total sheep and lambs lost to predators in Wyoming. In order to understand why the sheep loss is so great, you need to understand how fast the coyote population increases.

Biologists and wildlife research workers indicate that one pair of coyotes will increase to 7 coyotes the first year, 18 coyotes the second year, 50 coyotes the third year, 135 coyotes the fourth year, and 366 coyotes the fifth year. These are very conservative figures based on an average litter of five pups.

Now, here is the crux of the whole problem. F. F. Knowlton, Bureau of Sport Fisheries and Wildlife Services, indicates that in order to maintain a stable coyote population, 72 percent of the adult and juvenile coyotes must be taken annually. In Wyoming only about 45 to 50 percent of the annual coyote numbers are taken; thus, during the past six years especially, coyote numbers have increased tremendously. Thus the increased sheep losses to coyotes.

Now with this background I hope you can better appreciate the sheepman's dilemma—coyote population continually increasing—sheep losses continually increasing—the Administration banning the use of poisons—the E.P.A. cancelling the interstate shipment of chemicals used to control predators—and now the

members of Congress are being asked by the Administration to contribute to a further decline of the sheep industry in the western range states by enacting legislation to *restrict control to the least possible amount*.

Frankly and very bluntly, the sheepman's back is against the wall, utter chaos exists, and we sincerely plead and respectfully request that this distinguished committee not add to the confusion by reporting this legislation out of committee. The proposed legislation provides for research funds to develop new methods of predator control; however, the most effective control tools have been taken away before new tools and methods are developed. A tremendous void exists, until research develops some new methods. Passage of this legislation amplifies the void.

What we are saying to you on behalf of the sheep industry is that we absolutely do not need legislation such as H.R. 13152 or S. 3334.

What is needed is a crash research program to develop non-lethal predator animal control methods and the control program administered by the states with no strings attached by Federal legislation or rules promulgated by Federal agencies.

In closing I would like to outline the salient points to be encompassed in legislation to provide for the means and methods of conducting an accepted predator management program by the states.

A. Terminate the administration of the predator animal control program by the Bureau of Sport Fisheries and Wildlife Services on July 1, 1973.

1. On numerous occasions during the past several months, the Secretary of the Interior has commented, "We want to get out of the coyote killing business." Yet the legislation proposed by the Administration does not provide for a clean break from a Federally administered program to a state administered program. The legislation has so many strings attached and carrots dangling, it is not acceptable to the woolgrowing industry or to the state agencies that would be administering the predator control program.

Therefore, we are recommending a clean break from the Federal program to a state program, with no strings attached and no intervention from the Federal government.

B. Legislation to terminate the Bureau of Sport Fisheries and Wildlife Services' involvement in the predator animal control program, with no strings attached, would have to be enacted to specifically provide for the following:

1. Give authority to the states to control and manage predator animals on Federal lands.

a. Assistant Secretary of the Interior Nathaniel Reed, when questioned at the hearings on H.R. 13152, said that under this bill, states and livestock producers holding grazing permits would have authority to control predators on Federal lands. If this is true, the Interior Department should have no objection to giving this authority to the states, and grazing permittees.

Secretary Reed was speaking of Federal lands under jurisdiction of the Department of the Interior and authority would be necessary to cover National Forest lands administered by the U.S. Department of Agriculture.

C. Federal Appropriations to States on July 1, 1973.

1. The Administration's bills H.R. 13152 and S. 3334 provide for a payment annually to the states for a maximum of five years.

2. We are recommending that the new proposed legislation provide for one single payment to the states equal to the proposed maximum payment to be made in five years.

D. Equipment and supplies now owned by the Bureau of Sport Fisheries and Wildlife Services in each state to be turned over to the state agency that will administer the predator animal control program.

E. Use of chemicals on Federal lands and private lands.

1. The legislation should provide for provisions to use poisons on Federal and private lands where it is impossible to control predators by any other methods.

a. For example, in Wyoming, approximately 200,000 head of sheep graze on the Bridger National Forest for a two-month period during the summer. The only effective method of keeping the coyote population at a level not to cause extreme depredation to these sheep is to place about 100 stations of 1080. The 1080 stations are placed in the area in the late fall and picked up in the early spring. There are no people in this high, rough terrain country during these winter months. The area is too rough and covered with timber to control coyotes from aircraft. Traps are ineffective and non-selective. Denning is out of the question because of the terrain and topography.

b. The U.S. Department of the Interior's draft environmental statement on H.R. 13152, dated February 8, 1972, page 41 and 42, clearly points out the effectiveness of poisons in controlling coyotes.

"It has been estimated that poisons account for about 80 percent of all predatory animals that are killed annually by the Department's current program . . .

"The remainder (20 percent) are killed by such methods as shooting, trapping and denning. Since poisons will be prohibited from field use for killing predatory animals on Federal lands, 80 percent of the predatory animals now being killed annually may live to play active roles in range land ecosystems and other habitats which they occupy, unless other control efforts are intensified."

With 80 percent more coyotes playing active roles in the range land ecosystems annually, the hunters will be without game to hunt, the livestock operator will have less lambs and calves to market, but society will have a moonlight night filled with piercing blood-curdling coyote howls.

In summary, our testimony respectfully urges your sincere consideration of:

1. Not reporting S. 3334 out of committee.
2. Sponsoring legislation that will terminate the Federal government's involvement in the predator control program in the various states and permit the states to administer their own program more effectively and efficiently.
3. The future of the western sheep industry is definitely predicated on an effective system for a better predator animal management program.

Thank you.

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STATEMENT OF WILLIAM J. HOFMANN, PRESIDENT, COLORADO WOOLGROWERS  
ASSOCIATION

I am William Hofmann from Montrose, Colorado. I speak to you today as a sheep rancher whose entire income is from the operation of a family sized sheep ranch which uses both private and public lands. I also speak to you as President of the Colorado Woolgrowers Association representing the majority of the sheep operations in Colorado.

At their Convention last week, the sheepmen of Colorado unanimously passed a resolution opposing the passage of H.R. 13152 and S. Bill 3334. Since the Predator Control Act of March 2, 1931 (7 U.S.C. 426-426b) now in effect authorizes the Secretary of the Interior to conduct a program of research and also authorizes the Secretary of the Interior to provide assistance to and to cooperate with the States in the control of predatory animals, we see no need for this proposed legislation. A cooperative program under the 1931 Act has been in effect in Colorado for many years between the Colorado State Department of Agriculture and the Bureau of Sport Fisheries and Wildlife of the Department of Interior. Under this agreement sheepmen are the largest single contributor to the program. Since predators destroy other domestic animals including turkeys and calves as well as many deer, elk, antelope and game birds, the agreement is cooperative and beneficial to many others in the state besides the sheepman. We support this type of cooperation, and we also support cooperative funds for research in the problems of predator control. The Predator Control Act of March 2, 1931 *already* provides for such research and assistance in a cooperative manner.

S. B. 3334 provides that the Secretary will *not* authorize any payment of a State for assistance in the control of predatory animals, if any part of the funds for the State program is *not* appropriated or otherwise authorized by its legislature. This restrictive limitation would *prevent* the immediate cooperation of the industries suffering the animal and rodent damage. Large amounts of State funds would have to be sought in order to keep the same type of program that we have now. While all this legislation is being processed, the coyote will continue to multiply making control increasingly difficult.

S. B. 3334 and H.R. 13152 are not necessary to restrict the use of chemical toxicants on public lands as the Executive Order of February 1972, and the Environmental Protective Agency restriction of interstate shipment of chemical toxicants for predator use on March 10, 1972, have already accomplished this.

Sheep losses to predators are increasing in Colorado as a result of the ban on toxicants for predator control. These losses will continue to rise as the coyote populations continue to increase. Therefore, we believe that there should be no action taken by the legislature for at least a year in order to assess the full effect of the Presidential Order and how the existing restrictions of toxicants will effect the predator populations and the livestock and wildlife losses.

We question whether the use of chemical toxicants is as dangerous as the public has been led to believe. If these toxicants are so dangerous that it was necessary to issue a Presidential Order banning their use rather than going through the legislature for this authority, why can these *same* toxicants be used in high density urban areas for the control of rodents, and why are they still allowed on Indian Lands? If they are safe enough for use in protecting endangered species of wildlife or to prevent damage to natural resources, why are they not acceptable to protect our dwindling meat supply? The production of food will always be a vital and basic need of the people of our country, and livestock are still the only way we know of turning grass—the greatest natural resource we have—into food and fiber for the people of this country.

We who live on the sheep ranges of the West are concerned about our environment. We live close to the land and can foresee worse problems for our land than the grazing of sheep and the control of predators. We already see not some, but many, sheepmen going out of business because of the increasing predator losses. The coyotes do not disappear when the sheep are gone. They change their diet from lambs to deer or calves. The sheepman is gone, but the problem remains. Sheepmen own many thousands of acres of private land interspersed within the public lands of Colorado. These private lands have been used primarily for grazing by sheep and wildlife. When the sheepmen are forced to sell these lands, in most cases the new owners are land speculators, developers and large corporations. The family sized ranch unit and the personal concern for this piece of land will be gone forever. A reasonable control program will allow many of these families to remain on the land and save our beautiful mountain country from being exploited by men who are interested only in making a fast buck.

These facts are already evident to people in the West. We feel certain that in another year environmentalists everywhere will begin to see that there are many things that are worse for the mountain lands than grazing sheep and controlling predators; therefore we urge this committee to wait until the full impact of the Executive Order and the EPA directive is known before legislative action is taken.

The purpose of H.R. 13152 and S. 3334 are stated as follows:

"authorize the Secretary of the Interior to assist the States in controlling damage caused by predatory animals; to establish a program of research concerning the control and conservation of predatory animals; to restrict the use of toxic chemicals as a method of predator control; and for other purposes."

I have pointed out here that the Secretary of the Interior already has the authority to assist in control and already has the authority to establish research. The President and the Environmental Protection Agency have already restricted the use of toxic chemical as methods of predator control.

With these facts in mind, we do not see any urgent need for passage of this bill, and we believe that the legislature will be better able to make a wise decision in this matter after all of the facts are available.

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STATEMENT OF WILLIAM BONDE, EXECUTIVE SECRETARY, CALIFORNIA WOOL GROWERS ASSOCIATION

Mr. Chairman and Committee Members, I am William Bonde, a rancher and sheepman from the central part of California. My operation consists of sheep, cattle and dry land farming. I am also the Executive Secretary of the California Wool Growers Association, the oldest agricultural organization in the state of California.

We feel the major problem concerning the use of chemicals and toxicants for control of predator losses is one of strict administration and management.

The sheep industry is against the elimination of the use of specific chemical toxicants, as stated in H.R. 13152 and S. B. 3334 for predatory control. The sheep industry feels that it should not be singled out by banning of these chemicals for protection of its flocks from predator losses, until a suitable substitute for these chemicals is available.

The sheep and livestock industry feels that the Cain report, while giving one side of the uses of toxicants for operational predator control, left out the fact that predator animal management is a necessity for maintenance of an economical livestock business. Without it, losses will result in the demise of efficient livestock farmers.

The ecologists' side of predators was presented by the Cain Committee, but not the agricultural side. Wildlife has a very high value to people, but when that

value is placed above the value of the ability of people to provide food for themselves and others at the lowest reasonable and practical cost then that value has not been placed in the proper perspective. Agriculture is the leading industry in California. One-third of the state's economy is derived from agriculture, and 40 percent of the land area in the state is used for agriculture production. Livestock and poultry commodities totalled \$1.79 billion in 1970. The sheep industry ranked 40th out of 242 agriculture commodities produced in California.

Sheepmen are conservationists who are interested in the protection of wildlife and domestic livestock from unnecessary losses. We do not wish to eliminate any species of wildlife, nor would such action be condoned.

In areas where certain wildlife become predators of livestock and cause loss to livestock producers, measures have to be taken to control them.

We request that responsible organizations maintain management of predatory animals in the most effective way. Basic government policy should be one of husbandry of all forms of wildlife.

At the same time, local population control is an essential part of a management policy, where a species is causing significant damage to other resources or crops, or where it endangers human health or safety.

Control should be limited to the troublesome individuals, and in any event, to the localities where damage or danger exists. We realize that animal control is a controversial subject.

There is a disagreement as to the facts, methods of control, need for control and philosophy. Purposes, policies and practices are not viewed the same by different segments of the public.

Our program seeks a balanced approach. We reject the belief that no coyote should be exterminated. We also reject the belief that all coyotes should be destroyed. We seek effective warranted control of animals causing significant deprecation of livestock or crops or threatening human health or well being. Loss of livestock to predators either from attack or disease affects everyone, making meat prices higher and reducing the tax base.

The use of effective methods of control should be in the hands of qualified, responsible individuals who are licensed and strictly controlled. Use should be controlled by need, type and selectivity, just as well as all agriculture chemicals are used in California.

There is an efficient distinct way to selectively control each predatory animal, and an expert who is qualified, would prescribe the control. This should be set up with rigid controls on Federal, State, county and private lands. The program can be directed at the problem animal or local problem population.

Lethal methods, such as shooting or toxicants, will then be recommended or employed only when and where it has been determined non-lethal methods would be ineffective, and lethal methods can be used with safety. The use of the most humane, efficient and selective technique possible would be employed. We feel the coyote getter (M-44's) should be taken off the chemical toxicant category and put in the proper perspective. It is mechanical, can be scented for selectivity, mapped for placing and pickup, non secondary poison and safe to non target species. (See attachment concerning Coyote Getters, non spreading, M-44's.)

This program should be set up and conducted in line with policies and field directives that embrace current ecological concepts and recognize the social and aesthetic values of all wild animals. The work should be planned, supervised and approved by professional biologists, men fully aware of the inter-relationship between animals and their environment, and the economic impact of losses of livestock on these ranges.

Animal damage control would be conducted to achieve four definite project objectives:

1. Protection of human health and safety;
2. Protection of urban facilities;
3. Protection of forest range and wildlife; and
4. Protection of crops, livestock and poultry.

The U.S. Fish and Wildlife Service should professionalize their field employees, conduct an extension trapper program, in practice and in training; conduct research in predator control, cost benefit ratios of predator control, effectiveness of predator control programs and rabies epidemiology.

Non-selective poisons, no matter how well regulated, are just not acceptable to a great many people, including wool growers. We want improved control methods—selective, effective ones—as much as anyone, probably more so, because we want to protect our livestock without being unfairly criticized. We need new technology.

Adequately supported research can provide this technology. We insist on it. The Interior Department can assist with research, but it is not the proper affiliation for conducting operational control programs. It is primarily a conservation agency to which animal control is repugnant and out of place, and it does not direct conscientious, responsible effort to the task.

I feel the states' Departments of Agriculture and the states' University Agriculture Extension Services are the proper places for research, development and administration of wildlife resources and protection of the livestock industries.

Actual non-biased reports concerning depredation of livestock by predators, with autopsies by qualified veterinarians, would come from this group.

The Cain report clearly stated that this evidence was lacking, and in order to fairly write any bill pertaining to the banning of any method of predator control, this has to be accomplished.

In summation, I feel the sheep and livestock industry has been discriminated against in this bill. The only present effective and economical way of controlling predator losses is by selective use of chemical toxicants, and until an alternative safe, selective method is developed, their use has to be continued.

This bill was written without the tools necessary to control agricultural losses and with disregard to the economic losses that would be suffered by sheep owners who have relied on chemical toxicants to control marauding predators.

Agriculture is conservation minded and does not want to eradicate any species of wildlife, but cannot stand uncontrolled losses. We feel strict control of toxicant chemicals and their proper management is necessary and could be administered properly by state and county Departments of Agriculture.

An immediate research program should be initiated to develop a selective means of predator control. When this is possible, I then call for a bill restricting the use of toxic chemicals as a method of predator control and for other purposes.

Senator Moss. We have a problem now on timing. It is past 12 o'clock, and we are going to have to come back, because we have several witnesses yet to hear. I think the thing to do would be to stand in recess until 1:30 and then we will proceed to hear the witnesses who are listed here beginning at 1:30, and I would ask those witnesses to consider how they may condense their summaries and statements so that we can get them in this afternoon before the floor situation gets so bad that I will have to be running in and out to answer the rollcalls.

(Recess.)

#### AFTERNOON SESSION

Senator Moss. The hearing will come to order.

We will proceed with the witnesses for this afternoon. As I have indicated, we are operating under very difficult circumstances. I will appreciate having the witnesses summarize and highlight their statements as best they can, so that we may hear all who are on the list this afternoon.

The first witness is Mr. Charles H. Callison, who is the executive vice president of the National Audubon Society. Mr. Hughes will be our next witness.

#### STATEMENT OF CHARLES H. CALLISON, EXECUTIVE VICE PRESIDENT, NATIONAL AUDUBON SOCIETY; ACCOMPANIED BY RONALD KLATASKE

Mr. CALLISON. Mr. Chairman, I am Charles Callison, and with your permission, I would like to be accompanied by Ronald Klataske. Mr. Klataske is the west-central regional representative of the National Audubon Society. His office and home are in Alma, Kans.

As a professional wildlife biologist, he formerly was a member of the staff of the Wyoming Game and Fish Department. He is very

familiar with the problems we are discussing, not only in his native State of Kansas, but in the Rocky Mountain region.

Senator Moss. We are glad to have you, sir.

Mr. CALLISON. Mr. Chairman, as you know, the National Audubon Society has long urged reform of the Federal predator control program. We have long been convinced, on the basis of our field studies and observations, as well as by the Government's own records, that the Division of Wildlife Services in the Bureau of Sport Fisheries and Wildlife has been conducting too much predator and rodent control, in the wrong way and in the wrong places.

We were extremely pleased with President Nixon, acting upon the advice of the CEQ-Interior Advisory Committee, headed by Mr. Stanley A. Cain, banned the use of poisons on Federal lands. We were pleased when the ban was further implemented by Executive orders and regulations signed into effect by the Secretaries of Interior and Agriculture, and by an action by the Environmental Protection Agency that suspended the registration of compound 1080, cyanide and strychnine for predator control.

Thallium sulfate, the poison that killed a number of eagles in Wyoming last year, had been registered only for rodent control; it had been misused for predators.

EPA acted to suspend all thallium registrations at the same time it took 1080, cyanide and strychnine off the legal list for predators. These poisons are still registered for rodent control, which means they are still available and in commerce.

According to the suspension order published in the Federal Register of March 18, 1972, page 5720:

Registrations for those products bearing directions as listed above are hereby suspended and the products may not be legally shipped in interstate commerce *until labeled to block out instructions for predator use.* (Emphasis added.)

The worst and indeed the abhorrent feature of the Federal program in the past has been the widespread use of broadspectrum poisons in the out-of-doors, a system that indiscriminately killed untold numbers of the people's wildlife.

One of the primary purposes of H.R. 13152 and S. 3334 as introduced, and again in accordance with the considered recommendations of the group of distinguished scientists who made up the Cain committee, was to set up an alternative program that made biological and ecological sense. It was to be a program excluding the use of poisons with their destructive accidental and secondary effects.

I should like now to address my comments to the House-passed bill, H.R. 13152, because in the main we endorse it provided two dangerous and inconsistent House committee amendments are eliminated. We have a few other amendments to suggest to perfect the measure.

The first of the bad provisions appears in the final three lines of the last proviso in section 4(a). These lines authorize an exception for the use of poisons "for the prevention of major damage to domestic livestock."

If this stands in the bill, it will undermine and negate the Executive order ban on poisons, as sheep ranchers in particular are notorious for their exaggerated and unsubstantiated claims of large range losses to predators.

The Cain committee and others have pointed out the obvious fallacies in such claims, but nevertheless the wool growers, particularly those who benefit from below-market grazing fees on public lands, will loudly claim "major damage" and insist on poisons. They will, of course, have the active collaboration of the poison-chemical manufacturers and distributors.

If any such language is kept in section 4 of the bill, which section has to do with the qualifications of State programs for Federal assistance, it should be surrounded by the same kind of safeguard that has been written into section 5(b).

This latter section spells out the circumstances under which the head of a Federal agency may authorize the emergency field use of poisons on land under his jurisdiction. And in the House bill, Mr. Chairman, those reasons may include major damage to livestock.

He may do it only by written finding following consultation with the Secretaries of Interior, Agriculture, and Health, Education and Welfare, and the Administrator of the Environmental Protection Agency.

The second totally inconsistent provision in H.R. 13152 is paragraph (2) of subsection 4(e). I refer to lines 3 through 6 on page 13 of the amended bill as reported and passed by the House.

The second main thrust of this legislation is supposed to be a shift from Federal killing operations to State control programs with Federal financial assistance. Yet 4(e) (2) authorizes the appropriation of \$5 million annually and eternally for Federal operations. This is more than twice the amount of Federal money that has ever in the past been spent on predator-killing operations that have been profligate, wasteful, and in many areas totally unnecessary, as well as ecologically unsound.

We recommend reducing the authorization for Federal operations to not more than \$1 million each for fiscal years 1973 and 1974, and if the proposed State programs with Federal assistance then go in effect, such Federal appropriations should be rapidly reduced to zero.

We do enthusiastically endorse the program of research and demonstration authorized in section 3, including the \$1,500,000 annually proposed for this purpose, Mr. Chairman.

The experience with the "extension trapper" system in Missouri and Kansas, two States with extensive farming and livestock operations, including sheep grazing, proves that large numbers of personnel and high expenditures are not necessary for the control and prevention of wild animal damage to crops and livestock. The goal of this legislation, and of the Federal and State wildlife agencies, should be the modified application of the Missouri or Kansas system in all agricultural and ranching States.

Mr. Chairman, Mr. Klataske, who has personal knowledge of how this program operates in Kansas, could supplement my information or answer any questions about it.

The substitution of the extension trapper type program will be, we feel, a great improvement over the former Federal program.

However, as the Cain committee report noted, steel traps, when improperly handled, can also be inhumane and nonselective. We would strongly urge that the Department of the Interior, in its own operations, and in the State programs that are approved, follow the recom-

mendations of the Cain committee, which noted that, "Common steel traps, tended infrequently, are not humane, but with padded, offset jaws, tranquilizer tabs, and daily tending, suffering is minimal. (P. 66 of report.)

We would also point out that with daily tending, nontarget species that are mistakenly caught have a better chance of surviving if they are freed quickly. As part of the research effort, we hope Interior will follow another suggestion of the Cain committee and place greater emphasis on live-trapping and transplanting, and more research and development on repellents and reproductive inhibitors. (P. 66.)

The Natural Resources Defense Council, Inc., a public interest environmental law organization, has suggested some other clarifying and strengthening amendments to H.R. 13152, which the National Audubon Society endorses. I submit for the record a letter written to me by Mr. Hamilton F. Kean, a staff attorney for NRDC. We particularly urge the amendment proposed by Mr. Kean in his second paragraph.

The reason is that those species defined in this act as "depredating animals" are also valuable members of the nation's wildlife resources, and should also be conserved "to the greatest degree possible."

Take the interesting and legendary prairie dog, for example, an important component of prairie ecology in the Western States. Yet the prairie dog has been poisoned and persecuted until it sorely needs protection and conservation if it is not to follow the plains wolf and the plains grizzly down the road to extinction. And with the prairie dog has gone the black-footed ferret, now nearly extinct, a victim of secondary poisoning and ecological stupidity.

I thank you for hearing our views. With the amendments we recommend, H.R. 13152 can become a landmark in America's legislative progress toward ecological wisdom in the conservation and management of our wildlife resources.

(The letter follows:)

NATURAL RESOURCES DEFENSE COUNCIL, INC.,  
New York, N.Y., July 18, 1972.

MR. CHARLES H. CALLISON,  
*Executive Vice President, National Audubon Society, 950 Third Avenue, New York, N.Y.*

DEAR CHARLIE: I was glad to have the opportunity to review H.R. 13152 and discuss it with you, and I agree with your criticisms thereof.

The additional changes that I suggested urging when the opportunity arises are on Page 10 on lines 7 and 8 where the words "and depredating" should be added after the word "predatory" in each line.

I would also question the clause "or otherwise authorized by its legislature" in line 9 of Page 12 which would seem to permit private funds, for example, those from ranchers' associations, to be used as part of a state's share of the cost of its program. You will remember that the Leopold Report was quite critical of this practice which seemed to give such interests too great a voice in program formulating. The original bill was better in this respect.

I am not happy with subparagraph (d) on Page 12. Shouldn't at least consultation with the Secretary of the Interior be required? Also, with the vast sums appropriated for a federal program, why is it necessary or desirable to permit state programs on federal lands?

I think that if it becomes necessary to retain the provision authorizing the use of toxicants where major damage to livestock is threatened, that the provision in Section 4(a) dealing with state programs should at least be hedged with the sort of safeguards that are provided in Section 5(b).

We wonder whether additional procedural safeguards should not also be urged, such as a requirement of public hearings. Should not there be a time

limit within which the Secretary must promulgate his standards, lest the states embark on extensive programs on their own prior to seeking federal aid? Our experience has been that such legislative time limits are essential if reasonably prompt administrative action is to be expected.

Finally, I should think that it might be written into the legislation that no state plan shall be approved which does not give due regard to environmental quality; other more specific language might also be incorporated. Such language should also be incorporated into Section 4(c).

A preferable general approach, which may not be politically feasible, would be to require federal approval of all state animal control programs. Such a statute might well be constitutional. See Appendices, Cain Advisory Committee Report, p. 188.

I do believe that the NEPA environmental impact statement requirement will be one route whereby the Department can be forced to take a hard look at the following: (1) the extent to which extensive animal control is really necessary in various contexts; (2) the selectivity of various non-poison methods, particularly steel traps; and (3) the effect of control programs upon various species and the ecosystem.

Sincerely,

HAMILTON F. KEAN.

Senator Moss. Thank you, Mr. Callison, for your statement, and we are glad to have it in the record. If it turns out that the wool growers are right and that the ban on poisons does cause major damage to domestic livestock, what is the alternative? I know you said Mr. Klataske might tell us how they do it in Kansas without using poisons. Perhaps you could briefly tell us.

Mr. KLATASKE. Basically, in Kansas, we have one employee working as an extension trapper specialist at Kansas State University, and he by himself in the last several years has been conducting all of the predator control work in the State.

Basically, when a rancher or farmer has a complaint, he contacts Bob Henderson, who is the extension trapper specialist, and Bob goes out to the area, to the rancher that is having the problem. He shows the ranchers how to set traps and how to control the individual animals. He also teaches them, demonstrates, how to call coyotes and to eliminate them by hunting. These are primarily the two techniques used to control coyotes in Kansas, trapping and hunting.

This system has been endorsed thoroughly by the Kansas Livestock Association, and they recognized last winter that this was the best approach to take.

The total program in Kansas only costs about \$20,000, as compared to some neighboring States, like Oklahoma, which has a traditional cost well over \$200,000, and is employing far more people.

In addition to the controlling of specific animals that are doing the damage, which has been very effective, Bob also demonstrates management techniques that can be used to cut down tremendously on livestock losses, by, for example, fencing around the lambing pens to pretty much exclude coyotes, lighting around the lambing areas, and techniques of this manner.

In general, what he has been teaching has been better livestock management. As we have seen, particularly in the poultry industry, years and years ago there used to be a very large predator loss to poultry, when practically every farmer had chickens running all over half of his south 40 and down through the timber. It was a natural condition for predators to take poultry.

Well, today, with enclosures and with pen conditions, poultry depredation is very slight, and not a significant problem in most areas.

In addition to that, Bob is also very much encouraged by the other prospects, such as the use of repellants to keep coyotes away from sheep, and I think with increased research in this particular area, that we can progress tremendously in the next few years.

Senator Moss. Of course, enclosures would not be practical out in the mountainous areas or further west in the plains, west of Kansas, would they?

Mr. KLATASKE. The time of the biggest loss of lambs to predators is during the lambing period and shortly afterward. The big problem we have noticed in Wyoming, for example, is that there has been a great trend to get away from the herder system. For example, there are some ranchers with thousands of sheep that have only one or two employees to take care of the sheep scattered over the public land as well as over large ranches. The losses are greater because the sheep are not as carefully taken care of as they were a number of years ago, particularly during the lambing periods.

Senator Moss. You recommend more personnel to be on the job to tend the sheep?

Mr. KLATASKE. This would help tremendously, yes. Also, studies have indicated that even in States like Ohio, the loss of lambs is between 5 and 10 percent, even in areas where they do not have predation. This is just a natural factor in raising sheep. I have been in the sheep-raising business myself when I was on my father's farm, and know that sheep are very susceptible to pneumonia and other diseases. Many ewes have three young, and at the most she can only save two, and frequently the ewes that have two lambs will only save one. Sometimes they reject the other one.

Senator Moss. If there is a rise in the coyote population, what is likely to be the effect on wild game species?

Mr. KLATASKE. As a wildlife specialist and speaking for a wildlife organization, I can say that we are very much concerned about other wildlife species, and we wouldn't be here defending the coyote if we thought the coyotes were going to wipe out the antelope and the deer and other wildlife species. Our experience in Kansas hasn't indicated to any degree that coyotes are a major limiting factor on most wildlife species.

In fact, they probably help to maintain the game species in accord with the natural habitat conditions.

Senator Moss. You heard the figures, I guess, this morning about the dramatic increase in the herds of elk and deer and antelope in the Western States, Colorado, and Idaho, and Utah, which is attributable in large part to the decrease of the predators.

Now, if the predators come back, can't we expect the deer herds to go down again?

Mr. KLATASKE. I don't think the increase is attributable to that. Primarily, harvest figures are used, and we are harvesting our game herds in Utah and Wyoming much closer to the line that the populations can tolerate than we did, say, in 1930, when they started keeping harvest figures. We didn't have nearly as many hunters back in those days, and we didn't harvest our game populations as closely. So that isn't a true indication of a population increase.

But through management of the habitat, there have been increases in many areas in the big game. This is due to many factors.

Senator Moss. If poisons are used in an emergency situation, do you have one preference as to the kind of poison over another?

Mr. KLATASKE. Personally, the feeling in Kansas where they have been using cyanide guns to a very limited extent, is that probably of the various poisons that are used, the cyanide gun is probably a little more selective than the others, but there are many offensive features about it also.

Senator Moss. Cyanide doesn't stay within the food chain, does it?

Mr. CALLISON. It is one of the least likely to cause secondary damage to other wildlife.

Senator Moss. Thank you, gentlemen. I appreciate your testimony and for appearing before the committee.

Mr. CALLISON. Thank you, Senator Moss. We certainly appreciate your taking the time to hold this hearing when you have to go back and forth to the Senate floor so much.

Senator Moss. This happens to be a very busy time, but this is important, and we did want to complete our record.

Mr. Robert C. Hughes, chairman of the National Wildlife Committee of the Sierra Club, and Mrs. Stevens will be next.

We have your full statement, and it will be placed in the record in full, Mr. Hughes. You may proceed.

#### STATEMENT OF ROBERT C. HUGHES, CHAIRMAN, NATIONAL WILDLIFE COMMITTEE, SIERRA CLUB

Mr. HUGHES. You also have, I hope, some supporting documentation we submitted that will be included.<sup>1</sup>

Senator Moss. Yes; and that also may be included.

Mr. HUGHES. I am Robert Hughes, chairman of the Sierra Club's National Wildlife Committee. It is a pleasure to be here before you today.

The first point I would like to make is that the Sierra Club does not oppose responsible, selective predator control where it is needed, so long as that control is aimed at specific offending individual animals.

If we look back into the past, this whole business of public concern over predator control started in the early 1960's, and has grown in dimensions until today when we are considering new legislation.

According to the House report on H.R. 13152, the Federal predator control program was based on three assumptions.

One is that predators caused substantial economic loss. Predators do cause economic loss. However, there has been no valid scientific documentation of the extent of that loss.

The research on the subject has been entirely inadequate and the fault lies, of course, with those who have the money for such things.

The second assumption made was that the Federal Government has a responsibility to help the livestock industry when it is in distress. The Federal Government helps farmers, flood victims, and there is no reason why they shouldn't help livestock interests, too. How they help them is another matter.

The third assumption made was that if the Federal Government doesn't help the livestock industry, then the ranching community it-

<sup>1</sup> See p. 205.

self will take action which will not necessarily be wise action, I think this is probably the most valid assumption of all. There is plenty of evidence in existence today that the livestock industry has been taking actions on its own frequently with the knowledge of the Government officials, and frequently actions that are not according to Federal regulations.

We are concerned that under this legislation eventual ultimate authority will pass to the individual States. We believe that the Federal Government should maintain ultimate authority over all predator control activities.

The Cain report, with its 15 recommendations, we believe, is going to be pretty well ignored under this legislation. We heard this morning that the sheep growers had no chance to consult on the Cain report before it was released. The Sierra Club wasn't contacted either prior to release.

I would like to discuss briefly a few of these recommendations. No. 1 of the Cain report, on funding. As H.R. 13152 is written, it contains the words "or otherwise authorized." The object of the recommendation was to prevent the livestock industry from funding control programs. The money was to come from appropriations by State legislatures.

The way we read this section, the money can come from State legislators or "otherwise authorized" sources, which could very well be the livestock industry, thus giving the livestock industry a good say in what is happening. It authorizes 10 percent of the funding to come from the license and permit fees from hunting and fishing, and the Cain report recommended against this.

If you read the bill, you will see that at least \$10 million is supplied for control on the various levels, an alltime high, and at a time when we are supposed to be cutting back on predator control activities.

Of this \$10 million, which is for control, not 1 cent is being supplied for control of the livestock, which may be a wiser and more valid course of action. Control the livestock. Control the livestock industry.

Research funds, \$1½ million. On page 10 of the House report, we find wording to the effect that the Federal Government cannot conduct research in a State that does not cooperate. There is not \$1½ million here for Federal research. There is money here only if the States are willing to cooperate in the research.

As we read it, the Federal Government cannot conduct independent research on predator control activities.

We can imagine that many States in the West, especially, will refuse to cooperate with Federal programs under this bill. All they will get out of it is \$300,000. Texas could assess less than 10 cents a sheep and make that much money, and be perfectly free to follow any control program they want to follow. This is equally true in other States.

We heard the gentleman from Wyoming talk about the continuous decline in the sheep industry, and of course he blamed it all on predators. He might have given thought to the great increase in the use of synthetics, wool substitutes.

We believe that the Executive order has been emasculated by allowing the emergency use of poisons in livestock support. We object to the use of poisons in predator control at any time.

We have heard testimony here today that coyotes have increased and are thriving, that predator losses are increasing, that the sheep populations are going down. We know that the amount of poisons used each year is going up. This strikes me as an indictment of the poisoning program. It is obviously not working. So why continue something that doesn't work?

By using poisons, of course, we can expect to see a continuous taking of nontarget animals. There is nothing selective in the use of poisons. Under the emergency provisions provided here, we can envision that in the West there will be a constant, continuous state of emergency. If predator control must be carried out, we recommend something along the lines of the Kansas-Missouri plan, with humane trapping, preferably live trapping, and transplant. Where necessary, take a gun and remove an offending individual, but don't go after whole populations or whole species.

We object to the use of poisons in wilderness areas, in national parks, in refuges. Yet this legislation will allow such use. It will allow it not only by the Federal agencies, but by the States in cooperation with the Federal agencies on Federal lands.

I said before we think the livestock men need help. Other people get help. The insurance program has not been investigated adequately.

We also object to any provision that does not include revocation of permits and leases on public lands for violators of this law. The revocation should be automatic, there should be no exceptions. The person who violates the law will have indicated that he cannot be trusted. On the vast western lands he can't be monitored by Federal authorities. He can do almost anything he wants to out in that area, and we have seen adequate demonstrations of that in the past. We shouldn't forget the Wyoming eagle kills.

Recommendations 11 and 12 of the Leopold report deal with research. That is, ecological problems dealing with predators and socioeconomic studies. We don't see any indication that such research will be carried out under this bill.

Mr. Garmatz in the House debate on the floor, said that the legislation is far from a perfect solution. He right he was.

We object very strenuously to the inclusion of the category of depredating animals. This, too, does not indicate an effort to cut back on predator control activities. It extends the law to include a whole new category of animals.

A sound bill would have in it an absolute ban on the use of poisons in predator control; a ban on any nonspecific control method, teeth to keep the States in line, and let me repeat: We do not care to see 50 States operating their own individual control programs without any supervision from the Federal Government.

We believe that the money appropriated for control is out of line with reality, and so is the money for research, but in the other direction. We accept all of the Cain recommendations except the one dealing with aircraft, and we would urge that the Senate in its bill implement those 14 suggestions rather than as the House has, in general, done, ignore the 15 suggestions.

Senator Moss. Thank you. Mr. Hughes. Does the Sierra Club see H.R. 13152 as an improvement over the current predator laws?

Mr. HUGHES. H.R. 13152 may be an improvement over the current law, but we believe that under H.R. 13152 the situation will get worse. There will be more money for control. Poisons will continue to be used. There will be an expansion of the species of animals to be controlled. Although the current law calls for eradication of predators, the Federal authorities are not actually trying to eradicate them.

Senator Moss. The \$1½ million of research authorization is based on the Department of Interior estimates. What funding level would you recommend for research?

Mr. HUGHES. We can't really give you a figure, Senator, because we don't know the cost of various programs. Our biggest concern is the statement on page 10 of the House report which says that the research objectives authorized by that subsection would be required to be developed in cooperation with each of the affected States.

We believe that that means the Federal Government can't conduct independent research in the various States that don't want them there. Even on public lands they can't.

Senator Moss. Is the "reasonable control" favored by the Sierra Club confined to trapping and shooting?

Mr. HUGHES. In essence, yes, sir, specific control of the specific offender. Poison cannot do that, and airplanes cannot do that, because when you are flying in an airplane, you don't know what coyote that is down there.

Senator Moss. You can't tell the offender until he has offended with respect to livestock, can you?

Mr. HUGHES. That is true. A good trapper can follow the offender from the site of the offense.

Senator Moss. Isn't that shutting the barn door after the horse is gone, as the old expression goes?

Mr. HUGHES. Of course, it is, but we would never condone destruction of wildlife as a prophylactic measure in order to prevent potential damage by that wildlife. We don't know that that coyote down there is going to offend, either.

Senator Moss. Well, thank you very much. We appreciate your coming, and you have provided us with a lot of good material for the record. We appreciate it and will study it carefully.

Mr. HUGHES. Thank you, Senator.

(The statement follows:)

STATEMENT OF ROBERT C. HUGHES, CHAIRMAN, SIERRA CLUB, NATIONAL WILDLIFE COMMITTEE

Mr. Chairman and members of the Committee, I am Robert C. Hughes, Chairman of the Sierra Club's National Wildlife Committee. It is a pleasure for me to be here today to discuss with you this matter of vital concern to all of us.

The Sierra Club is a national environmental organization with over 140,000 members. Founded in 1892 ". . . to explore, enjoy and preserve the Nation's forests, waters, wildlife and wilderness. . . ." the Sierra Club's membership is dedicated to the preservation and restoration of the quality of man's environment and the integrity of the earth's ecosystems.

The first point I would like to make was put forth by our Executive Director, Michael McCloskey, last January when he spoke to the National Woolgrowers Convention in Phoenix. Mike McCloskey told the woolgrowers that the Sierra Club is not against predator control. However, he did point out changes in public attitude, environmental requirements and suggested alternatives to the wholesale poisoning of predators. He emphasized our concern for the system as it currently existed.

Let me emphasize. The Sierra Club is not against reasonable predator control. The Sierra Club does oppose the common abuses exercised in the name of predator control.

Now, a brief excursion into recent history is in order. Predator control activities became a major national item of public interest in the early 1960's. One result of this interest was the formation of the Leopold Commission which issued its report in 1964.

The Leopold Commission made six recommendations based on two tenants: "(1) All native animals are resources of inherent interest and value to the people of the United States. Basic governmental policy therefore should be one of husbandry of all forms of wildlife, (2) At the same time, local population control is an essential part of a management policy, where a species is causing significant damage to other resources or crops, or where it endangers human health or safety. Control should be limited strictly to the troublesome species, preferably to the troublesome individuals, and in any event to the localities where substantial damage or danger exists."

Of the six recommendations only recommendation five was effectively implemented despite much ballyhoo to the contrary. The Predator and Rodent Control branch had its name changed to the Division of Wildlife Services, a name that effectively hides from many people the great variety of disservices it renders to this nation's wildlife.

During the late 1960's predator control activities increased. The use of poison increased. Airplanes were brought into use. Guns and traps were everywhere. Millions of dollars of tax money was spent to destroy innocent wildlife so that a few livestock growers could enjoy a greater profit. This subsidy to livestock interests was in addition to low-cost grazing permits and leases on public lands.

Public awareness grew, however. Protests were made and ignored. Congress was asked to pass protective legislation and did not. Nothing significant was done and the cancerous predator control program continued to grow. Finally, legal actions were instituted by environmental organizations which prompted a need for answers on the Federal level.

The Sierra Club and the Defenders of Wildlife filed a complaint in the United States District Court for the District of Columbia against the Secretary of the Interior, the Acting Director of the Bureau of Sport Fisheries and Wildlife, and the Chief of the Division of Wildlife Services. The complaint dealt with the many abuses of wildlife in the name of predator control. The Humane Society of the United States, and the Humane Society of the United States, California Branch, filed an almost identical complaint against the same three men.

A third legal action was a formal petition to William D. Ruckelshaus, Administrator of the Environmental Protection Agency, requesting the suspension and cancellation of registration of sodium monofluoroacetate (1080), thallium sulphate, strychnine and cyanide. The petitioners in addition to the Sierra Club were Natural Resources Defense Council, Inc., Defenders of Wildlife, Friends of the Earth, The Humane Society of the United States, National Audubon Society, and the New York Zoological Society. These actions took place in early 1971.

In April 1971, the Department of the Interior and the Council on Environmental Quality determined that a new study of predator control was needed. This would be an update to the Leopold Report. A new study commission was appointed and it held four formal meetings between July 1971 and October of the same year. The Cain Report was issued in January 1972.

On February 8, 1972, President Nixon issued an Executive Order restricting the use of poisons for predator control on public lands. Various bills were introduced into both houses on the subject of predator control. The House held hearings in March and April and reported out a bill which passed on July 17. Now it is the Senate's turn.

The Cain Committee made fifteen recommendations. It would appear that the same fate eventually awaits these recommendations that befell the recommendations in the Leopold Report. Token acceptance and eventual oblivion. H.R. 13152 as passed is inadequate and fails completely to alleviate the problems that led to the legal actions, the Cain Report and the President's Executive Order.

According to the House Report on H.R. 13152, Federal predator control programs have continued over the years on the basis of three assumptions. The first assumption is that predators cause substantial economic loss, especially in the case of coyote predation on sheep.

Granted that predators do take a toll of livestock and that coyotes take sheep, the true dimensions of the problem are unknown. Research has been totally inadequate. Reliance has been placed on the unverified figures of the livestock interests. Facts have frequently been distorted. In any case, predation losses do not approach the amounts of tax funds spent on control activities by the entrenched bureaucracy. An important example of good research with admitted limitations and of the attitudes and distortions found among the livestock men is a research report by Sander Orent and J. William Levinson, *CONSIDERATIONS OF DOMESTIC SHEEP MORTALITY IN NORTH WESTERN COLORADO*. The study was carried out by a fifteen member interdisciplinary team. Sander Orent, the Project Director holds a degree in zoology and the Assistant Project Director, J. William Levinson holds a degree in biophysics. Because of the importance of this paper which has never been published, we are submitting it as a part of our statement for inclusion in the record.

The second assumption was that the Federal government has responsibility to act to protect livestock when complaints of predator damages are received. This may be a valid assumption because assumption number 3 is very true. Acceptance of this second assumption, however, does not justify the wholesale slaughter of both target and non-target wildlife that has taken place.

The third assumption is indeed valid. It is that if the Federal government does not meet this responsibility with adequate control measures, the ranching community will deal, incorrectly, with the problem itself. Although valid, this assumption has a major weakness. It assumes that the ranching community is not dealing incorrectly with the "problem." Actually, the ranching community does carry out control activities on its own often with the full knowledge and cooperation of government agents in the field. These men know that much of what they do is illegal. Jack Olsen in his book, *SLAUGHTER THE ANIMALS, POISON THE EARTH*, and Colorado Magazine in some of its articles have documented such cases. Every person in this room is aware of the destruction of eagles in the west in the name of predator control by private individuals.

The Sierra Club believes very strongly that ultimate control and responsibility for any necessary predator control programs belongs with the Federal government despite the failure of the Federal government agencies in the past. Serious restrictions are needed and we do not believe that H.R. 13152 can accomplish the necessary tasks.

The House Report states, "The legislative proposal contained in H.R. 13152, stems largely from this Advisory Committee's Report on Predator Control (Cain Report). In some ways the proposed legislation goes beyond the recommendations of the Advisory Committee since the practical aspects of the problem demanded more forthright action than the Committee recommended. H.R. 13152, in general, incorporates most of the recommendations of the Advisory Committee." H.R. 13152 certainly does go beyond the recommendations of the Advisory Committee, beyond the President's Executive Order, beyond the best advice of the concerned environmentalists. This bill should it become law would constitute a retreat from an already inadequate present. We would like to discuss next the fifteen recommendations of the Cain Committee and H.R. 13152's relationship to them. The fifteen recommendations are submitted at the end of this statement.

#### RECOMMENDATION 1

Should H.R. 13152 be passed into law, this recommendation would be lost. The language of the bill is:

"No payment otherwise authorized by this section shall be made to a State whose share, in whole or part, of the cost of the program approved under subsection (a) hereof is to be paid from funds not appropriated OR OTHERWISE AUTHORIZED by its legislature: Provided, however, that not more than 10 percent of the State share MAY BE FROM FUNDS DERIVED FROM SALE OF HUNTING, FISHING AND TRAPPING LICENSES OR PERMITS." (emphasis ours)

The Cain Committee believed and so do we that use of nonappropriated funds by the states (e.g. grants from livestock interests) would dilute the state's ability to exercise unfettered control. The phrase, "or otherwise authorized" opens the door for allowing livestock interests to finance the state's share and by so doing exercise control over the program. Money from licenses and permits should not be utilized in predator control programs.

Under this bill a maximum of \$300,000 would be available to any state for control purposes from the Federal government for the first two years and \$200,000

per year thereafter. The Division of Wildlife Services under this bill would receive a record 5 million per year for control activities. The math is simple and tragic. The Federal government is prepared to pay 8 million dollars to destroy predators. The states are expected to come up with another 1 or 2 million and perhaps more. A conservative estimate, therefore, would be 10 million dollars per year in programs designed to destroy wildlife. The only possible reduction in these figures would be caused by some states not participating in the program.

How much is authorized for research? One and a half million dollars. 10% of the amount that will be spent to destroy wildlife. How will the research money be spent? According to H.R. 13152 the research program shall include testing of control methods and a continuing inventory of the Nation's predatory animals. Nothing is said about ecological research into predator habits and needs, research into alternative methods of livestock management which would probably provide the best solutions to this entire problem. Research emphasis is on control of the predator rather than on control of the livestock industry.

Although the states are required to comply with Federal standards in order to receive their share of the pot, nothing in the law requires them to comply with the standards if they decided to bypass Federal money and use state and private funds to mount their own control programs. This is a very distinct possibility and the legislation should be written to prevent states from taking unilateral action. One possible method is to deny the states agricultural price support funds if they don't comply with the Federal predator control standards or if they allow private interests to ignore the standards. It is absolutely imperative that control be maintained on the Federal level.

#### RECOMMENDATION 2

H.R. 13152 authorizes the Secretary, other government officials and the states to utilize poisons for control in so-called emergency situations. The Cain Committee did not recommend this. The President's Executive Order did not contemplate the extent to which this provision can go. The Sierra Club opposes this provision.

Mr. Dingell in the House debate on July 17 said, "I would also point out that this legislation does not outlaw poisoning, but simply controls it." Mr. Conte in the same debate said, "My enthusiasm for this legislation, however, is tempered somewhat by an uneasiness over an exception in the bill which would permit the use of poison in emergency situations when essential to the prevention in specific areas of major damage to domestic livestock. This provision was not requested by the administration and to my mind opens a glaring loophole in the bill. What constitutes major damage to livestock is not spelled out at all. Nor is the term 'emergency' specified with sufficient clarity and precision."

We are most distressed by the provisions for the continuation of the use of poisons in this bill. Such provisions are unnecessary. They violate everything we have fought for over the years. These provisions must be removed and the use of poisons forbidden. You know and I know and the livestock men know and the Division of Wildlife Services know that regardless of the use of the word 'emergency' in the bill, poisons will be used regularly and excessively. We will see a continuous state of emergency whenever livestock interests have political control. The only effect of this bill with regard to poisons is a minor increase in possible paperwork.

Under this bill the President's Executive Order has been emasculated. Poison will continue to rule the land and the toll will be countless thousands of innocent animals and birds killed to benefit a few livestock men. The public's welfare and the public's rights are obviously being given the short end of the stick. We call upon the Senate to eliminate any possible use of poison in predator control and to allow absolutely no compromise on this point.

#### RECOMMENDATION 3

Nothing in this bill mandates an upgrading of the qualifications of the field force of the Division of Wildlife Services and nothing in the history of the Division leads us to believe that any upgrading will take place on a voluntary basis. To anticipate that the Committee's recommendation for "a broadly based program of predator management" will be created is to look for pie-in-the-sky. The Committee was quite right when it stated the large majority of present control agents are not qualified to meet performance standards required by society. Essentially, however, this bill ignores society in favor of special interests.

## RECOMMENDATION 4

Recognizing that at times and in some places predator control becomes necessary, this recommendation is vital. Any Federal funding to the states should require their acceptance of a cooperative trapper-trainer extension program on the lines of the Missouri plan. If well handled, this type of service can provide selective control of specific offending individual animals. In no case is control of an entire species or population acceptable. Under H.R. 13152 this recommendation can be carried out. We would urge stronger language, however.

## RECOMMENDATION 5

Recently the House defeated an attempt to pass legislation that would pay livestock interests for predator losses. It was a very bad bill with no controls. The action of the House was right. The government supports crop farmers for losses through an insurance program. The government supports many other individuals and groups for various losses under other insurance plans. Certainly something is possible for the livestock growers. Efforts to study this problem have been cursory. This bill does nothing for this recommendation either affirmatively or negatively. Suggestions along this line were made in the House debate including one to lower the cost of grazing permits and leases because of possible reduction in predator control programs. It must be recognized that the current permit and lease prices constitute an attractive government subsidy to the livestock interests because the costs are far below those on private lands. It must also be recognized that the various grazing and leasing arrangements have led to wildlife habitat destruction because of inefficient management and methods. We cannot accept this alternative subsidy of lowering permit and lease fees and, in fact, support higher fees and more restrictive use of the public lands.

## RECOMMENDATION 6

Another recommendation completely ignored by H.R. 13152 is this one that would call for revocation of leases and permits for persons convicted of violations of this law. Such revocation should be automatic and no alternatives should be provided. It should not be a matter of regulation.

Anyone convicted under this law will have violated the public trust and demonstrated that they are irresponsible. In the vast western lands, it is not possible to keep up continuous monitoring of the activities of the ranchers and those who violate the law should be barred from use of public lands.

## RECOMMENDATION 7

Predator control is not prohibited on statutory wilderness areas under this legislation. It is not prohibited anywhere under this legislation. The Senate must rectify this glaring omission.

## RECOMMENDATION 8

This recommendation is flawed because it suggests the authorization of the use of planes for predator control. In *Defenders of Wildlife News* for March-April 1972 we read, ". . . As a matter of fact, we can expect more coyotes to die than ever before, especially by means of shooting from aircraft and new bounty programs. As an example, in Sweetwater County, Wyoming alone during a 120 day period last winter approximately 1,200 coyotes were killed by the Division of Wildlife Services and approximately 80% were shot from airplanes."

It is clear that this is a case of wholesale slaughter and not control of specific offending predators. Your legislation must include provisions to prevent this slaughter and to prevent the use of planes which are certainly non-selective means of control.

We should also mention at this time that we oppose any bounty system for wildlife. Bounties must be made illegal and their use by states should be cause for Federal action under this law.

## RECOMMENDATION 9

Specific language has never been written into law to effect this recommendation. It is claimed that the FAA has the authority to carry it out. We would like to see this recommendation written into law. H.R. 13152 ignores this recommendation.

## RECOMMENDATION 10

There is no language in this bill to ban the broadcast of poison as a control method. Whenever the use of poison is authorized no restrictions are written into the law on how it is to be used. We cannot assume that the responsible officials will act against broadcasting of poisons. They have not done so in the past. If recommendation two were carried out with adequate enforcement provisions, this recommendation would not be needed.

## RECOMMENDATION 11

This recommendation for long-term research to cover the gamut of ecological problems associated with predators is perhaps given token notice with the small annual research appropriation. However, nothing suggests that this type of research will be conducted.

## RECOMMENDATION 12

Under the legislation proposed, it is highly unlikely that the Division of Wildlife Research or any other Division will undertake a detailed socio-economic study of cost-benefit ratios of predator control. Such a study might endanger the entrenched Division of Wildlife Services. The study should be mandated but should be carried out by a disinterested private study team.

## RECOMMENDATION 13

Another ignored recommendation. Rabies will continue to be an excuse for wholesale poisoning despite scientific evidence that such actions are of no value.

## RECOMMENDATION 14

Although we have an endangered species act and Congress is considering extending its parameters, predators that need protection do not benefit because they are frequently killed as non-target species or as illegal target species. Most predators are not considered endangered but probably will come under the new provisions if they are enacted into law. H.R. 13152 ignores this recommendation.

## RECOMMENDATION 15

A state responsibility but no support for this recommendation in the law. The Federal government could tie financial support to the state's taking action on the recommendation.

In the House debate on July 17, Mr. Goodling said, "All wildlife species have value, even those which are predators, for nature's delicate balance requires an appropriate level or presence of each." He further said, "Thus the bill . . . adopts the more rational, logical, and scientifically supported basis of individual control and management of offending species given the factual situation involved."

Mr. Goodling is right when he says all wildlife species have value. He is incorrect when he evaluates the bill. We see nothing in this bill which will mandate rational, logical and scientific methods of individual control and species management. We would strongly support legislation that provides for such individual control, but would oppose any efforts to control an entire species because it is a predator.

As Mr. Garmatz said, ". . . this legislation is far from a perfect solution to a complex problem, it is at least a step in the right direction." Indeed, this legislation (H.R. 13152) is far from perfect. It does not appear to be a step in the right direction either.

This bill goes far beyond the concepts of control of predators. It adds a definition of "depredating animal" which means any non-predatory mammal or reptile causing damage to agricultural crops or natural resources. The House Report gives as examples of depredating animals which would be subject to the provisions of this act—gophers, ground squirrels and jack rabbits. The report includes the prairie dog under examples of predatory mammals but we assume it was misplaced.

We had hoped to see an end to the massive predator control programs, the use of poisons, and the restrictions on methods that are so badly needed. We see none of these things in H.R. 13152. We do see a continuation of massive predator control programs, the use of poisons continuing, no restrictions in

methods and even an increase in funding and an increase in the scope to include the category of depredateing animals.

"Man has become a worldwide and master predator, exploiting many animal resources, and eliminating competing predators. His mastery is increasingly secure by virtue of his numbers, technology, and innovations in husbandry. His intolerance, however, towards other predatory animals—contesting them to the death—continues largely unabated. From childhood man's legends, art, religion, and literature steep him too well in fear and enmity of the larger predatory species. . . .

"We have hope, but little optimism, that mankind will discard irrational and emotional hostility toward predators and substitute a scientific position on their management. But to people other than biologists or ecologists, the word predator has long meant something malicious—the wicked preying upon the good."

The authors of the above statement, Robert A. McCabe, of the Department of Wildlife Ecology, University of Wisconsin, and Edward L. Kozicky, of the Conservation Department, Winchester-Western Division Olin, have placed the problem confronting this Committee, the entire Senate and Congress and the nation in an historical framework that is tragic but true. Man is, indeed, the master predator. Only man has the ability to save species from extinction. Only man lacks the moral fibre to exercise responsibility towards his fellow predators.

We include the paper by Mr. McCabe and Mr. Kozicky at the end of this statement for inclusion in the record.

Another paper included is PRINCIPLES OF PREDATOR CONTROL by Jack H. Berryman. What he says and what his Division does are apparently two different things. This paper is an excellent example of a defense of predator control activities without using any supporting data.

The last inclusion is a paper by Maurice G. Hornocker, Idaho Cooperative Wildlife Research Unit, University of Idaho, Moscow entitled PREDATOR ECOLOGY AND MANAGEMENT—WHAT NOW?

I believe that Mr. Hornocker and McCabe and Kozicky are on the right track. They recognize what too many do not that predators are valuable, that present control methods are dangerous and biologically unsound.

We urge the Senate to pass a sound predator control bill. The bill should include an absolute ban on the use of poison. It should ban any non-specific control method. It should have teeth to keep the states from creating their own predator control programs in violation of the principles put forth by the Cain Committee. The amount of money available for control activities is out of line with reality. This money should be devoted to research. The Federal government does not need to maintain a large staff of control agents. Our opinions on the Cain Committee recommendations have been set forth. If you adhere to their recommendations, you will create a strong bill, perform a valuable public service and know that you have done much to save our predators from endangerment.

Senator Moss. Mrs. Christine Stevens, secretary for the Society for Animal Protective Legislation. Dr. Harold Lamb will follow her.

#### STATEMENT OF CHRISTINE STEVENS, SECRETARY, SOCIETY FOR ANIMAL PROTECTIVE LEGISLATION

Mrs. STEVENS. I will try to keep this brief.

Senator Moss. Your statement will be in the record in full.

Mrs. STEVENS. I would like to emphasize the extreme cruelty of poisoning. We are particularly interested in protecting all animals from needless suffering, and the horrors of strychnine, which actually cause an intensification of consciousness while having cramps all over the body until death finally comes from suffocation, is simply something that shouldn't happen to any animal. We should never, never use it for any purpose at all.

As described in this quote from the Cain report, 1080 causes "cowering, yelping, or violently running, as in fear, before falling in convulsion." Again, this is a hideous death. And I understand it can take many, many hours.

I have heard descriptions of people whose dogs have been killed by this frightful poison. So, again, this is a poison that should not be available at all. We would like to see it eliminated from any use whatsoever. Certainly it shouldn't be used on the public lands in a way in which many animals can get it.

Now, another terribly cruel method of capturing predators is the leghold trap. It is said that there are ways of putting padding onto the trap's jaws which greatly lessens the struggles and pain involved. We also know that there is a method of attaching tranquilizer tabs which have been used very little, but which could be used much more widely. I quote in my testimony a scientific paper on that subject. The coyote bites down on the trap the minute it catches him, and in 16 out of 17 test cases, the coyotes did ingest the tab and become unconscious within half an hour, and before that time was up they were probably feeling much less pain.

What we would very much hope is that in this legislation, it might be possible to include a requirement that when the traps are used, the best available method for preventing pain and fear be included in their use. Certainly that can be done, because it would be the Department of Interior people who would be handling it. They would be trained and would know what should be done.

I have some photographs, Senator Moss. Perhaps I could bring them up to you.

Senator Moss. Yes, surely.

Mrs. STEVENS. You see, there is a picture of a badger who has dug this terrible trench while trapped, trying to get away. Many animals actually gnaw their legs off. If you look at the expressions, you will see the agony on the faces of the animals. There are domestic animals and wild animals there. I believe if we could possibly do something to prevent that suffering without taking away the tool which we recognize is still necessary—there must be tools left with which to deal with this serious problem—the bill would be much more humane.

I have also brought up there the article from Life magazine, which you might not have had an opportunity to see, about the coyotes. It shows what we have heard many times this morning about how intelligent and difficult they are to find.

You will notice that "the sheepmen say it is a war," and that they are losing. So, again, it would seem that these millions of dollars that have been spent for poison have not been effective.

I was particularly interested to hear Mr. Bonde this morning saying that coyote litters had risen from an average of from three to five up to seven to nine, and having heard a great deal recently about the effects of mass killing, it seems almost certain that the reason for the larger litters is because there has been so much killing. This is a normal response of wildlife.

In fact, it is often commercial people who want to get more of a harvest who talk about the optimum sustained yield being raised when a great many animals are killed. Therefore it seems quite possible that in the fairly near future the coyote increases would level off, as the mass poisoning stops.

In the meantime, however, I think there is a possibility that there would be a great deal of predation in the coming year, and to fight against that, I would very strongly recommend (and I realize it might

be difficult to introduce something rather new into this legislation at this time) an arrangement whereby the Federal Government would give assistance to the sheepmen to hire men or women accompanied by shepherd dogs to guard the sheep properly, this certainly would be extremely helpful.

There has been a false reliance on poisons and traps to help the unaccompanied sheep, and this subjects these animals, noted since classical times for their timidity and their likelihood of straying, to these conditions.

No provision has been made to help the sheep receive the care and attention they need from human beings and dogs, who can rescue them, not merely from predators, but from many other natural hazards.

In the Cain report, on page 26, there are statistics which show a very large amount of loss of sheep from other causes which are not specified. About a quarter of them appear to be from predators, and in fact it says 3,388,000 were lost as total deaths, due to all causes and 834,900 due to predators. That is from a survey—from eight surveys.

I won't go into these figures now, but I would, if I may, submit that reference.

(The following information was subsequently received for the record:)

TABLE C-1.—CALCULATED SHEEP LOSS IN THE WESTERN STATES, FROM REYNOLDS AND GUSTAD, 1971

States and census year (as of January 1)	Inventory			Total deaths to all causes			Total deaths to predators			Percent of total sheep inventory lost to predators		
	All sheep and lambs	Total value	Percent of total inventory number	Number	Value	Percent of total inventory number	Number	Value	Percent of total deaths	Number	Value	Percent of total value loss
Colorado: 1966	1,560,000	\$35,592,000	17.3	270,000	\$5,052,600	17.3	14.2	104,300	38.5	6.7	\$1,872,700	37.1
Texas: 1967	4,802,000	67,686,000	14.6	700,000	9,870,000	14.6	14.6	172,500	24.5	3.6	2,432,250	24.6
Montana:												
1967	1,351,000	31,438,000	31.3	423,000	7,458,800	31.3	23.7	61,400	14.5	4.5	1,017,500	13.6
1968	1,275,000	28,290,000	23.8	303,000	5,631,400	23.8	19.9	85,000	28.1	6.7	1,511,400	26.8
1969	1,225,000	30,982,000	36.2	444,000	9,345,000	36.2	30.2	68,000	15.3	5.6	1,375,000	14.7
Wyoming:												
1968	2,029,000	47,311,000	19.8	401,000	5,377,300	19.8	11.4	118,400	29.5	5.8	1,682,200	31.3
1969	1,847,000	41,410,000	20.4	377,000	5,197,500	20.4	12.6	85,200	22.6	4.6	1,325,400	25.5
1970	1,782,000	44,974,000	26.4	470,000	7,218,500	26.4	16.0	140,100	29.8	7.9	2,454,900	34.0
Total, all 8 surveys	15,871,000	327,683,000	21.3	3,388,000	55,151,100	21.3	16.8	834,900	24.6	5.3	13,672,350	24.8
16 State area: 1970	15,595,000	403,710,000	.....	.....	.....	.....	.....	1,826,535	.....	5.3	16,955,820	.....

1 Extrapolation.

I believe that there would be great economic advantage to increased care of the sheep, also, because many sheep obviously are lost, and if there were shepherds and dogs there to keep them rounded up, to scare away the predators, to detect the beginnings of disease, and to prevent them from straying away, I believe many more lambs and sheep would survive. The whole economic problem that we are talking about here could be solved, but I think it would require Federal funding to assist the sheepmen to have enough people to watch over the sheep in a thorough fashion, and that is what we would very strongly urge.

We think it would be a terrible thing if this legislation didn't pass this year, and we hope that you will find a way, Senator Moss, to help the sheep and help the predators and all the other wildlife together.

Senator Moss. Well, thank you, Mrs. Stevens. We appreciate your testimony, and these photographs which you have supplied us here. You indicated that perhaps more personal supervision and dogs might be used to control coyote predators. When a pack of dogs run down a coyote they tear him limb from limb. Is that any better than being poisoned?

Mrs. STEVENS. Yes, it is much quicker. As a matter of fact, I skipped that in our testimony, but we would prefer to see cyanide used rather than a leg-hold trap. Not that cyanide is a comfortable death, but it is quick. A leg-hold trap, especially the way they are not visited often, causes terrible torment, and if, Senator Moss, we hope you might put something in the legislation about the leg-hold trap, a requirement for visiting it twice a day would be extremely important. But the killing of a coyote by a pack of dogs, well, they kill him as fast as they can, once he has been caught.

Senator Moss. That is true, and if there are enough of them, I guess it is relatively quick.

On these tranquilizer tabs, I am interested in that. Could you supply us with a copy of the article that you were quoting from?

Mrs. STEVENS. Yes, I will.

Senator Moss. I think that would be interesting, and I would like to read it.

Mrs. STEVENS. I am so glad, because that is something that hasn't been encouraged, and it should be.

(The following information was subsequently received for the record:)

SOCIETY FOR ANIMAL PROTECTIVE LEGISLATION,  
Washington, D.C., August 9, 1972.

HON. FRANK E. MOSS,  
Senate Office Building,  
Washington, D.C.

DEAR SENATOR MOSS: In response to your request, I am enclosing a copy of "Tranquilizer Tabs for Capturing Wild Carnivores." We are deeply grateful for your humane concern to prevent fear and pain on the part of animals captured in traps.

May I take this opportunity to amplify concerning the use of dogs for the protection of sheep since I believe my attempt to save time may have prevented a clear, full picture from emerging. We envisage three major roles for dogs: 1) Their presence can alert the shepherders to an impending coyote attack of which they would otherwise not be aware, 2) If properly trained, dogs can prevent sheep from becoming lost, and they can bring back straying sheep to the flock, 3) They can, if necessary, actually kill a coyote, but it is their ability as natural "repellents" of coyotes that is the most significant, in our opinion. Certainly,

coyotes will more readily attack unprotected sheep and lambs than those that are protected by dogs with whom they will have to fight and who are capable of summoning men with guns.

We would emphasize again, our firm belief that, whoever pays the bill, more people and more dogs should be out protecting the sheep grazing on the public lands. We believe that the additional cost would be more than returned by the lowered mortality rate whether the causes be predators straying, injury, or disease. We believe it would pay either the United States Government or the sheepmen themselves to provide the additional human and canine protection which decent humane treatment of these animals demands.

With earnest hope for the prompt enactment of this urgently needed legislation.  
Sincerely,

CHRISTINE STEVENS, *Secretary.*

Enclosure.

[Reprinted from the Journal of Wildlife Management]

#### TRANQUILIZER TABS FOR CAPTURING WILD CARNIVORES

Donald S. Balsler, U.S. Bureau of Sport Fisheries and Wildlife, Denver  
Federal Center, Denver, Colorado

*Abstract:* A tranquilizer trap-tab using the drug "diazepam" has shown utility in reducing injuries to carnivores caught in steel traps and in preventing their escape. The tab consists of a cloth tablet wired to the trap jaw and containing 1 g of diazepam for coyotes (*Canis latrans*) and 500 mg for foxes (*Vulpes* sp.). Upon capture the animals usually chew the tab and ingest the drug. Ataxia follows in approximately 10-30 minutes, and struggling by the trapped animals is reduced. The effects usually last 24-48 hours, depending on the amount of diazepam consumed. This device was developed primarily for capturing animals unharmed for laboratory experiments, but it has additional applications in capturing animals for marking, in providing easy release of dogs or other pets, and in making steel trapping more humane.

The need for capturing adult coyotes in good condition for experimental use led to the development of a tranquilizer trap-tab to eliminate or reduce injuries incurred in steel trapping. The steel trap is one of the most efficient devices for capturing wild carnivores, but resulting injuries and trauma have limited its use primarily to fur harvest and control operations. Various other types of live traps have not proven effective in capturing adult coyotes and foxes. Modifications of steel traps such as padded jaws and springs inserted in the chains appear to be only partially effective in reducing injuries.

Observations indicate that the injuries are caused largely by the animals' struggles to escape or by their chewing the numbed appendage. Unless left in the trap too long, an animal that favors the trapped foot and does not struggle is seldom seriously injured.

The tranquilizer trap-tab is patterned after a strychnine trap-tab which has been used on occasion to kill animals captured in steel traps. The effectiveness of the new tab requires a tranquilizer that is fast-acting, long-lasting, has a wide range between effective and lethal dose, and reduces an animal's anxiety and struggling.

The drug "diazepam" was selected because of its relatively long-lasting action and its slight effect on motor functioning and the respiratory center (Ditman 1964). Extensive pharmacological and clinical studies indicate the drug has a relatively low order of toxicity (Randall et al. 1961).

I wish to acknowledge the valuable assistance given by fieldmen of the Division of Predator and Rodent Control in nine states who conducted many of the field trials, and to Wendell E. Dodge of the Denver Wildlife Research Center who originally suggested diazepam.

#### METHODS

Penned coyotes were given single oral doses of 480 mg, 720 mg, and 960 mg in their feed. The 720- and 960-mg levels were approximately one and one-half to two times as great as those recommended by Ditman (1964:108) for dogs. A large dose for coyotes seemed advisable because of the probability of incomplete ingestion of the tranquilizer, the additional stress of trapping, and the range in weights of the animals taken.

The tranquilizer trap-tab was constructed as follows:

1. We used a 2-x-2-inch square of semirotten cloth, which could be chewed easily. On this was spread a thin film of petroleum jelly which acted as a binding agent to hold the tranquilizer. The tabs were prepared in a cool room so that the petroleum jelly did not soak through the cloth and thus prevent the paraffin coating (to be applied later) from sticking. The desired amount of tranquilizer powder was measured with a spoon ( $\frac{1}{2}$  a teaspoon equals approximately 1,060 mg or just over 1 g). If the powder is measured by approximating volume, calibration should be checked for each measuring device. The 1-g dose for coyotes and 500-mg dose for foxes was derived from trials. The tranquilizer powder was spread over the petroleum jelly; the edges of the cover were folded in; and the cloth rolled to form a tab about 1 inch long and  $\frac{1}{2}$  inch in diameter.

2. A 7-inch piece of 14- or 16-gauge wire was wrapped around the middle of the tab and secured with half a square knot, and two or three twists of the wire were added to elevate the tab slightly above the trap jaw.

3. The tab was dipped lightly several times in a melted mixture of 25 percent refined beeswax and 75 percent paraffin. Beeswax adds flexibility to the paraffin, prevents cracking and peeling, and protects the coating against disintegration caused by moisture.

4. The tab was then wired to the top of the trap jaw nearest the *dog* slightly off center toward the chain (Fig. 1). In this position the tab will clear the dog when the trap is set and is readily available to the trapped animal.

The trap-tab was field-tested in the fall of 1962 and then was used in the springs of 1963 and 1964 to capture coyotes for laboratory experiments. During this period approximately 500 tabs, together with forms for recording data, were sent to personnel of the Division of Predator and Rodent Control in nine states (Arizona, Arkansas, California, Massachusetts, Minnesota, New Mexico, Oklahoma, South Dakota, and Virginia) for use in areas where a variety of carnivores might be caught and for reducing the escapement of trapped coyotes and foxes.

TABLE 1.—DURATION OF EFFECT OF DIAZEPAM ON PENNED WILD COYOTES

Coyote No. <sup>1</sup>	Dose offered <sup>2</sup> (milligrams)	Dose taken	Duration of ataxia <sup>3</sup> (hours)
1.....	480	480	24
2.....	480	480	24
3.....	480	480	24
4.....	480	480	24
5.....	720	720	24
6.....	720	720	24
7.....	720	400	18
8.....	720	720	36
9.....	960	0	0
10.....	960	240	0
11.....	960	0	0
12.....	960	240	0
13.....	960	( <sup>4</sup> )	24
14.....	960	( <sup>4</sup> )	24
15.....	960	960	36
16.....	960	960	36

<sup>1</sup> Average weight of animals approximately 10 kilograms.

<sup>2</sup> Drug mixed in feed or put in gelatin capsule in feed.

<sup>3</sup> Observations made at 6-hour intervals.

<sup>4</sup> Emesis.

#### RESULTS

With wild penned coyotes (Table 1) symptoms of diazepam ingestion usually become evident in approximately 30 minutes, which agrees with data provided by Ratcliffe (1962:12). Symptoms were ataxia, salivation, lack of attention, drowsiness, incontinence, and reduction or absence of biting. While most of the tranquilized animals showed no inclination to bite, a few continued to do so as long as they were conscious. Ataxia was evident up to 36 hours, with drowsiness and inattention lasting somewhat longer. In field trials where the drug is taken without human disturbance and is not administered in feed, the effects appear to be prolonged; under these conditions the animals often remain tranquilized for 2-3 days. In one instance an adult male coyote consumed a tab containing 2.5 g before being transported 800 miles by truck; the animal could not be aroused and succumbed after 5 days. The long-lasting effects are further illus-

trated by an experience reported by Ratcliffe (1962) wherein a white-tailed deer (*Odocoileus virginianus*) consumed slightly more than a gram of diazepam (60–80 mg/kg) and was affected for 96 hours.

The tests with penned coyotes suggest that animals trapped in the wild will remain tranquilized from shortly after capture until the traps are routinely visited 1–2 days later. In one of the initial field trials, 30 tabs (each containing 1 g of diazepam) were used; 17 coyotes were captured and only one failed to ingest the tab. None of the 16 tranquilized animals moved the trap drag more than 100 feet; several did not even pull the drag from its bed, indicating that their first reaction was to bite and chew the trap.

As shown in Table 2, the tabs also were effective in some degree in tranquilizing various numbers of foxes, skunks (*Mephitis mephitis*), domestic dogs, raccoons (*Procyon lotor*), opossums (*Didelphis virginiana*), badgers (*Taxidea taxus*), bobcats (*Lynx rufus*), and red wolves (*Canis niger*) either intentionally or inadvertently trapped while collecting animals for laboratory use or in field trials by Mammal Control Agents of the Division of Predator and Rodent Control.

#### DISCUSSION

The foregoing field trials were conducted with a variety of tabs, many of which were effective, but it was impossible to test one tab against another. Hence, results should be generally better if only the best tabs are used. The major malfunctions were largely mechanical, as follows:

1. Tabs breaking off before being chewed because the wire was brittle or was twisted too tightly.
2. Cloth too tough to be easily chewed, or rolled too tightly, preventing the animal from ingesting the dose.
3. In trials with oleomargarine as the binding agent, tabs had been stored for 6 months and none worked. Correspondence with the manufacturer indicated that the drug may break down in this medium. Oleomargarine also caused mice to dig down to the tab, exposing part of the trap and spoiling the set. Such odoriferous elements should not be used.

TABLE 2.—RESULTS OF FIELD TRIALS WITH THE TRANQUILIZER TRAP-TAB IN ARIZONA, ARKANSAS, CALIFORNIA, MASSACHUSETTS, MINNESOTA, NEW MEXICO, OKLAHOMA, SOUTH DAKOTA, AND VIRGINIA

Species	Number trapped	Dose in tabs (milligrams)	Number of animals taking tab	Number of animals tranquilized	Number of animals with slight or no foot damage	Remarks
Coyote.....	40	750	36	32	25	1 dead.
Fox.....	34	450	22	21	19	2 dead.
Striped skunk....	27	450	18	18	16	10 animals did not eject scent when destroyed or released.
Dog.....	17	450	5	5	4	
Raccoon.....	10	450	6	5	5	1 dead.
Opossum.....	9	450	6	5	3	Do.
Badger.....	2	450	2	2	2	
Bobcat.....	2	450	1	1	1	
Red wolf.....	3	450	3	3	2	Do.

Although the mechanical details can be corrected, there are a few individual animals of any species that apparently will not chew the tab. For this reason the device cannot be expected to be 100 percent effective.

Temperature may alter results. Although some of the trapped animals that died were killed by other animals, most were victims of heat. On days when the temperature was in the 90's, trapped animals, whether tranquilized or not, were often dead before noon. It is not known whether the tranquilizer potentiates the effect of heat, but it is suspected that death of a tranquilized animal from freezing may be hastened due to decreased mobility.

The reaction of different species varies considerably. For example, tame dogs are not as inclined to take the tabs as wild canines or aggressive dogs. Most of the tranquilized skunks did not eject their scent, which is a decided advantage in trapping.

Several trappers that tested the device indicated they had captured particularly troublesome coyotes by the toes. The animals had been causing serious live-stock losses and probably would have escaped had they not been tranquilized.

The tabs are currently being used in an interesting way in Minnesota. Alan B. Sargeant, Animal Control Biologist, Division of Predator and Rodent Control, Cedar Creek Natural History Area, Bethel, Minnesota (Personal communication 1964), stated that the tab has been extremely helpful in capturing foxes without foot damage for a radio-tracking study. He suggested these modifications:

1. Materials used. Two strips of canvas (1×4 inches), a 6-inch piece of 14-gauge soft steel wire, a 1½- x 2-inch piece of lightweight cloth, a lightweight rubber band, ½ g diazepam (for foxes), beeswax, and water.

2. Procedures. The two pieces of canvas are placed together and folded in the middle on the short axis. A small hole is punched through all four layers of canvas ¼ inch above the base. The wire is placed through this hole and twisted tightly. The canvas is dipped in water and ½ g of diazepam is placed on the four loose ends by mopping it up from a dish or tray. The excess water is squeezed from the canvas. The canvas is rolled lengthwise, wrapped with the small piece of cloth, and secured with a rubber band. The tab is then dipped in hot beeswax.

Another modification is to cover the tab prior to dipping with tinfoil instead of the cloth. The tinfoil is easily pulled off and the tranquilizer on the cloth strips is exposed to the animal. In this instance, a single wire is used to anchor the tab to the trap. The tab resembles a lollipop when completed. This type of tab works best for foxes but is not sufficiently durable for coyote trapping, particularly when drags are used. The tab described under Methods is recommended for trapping coyotes and Sargeant's modification for trapping foxes.

#### APPLICATIONS

The potential applications of this device are (1) taking unharmed animals for various purposes, (2) enabling easy release of recalcitrant dogs and reducing foot damage to valuable dogs and other pets, (3) helping prevent the escapement of trapped animals, and (4) making the steel trap more humane.

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Senator Moss. In the large extensive areas of the west, visiting a trapline twice a day might be a rather impractical requirement. How would you recommend that we get the manpower to do that?

Mrs. STEVENS. Well, I am assuming that this particular trapping program would be carried out by the Federal or State Government, and that therefore if they are using traps on specific animals as this legislation aims to do it wouldn't have to be such very extensive distances.

In other words, it would be much more specific, and in fact would save time to keep going back and getting the animal right then and there, and then moving on to someplace else.

In connection with that, the *Life* article, has a horrible report on the trapping of coyotes and then wiring their mouths shut and cutting them open to use their bladders for more trapping. The whole thing struck me as so horrible that we must find a way to stop that kind of attitude and kill the animal immediately, once it is caught.

Senator Moss. Thank you, Mrs. Stevens. We appreciate your coming to testify.

Mrs. STEVENS. Thank you.

## STATEMENT OF CHRISTINE STEVENS, SECRETARY, SOCIETY FOR ANIMAL PROTECTIVE LEGISLATION

On behalf of the Society for Animal Protective Legislation, I wish to express support for the basic provisions of the bills pending before this distinguished subcommittee: S. 3334 introduced by Chairman Magnuson and H.R. 13152 passed by the House on July 17th. We strongly oppose the use of all painful methods of controlling predators and believe that painless methods must be substituted whenever control is necessary. For this reason, we support the definition of "chemical toxicant" in H.R. 13152 as one which "by its chemical action may cause significant injury, illness, or death to animals or man." The words "bodily malfunction" which are included in the definition in S.3334 are omitted for the express purpose of allowing the use of fertility inhibitors, a method of predator control which should be more fully developed and used in preference to the cruel methods now generally in use.

Strychnine and 1080 are among the most painful poisons known. Strychnine heightens consciousness at the same time that it creates agonizing cramps in muscles throughout the body. Death finally comes from suffocation. Animals poisoned with 1080 take even longer to die. Symptoms as described in "predator Control—1971," by the Advisory Committee on Predator Control, include "cowering, yelping, or violently running as though in fear—before falling in convulsions." Thallium, zinc phosphide and gophacide are given as poor a rating for humanness as 1080. Clearly, these poisons ought not to be inflicted on fellow mammals or, indeed, on any living creature. We vigorously support legislation to restrict or, better still, abolish cruel poisons.

For the information of the subcommittee, I would like to submit, Mr. Chairman, photographs of animals caught in leg-hold traps. We earnestly hope that this equally or even more cruel method of capturing predators will be, at the very least, restricted and modified by the pending legislation. There is no doubt that leg-hold trapping has caused and is causing far more intense and long-drawn-out suffering than one of the poisons which has been used for killing predators: cyanide. Cyanide is not painless, but it is quick. The sufferings of a creature such as this badger who, in his desperation, has dug a huge trench in a perfect circle around the fierce grip of the painful steel trap which holds one of his feet, have been long and terrible. If you will examine the expressions on the faces of animals both wild and domestic, caught and mutilated in these antique instruments of torture which, unfortunately, still continue to be manufactured in our country, you will see reflected the agony inflicted on them.

It is essential that the Department of the Interior press forward immediately with further development of those methods of reducing the cruelty of the steel trap which are now available, and seek effective methods of protecting livestock from predators which do not involve long-enduring pain and fear. With respect to traps, there are two paths open: 1) the use of tranquilizer tabs, 2) the use of padded jaws. We believe the first to be the more promising.

An article, "Tranquilizer Tabs for Capturing Wild Carnivores," by Donald S. Balsler, appeared in *The Journal of Wildlife Management*, July 1965. The author states: "The steel trap is one of the most efficient devices for capturing wild carnivores, but resulting injuries and trauma have limited its use primarily to fur harvest and control operations. Various other types of live traps have not proven effective in capturing adult coyotes and foxes. Modifications of steel traps such as padded jaws and springs inserted in the chains appear to be injuriously partially effective in reducing injuries. Observations indicate that the injuries are caused largely by the animals' struggles to escape or by their chewing the numbed appendage. Unless left in the trap too long, an animal that favors the trapped foot and does not struggle is seldom seriously injured. . . . The tests with penned coyotes suggest that animals trapped in the wild will remain tranquilized from shortly after capture until the traps are routinely visited 1-2 days later. In one of the initial field trials, 30 tabs (each containing 1 g of diazepam) were used: 17 coyotes were captured and only one failed to ingest the tab. None of the 16 tranquilized animals moved the trap drag more than 100 feet; several did not even pull the drag from its bed, indicating that their first reaction was to bite and chew the trap." The end of the article cites applications as follows: "The potential applications of this device are (1) taking unharmed animals for various purposes, (2) enabling easy release of recalcitrant dogs and reducing foot damage to valuable dogs and other pets, (3) helping prevent the escapement of trapped animals, and (4) making the steel trap more humane."

The Report of the Committee on Merchant Marine and Fisheries on H.R. 13152, July first of this year, states in part: "At the hearings on this legislation, there was concern expressed by a number of witnesses over the use of steel jaw traps in the control of predatory animals. Although the Department of the Interior witnesses indicated that a steel jaw trap, when properly used, was a tool that could be used with humaneness, your Committee would like to make it clear that it expects the Secretary to continue to investigate and develop other methods of control which are more humane and less cruel. This should be done with a view toward employing the more humane methods in each situation at the earliest possible date and not use methods that are unnecessarily cruel and inhumane. When killing must be done, your Committee expects such killing to be done as selectively and as humanely as possible."

Mr. Chairman, it is our hope that you will wish to include a clear directive in the legislation itself to require that when leg-hold traps are used for the capture of predators they be equipped with the best available devices for the reduction of pain and fear, and that they be visited twice daily to kill painlessly and immediately or to release any animal caught.

Modifications in H.R. 13152 with respect to funding and responsibilities of the state and federal governments appear to be wise.

There is concern among humanitarians and conservationists about the new language in the House bill which would permit an emergency use of chemical toxicants to prevent major damage to domestic livestock. As noted earlier, the Society for Animal Protective Legislation does not have strong objections to the use of cyanide when it is absolutely necessary to kill predators in order to protect domestic animals. However, the past history of the use of strychnine and 1080 in enormous amounts, causing untold suffering, but not solving the problem, forces us to oppose this new provision. A true emergency with respect to predation of livestock would call for the use of aerial gunning and dog packs to eliminate the particular predators immediately. The poison programs, far from being immediate in their effects on specific marauding predators, appear to have gone on and on, killing animals that never even thought of killing a lamb.

I would request that the recent article from *Life* magazine, July 21, 1972, be inserted in the record of the hearings. Headlined "Wily Vagabond Who Defies the Odds," it carries a subhead, "It's a war," say the sheepmen, 'and we're losing.'" It would seem that if the expenditure of millions of dollars for poison every year by the federal government has left the sheepmen losing their "war," there must be something seriously wrong with the method. Perhaps the mass killing produces an "optimum sustainable yield" of coyotes that the sheepmen don't really want. A great deal of testimony has recently been put on the record with respect to the value of killing to keep the birth rate up in an animal population, but hardly anybody wants a "harvest" of coyotes. Those who object to coyotes simply want them to stay away from domestic livestock.

It would be very unfortunate if, under the provision for emergency use of poison, the vicious circle which this legislation should be capable of stopping, were started up again.

The appalling sadism of some predator killers is illustrated in the *Life* article which shows the bodies of 39 coyotes and a number of bobcats killed by a sheepherder who, after trapping them "wired their mouths shut, tied their feet, then while they were still alive slit open their bellies and extracted their bladders to bait more traps." An individual of this stamp doubtless would support "emergency" measures at all times. So far as is known, he is still at large and has not even been charged with cruelty to animals.

Such an example underline the importance of requiring instant painless killing of target animals caught in traps.

Mr. Chairman, we urge that sheepmen receive assistance where necessary to hire men or women, accompanied by shepherd dogs, to guard the sheep properly. A false reliance on poisons and traps to protect the unaccompanied sheep subjects these animals, noted since classical times for their timidity, docility, and tendency to stray, to undeserved danger and suffering. We have recognized, at last, that poison does not work and that it is doing terrible damage. We are on the way to developing some better methods of controlling predators where necessary, but no provision has been made to help the sheep receive the care and attention they need from human beings and dogs who can rescue them not merely from predators but from many other natural hazards.

It would be a great contribution to the welfare of animals, both the herbivores and the carnivores involved, if a positive means of assistance to provide humane shepherds and shepherdesses to tend the flocks were included in this legislation. Mr. Chairman, I hope this can be done.

Senator Moss. Dr. Lamb, representing the Utah Wildlife Federation. Dr. Murphy will be next.

**STATEMENT OF DR. HAROLD LAMB, UNITA SIERRA CLUB CHAPTER,  
UTAH WILDLIFE FEDERATION**

Dr. LAMB. Thank you, Senator Moss. I am pleased to have the opportunity to appear here as a citizen of the State of Utah, and be a participant in the democratic process in making a decision on predator control legislation.

Dr. Harold Lamb is my name, and I appear as an individual citizen, but I am authorized to speak for the Utah Wildlife Federation, the Utah Nature Study Society, the Humane Society of Utah, the Unita Chapter of Sierra Club, and ISSUE.

These groups altogether represent approximately a membership of 12,000 individuals.

As a result of longtime concern about indiscriminate wildlife destruction in the name of predator control, the so-called Leopold committee studied the problem and issued a report in early 1964.

The major thrust of their recommendations was that control measures should be applied only to troublesome species—preferably specific individuals of the species, and in any event only in areas where substantial damage was occurring.

It was also their conclusion that control as practiced at that time was far beyond need and was not justified in the public interest. One would have thought significant improvement in predator management would result from that report, but recent exposure of massive wildlife destruction—both predator and otherwise—by illegal use of firearms and broad-spectrum poisons, makes clear the need for drastic revision and reevaluation of predator control programs.

We applaud and strongly support the recommendations of the Advisory Committee on Predator Control to the Council on Environmental Quality and the forthright action taken by the President in his order banning poisoning of wildlife on Federal lands.

It is our opinion that most reports of damage done by predators are exaggerated, emanate from sources with understandable bias against predators and are predicated on grossly inadequate factual information.

It is also our opinion that much of the damage done results from the biologically unsound manipulation of rodent populations who are the major source of most predators' food. Even if we accepted the reports of major losses, and even if specific control of rodents were eminently justified, the extensive loss of innocent individuals of target species, let alone the nontarget species, far outweighs the legitimate benefits of past programs.

Some understanding of the complex ecological relationships between amount and quality of forage, rodent populations, effects of grazing, and the role of predators has been known for years by Federal and State agencies as well as economic users of the public lands.

In spite of this knowledge, little effort or additional research has been directed to apply this knowledge to land management until citizens primarily through the vehicle of activist conservation organizations demanded responsible action.

In spite of our objections to existent predator poisoning programs, we do not reject selective and legitimate predator control. As a physician, I find death, though inevitable, a shocking and always an unacceptably obnoxious event. The physiological process of death is the same in all creatures and the extinction of the spark of life seems identical. The taking of any creature's life should therefore not be done frivolously. Poisoning is a particularly dirty business and cannot be justified for reasons of economic expediency.

H.R. 13152 is legislation introduced in part in response to the President's executive order of March 1972. Areas of disagreement by groups I represent include:

Section 3(b) refers to research programs which are all predicated on a concept of predator control by destructive means. The investigations should include not only documentation studies of predation, but instigation of trial management programs which might negate the need for destructive predator control.

Section 4 and 5(b) provide four escape clauses for State and Federal emergency use of toxicants. Some of these sound like "wind in the bushes" which serve as a smokescreen to legitimize the item of major livestock damage. Human health and safety must refer to rabies, plague, or tularemia.

Rabies is a self-limiting epizootic, plague is usually associated with urban filth and rats, and secondary vectors—that is, insects—are the important link in tularemia. This is a matter for public health officials and not predator control agencies.

The second clause refers to predators endangering another species. To my knowledge, the only predator that has this capacity is man. The third clause makes me think of some Alfred Hitchcock movies, but I cannot conceive of a circumstance where predators could cause irretrievable damage to a nationally significant natural resource.

In the case of major damage to livestock, there is no definition of what constitutes major damage, and who or how the assessment is made.

It also ignores competent biologically contrary recommendations and ignores the efficacy of other control measures.

Section 5(a). Anyone who has read "Bury My Heart at Wounded Knee" can sympathize with any legislative act that protects the right of Indians to manage their lands as they see fit. If, indeed, however, it is best to eliminate toxicants as predator controls on any lands, the only exceptions should be based on sound ecological information and not on political considerations.

Section 4(e)2, which refers to financing Federal control programs provides for a sum of \$5 million each fiscal year. This is a large increase and would seem to be inconsistent with evidence that suggests we need less predator control rather than more. A program approved by conservationists is modeled after that used in Missouri. The expense of the program in Missouri is less than \$20,000 per year. Although Missouri's problems are less than ours in Utah, the recommended expenditure in section 4(e)2 seems out of line.

The Cain report made 15 recommendations as a result of its study—these recommendations seem reasonable, logical, and in need of implementation. H.R. 13152 does not address itself to many of the recommendations. We are particularly disturbed by the omission of

professionalization of the Division of Wildlife Services and the lack of relief to stockmen if they suffer significant predator losses.

Subsidization by direct compensation for alleged losses could prove to be an uncontrollable financial rathole, whereas self-insurance programs for excessive substantiated losses could compensate where needed and reduce demands for continued use of toxicants. In Utah, speaking of subsidies, 35 ranches already receive \$1.6 million in Federal payments.

Some Federal presence in predator control is needed. In the State of Utah, the State department of agriculture and the bureau of sport fisheries are responsible for predator control. The State statute says in part it shall "take such measures as it deems necessary for the eradication of coyotes, lynx, wolves, panthers, mountain lions, bears, and of prairie dogs, rabbits, and other rodents."

Our division of wildlife resources, formerly fish and game department, is now mostly manned by professional wildlife managers and biology specialists, and is comparatively free from political manipulation.

In the present circumstances they could probably do a satisfactory job in assuming the State agency responsibilities of this act. Such, however, has not always been true in the past, and a change of political fortunes at the State level could place this agency under near irresistible pressures from vested interests. Continued Federal presence could help prevent such developments.

As a concluding statement I should like to say: Man recognizes the need for the application of ethical principles of conduct toward his own species, but usually seems to exclude this need for other species. Until this attitude is changed—and this bill could be a small step in that direction—I believe man's quest for a quality existence will indeed be a mission impossible and he will self-destruct in the not too distant future.

Thank you very much.

Senator Moss. Thank you, Dr. Lamb, for your statement, and we appreciate it very much.

Would you favor the inclusion in section 3(b) of a provision that research shall include the testing of nondestructive methods of predator control?

Dr. LAMB. Very much so. That is what I had in mind, exactly.

Senator Moss. I gathered from your testimony that you would favor such an inclusion there.

The report from the House excludes Indian lands from the action of the bill. You think they should not be excluded, that we ought to have general coverage?

Dr. LAMB. I think if ecological principles are proper and appropriate, and I believe they are, I don't think the political consideration will make them right in one area and wrong in another. That doesn't make sense to me.

Senator Moss. Thank you very much.

We will now hear Dr. Joseph Murphy of the Mount Timpanogos Audubon Society and Center for Health and Environmental Studies, Brigham Young University.

STATEMENT OF DR. JOSEPH R. MURPHY, MOUNT TIMPANOGOS  
AUDUBON SOCIETY AND CENTER FOR HEALTH AND ENVIRON-  
MENTAL STUDIES, BRIGHAM YOUNG UNIVERSITY

Dr. MURPHY. Senator Moss, I intend to make a very brief statement, perhaps to complement rather than extend my written testimonial. I am Joseph R. Murphy, Department of Zoology, Brigham Young University. I represent the Mount Timpanogos Chapter of the National Audubon Society, and the Center for Health and Environmental Studies, Brigham Young University.

I appreciate the opportunity to express some opinion relative to the bills before the House and Senate on predator control and predator management.

I read into these present bills much more than merely predator control. I see for the first time an effort at a broad-scale and full-gage understanding of that segment of our fauna which we refer to as predators.

Incidentally, I am a little concerned that the Department of Interior has excluded predatory birds from the language of the legislation.

The definition of a predatory animal is any animal which obtains its energy resources from killing and eating other animals, and since many of the birds will fit that definition. I would like to see them included as animals that would come under the scope of this legislation.

I do not consider this necessarily "model" legislation for predator management, but it certainly goes much further than anything we have seen in the past. I, too, feel that one or two provisos should be deleted, particularly the ones that leave the possibility for chemical toxicants to be used where "major livestock damage" is believed to occur. I think that would become a very subjective matter; that is, whether or not major livestock damage was occurring.

My particular training is in the area of ecology, and specifically my research is in the ecology of predatory birds. For the past several years my students and I have conducted ecological studies primarily on eagles, but also on some other birds of prey.

In Utah, we have worked with two different populations of eagles; a nesting population of golden eagles resident year round, and a wintering population of bald eagles, which move into the arid mountain valleys in the wintertime, arriving in November and remaining until March.

We are not certain of the origin of this population of bald eagles, but we believe they are a nesting population from Canada, so that in dealing with this population, we have some concerns other than just our immediate geographical region involved.

The golden eagle, of course, has been the subject of considerable controversy. We hear less about it now. I heard nothing about the golden eagle today as a possible predator on sheep. This is a refreshing change, I might say.

But we do know that golden eagles are capable of killing sheep, and it would be fallacious to assert that they could not do this. They are very well endowed by nature to kill an animal the size of a lamb, or even somewhat larger. The question is not do they kill sheep, but how significant the loss from such predation might be. We have con-

ducted studies that have provided insight into the food habits of the golden eagle in Utah, and I would be happy to comment on that, if you would care to direct any questions about that phase of our research.

One of the concerns here, of course, involves the use of poisons on the western range lands, particularly in the sense that they may get to nontarget species. While this has been mentioned before, I would like to emphasize that there is the real possibility that these large birds of prey may utilize some of the bait intended to control coyotes, and there is some evidence that in fact such poison bait stations have been responsible for killing eagles. We have recently seen this happen in Wyoming, where it was somewhat inadvertently done, but nevertheless became a *fait accompli*.

Now, the problem with the eagles is probably more serious with the bald eagles in the wintertime because they tend to be more exclusively scavengers than do the golden eagles. The bald eagles are to a large extent scavengers. They will use carcasses of rabbits that have been killed by hunters, and to some extent sheep which have been killed from other causes. It is this population of bald eagles about which I am quite concerned in terms of the use of poisons, and I think this is a very real threat. I don't think it is imaginary in the least degree.

I can't give you hard facts on numbers that might have been killed by such poisons, but I think it is the kind of situation that we should work to amend as rapidly as we can possibly do so.

I would also like to say something about two other provisions in the bill. One of these relates to State control of predatory animals. I generally favor the concept of a State and Federal liaison with primary responsibility lying with State personnel for the actual management of predator control.

I, too, am impressed with the competence of our wildlife resources personnel. I think they have the training and ability to do the job. This is not to negate the work of the Division of Wildlife Services, but I think we will have a higher degree of professionalism under this new program.

Finally, one provision in which I have some vested interest is the suggestion that research funds will be appropriated to study predators in their total context, and I am reading into this, and I hope I am not reading in more than is intended, that such research funds would be available for basic, fundamental research on ecology of predation and not simply control methods, because there is much we need to understand about predatory animals before we can begin to control them.

There is much we can learn about animal behavior that may be useful in an applied sense in learning how to control predatory animals through such things as the use of repellants and ultimately, perhaps, even control of reproduction through sterilization or changing reproductive behavior, whether that be chemically or in some other manner.

So I hope we will see the utilization of research funds in the total picture of predator management. Let me cite an example. In recent months my colleagues and I have been approached by two different Federal agencies and one State agency with various proposals to work on predatory birds. We are now under contract with the Forest Service to do some work on endangered species in the Uinta National Forest. We are also working closely with the State Division of Wildlife

Resources, and I see emerging some interservice rivalry in respect to which agency will manage certain resources, and who shall conduct research in a given areas.

Here is a program that channels the research effort through a certain pattern, and rather than having three or four different agencies conducting research in different directions and perhaps not meshing gears as it were, it would tend to centralize the research effort.

I believe that this is all I would like to say in expanding upon my printed statement, and I would be happy to respond to any questions.

Senator Moss. Thank you, Mr. Murphy. Your full printed statement will be in the record. I understood from your testimony that you would favor State control of the program, but with close liaison with the Federal Government.

Dr. MURPHY. I believe that is necessary. I don't believe the State will have all the resource personnel they might need, and I believe that a combined effort between Federal and State agencies would do a more adequate job.

Senator Moss. To what degree is research being conducted in the Zoology Department, Brigham Young University, on predator control?

Is there an extensive program? You indicated you had a program on bird predators, but what about other predators?

Dr. MURPHY. It is pretty much localized or confined to bird predators. We have done research on falcons, hawks and eagles. We do have a couple of persons getting into the area of research on mammalian predators, but we have resident in the State, Dr. Frederick Wagner, a member of the Cain committee, who is an acknowledged expert in the field of coyote ecology.

Senator Moss. I appreciate your pointing out that birds are indeed predatory animals. However, there is a Migratory Bird Treaty Act, and also there is a separate bill pending before us on control of eagles and other predators.

I suppose that is the reason for the exclusion here.

Dr. MURPHY. That may be. My concern is that this important wildlife segment would be left out of provisions of the bill so that theoretically one could say that research or inquiry into the ecology of predatory birds would not come under the aegis of this bill.

Senator Moss. Thank you. We will look into that carefully. We appreciate, Dr. Murphy, your coming to testify.

(The statement follows:)

#### STATEMENT OF DR. JOSEPH R. MURPHY

Mr. Chairman and gentlemen, I am Joseph R. Murphy, Professor of Zoology and Chairman of the Department of Zoology at Brigham Young University, Provo, Utah. I represent the Mr. Timpanogos Chapter of the National Audubon Society and the Center for Health and Environmental Studies, Brigham Young University.

The organizations which I represent are vitally concerned with the management of wildlife resources in Utah and surrounding states. Since the problem of predator control and management has long been fraught with controversy, we are greatly encouraged with the prospects of Federal legislation which would reflect sound ecological principles as applied to predators. We are very much in favor of the major features of H.R. 13152, and urge its support by all members of Congress. We are particularly pleased to find that the proposed legislation incorporates several significant recommendations of the Report to the Council on Environmental Quality by the Advisory Committee on Predator Control (often referred to as the Cain Report) submitted in January of this year.

Rather than deal in generalities, I would like to call attention to some specific problems upon which this legislation would have bearing. For the past twelve years my research interests have centered on the ecology of predatory birds (eagles, hawks, falcons, owls, etc.), with field work conducted in Yellowstone National Park and the state of Utah. I will make particular reference to our eagle studies, since these birds have been the subject of much recent public concern.

Utah still possesses a relatively large and apparently vigorous population of Golden Eagles. My students and I have accumulated much data on nesting ecology, population dynamics, and food habits and economic relations of these interesting birds. Although we find little or no evidence of predation on domestic animals, there is still a strong feeling on the part of many woolgrowers that the Golden Eagle is a sheep killer on a rather large scale. Section 3 of the present bill authorizes research relating to the control and conservation of predatory animals. It is a genuine possibility that a research program funded under this provision could assess, once and for all, the actual impact and significance of eagle predation on livestock.

The restriction on the use of toxic chemicals (Section 4 of H.R. 13152) has additional positive implications for the management of eagles and other predatory birds. Golden Eagles will occasionally resort to scavenging, and hence become vulnerable to toxins placed in baited carcasses intended for coyote control. Bald Eagles are perhaps more vulnerable in this regard.

In Utah, Bald Eagles are seldom seen during summer months, but begin arriving in large numbers as migrants in the fall. Several hundred Bald Eagles frequent the desert valleys of western and southern Utah from December through March. We are uncertain of the geographic origin of these birds, but believe that they are a nesting population from the interior provinces of Canada. Our observations indicate that these birds subsist during the winter primarily on carrion in the form of rabbits shot by hunters and winter-killed sheep. I have been greatly concerned with the possibility of these birds acquiring toxic loads of chemicals through their scavenging activities (i.e., at poison bait stations). For this reason, I would oppose the last proviso in Section 4(a) which would allow continued use of chemical toxins under certain conditions.

In recent years, we have seen increasing pressure for recreational use placed on all of our public lands, including the arid regions of the Great Basin utilized in our studies. The impact of large numbers of people in areas previously used only for grazing poses additional problems for the survival of predatory bird populations. Eagles and other birds of prey are generally intolerant of disturbance during the onset of the nesting season, and will abandon nesting if they are harassed during these critical periods.

The expanding use of off-highway vehicles, trail bikes, etc., may create just this type of harassment. We need to conduct detailed investigations of this new potential threat; the coordinated efforts of state and federal agencies as envisioned by this legislation should provide the necessary management framework.

The above examples may be sufficient to indicate our desire to see formulated an effective and significant law relating to predator conservation. H.R. 13152 is, in its major features, an admirable proposal. We respectfully solicit your favorable consideration for this bill.

(Recess.)

Senator Moss: We will now hear Mr. Moss, Buzz Moss, who represents the Utah Audubon Society. We are glad to have you, Mr. Moss.

#### STATEMENT OF BUZZ MOSS ON BEHALF OF THE UTAH AUDUBON SOCIETY, STATE OF UTAH

Mr. Moss. Thank you, sir. It is good to be here. I have a report which I would like to insert into the record.

Senator Moss. Very good. It will be inserted.

Mr. Moss. The Utah Audubon Society is in support of the bill, H.R. 13152 except for the provisions in section 4, a, b, c, d, and e, and section 5, b4, allowing the use of chemical toxicants to be used to prevent major livestock damage, and for appropriations to provide up to \$5 million annually for the predator control program.

I am a motion picture producer currently working on a film dealing with our public lands, especially those administered by the Bureau of Land Management. The purpose of this film is to show the many uses the land receives. This endeavor is at my own expense and the finished product will be shown on a lecture tour.

In order to tell any film story, one must research his subject matter thoroughly. My travels have taken me to many areas in the Western United States to seek out possible subject material for this film.

Grazing, of course, is a land use and so I have spent many days photographing and talking to people in both the sheep and the cattle business. A great deal of time has been spent talking to ranchers and herders, trying to obtain information that might be of use in a story of this nature. Indeed, the time spent has been most revealing.

It has been my experience with the cattlemen that they believe their losses are light as compared with those claimed by the sheepmen. In talking to many of these people, Senator, this is firsthand communication, on a one-to-one basis, either with the owner of the ranch or the sheep, or with a herder that has tended these animals through the seasons, and in my communications with the ranchers themselves, the owners, most of them have given me the indication that the No. 1 problem that they receive and that they have is that of a labor force.

Those that are from the State of Utah that are representatives of the woolgrowers, are in a united front to say that their principal problem is that of predators.

Some ranchers do not receive losses whatsoever. This is not surprising, because many of these people run exceptionally fine operations.

In all the interviews with the sheepmen I have asked about predators. I have found that an attitude persists among the sheep people—that is, the coyote is the “scourge of the earth” an animal that is no good for anything.

Early in my own life I was indoctrinated to this philosophy, for my father was in the sheep business for 32 years. It was no surprise to find the sheepmen upset when the ban on poison was put into effect.

Time after time I was told of the heavy losses of sheep to coyotes. Most sheepmen use the phrase, “the coyotes are wiping me out.” One such man used this statement and I asked him how many sheep he had lost this spring to coyotes? He said “10 animals.”

I then asked him how many sheep he had lost to other causes like poison plants, freezing and disease. His reply was, “20 animals.” I commented, “Why do we hear so much about the coyote losses and not the other causes of death when the other causes are twice as many?” He said, “We can’t do anything about the other things but we can do something about coyotes.”

The other causes of death to sheep are lived with, but coyotes have got to be done away with. This seems to be the general opinion of the sheepmen and he is more than willing to use poison to do the job.

My research tells me that sheepmen overemphasize their losses to predators. This inconsistency shows up in the reporting of losses. I found this on a number of occasions when comparing the figures of the owners with the herders. The owner would give me a much higher figure, of the damage and the loss. I have called and contacted sheepmen within my State and other Western States, asking them to call me night or day informing me that they have a heavy sheep loss so that I can come out and photograph it.

The purpose of the film I am making is to show them what is going on out there, so it becomes important to me to tell the whole overall story. I have contacted better than 20 sheep people this year, and not one has called me.

After I contacted them, all of them have said they have received heavy losses, between 20 and 30 animals a night, and when I contacted them, none of them have done so.

It is interesting from this standpoint, because then it seems like it is easier to tell someone you are losing sheep than it is to reinforce the fact.

This has been of particular alarm to me, particularly within these hearings, because I have witnesses today some people from my own State that have testified at this hearing that the losses have been extremely heavy. I agree that there are some people who have received extremely heavy losses, in some of the areas I have seen. But what he did not point out is that there are people on each side of him grazing within the same valley that have not received any losses, not one.

This indicates to me, and I am not indicating that this man is a poor operator; what it does show to me is that there is a tremendous problem with the labor force.

I have seen sheep scattered clear across a rangeland, herders go home at night and expect that the next day they are going to have animals still wandering around. They are targets, yes, they are, but if I were to park my car in some downtown area with the keys in and the motor running, how long would it remain there?

Not very long, in places like New York City.

What I am saying is that there has got to be proper control, exercise proper prudence on the part of the owner himself to help protect his own flocks. Some do this, and this is the reason they have fewer losses than others.

This spring I had many owners tell me they were losing from 10 to 30 sheep a night. I asked them to call me so I could photograph what was happening. Not one has called yet most reported heavy losses after I talked to them. It would seem that it is easier to tell people that you are losing sheep than it is to prove it.

Studies have been made on coyote and sheep. One study conducted by the Utah State University shows the overall kill to ewes and lambs was about 3 percent of the total flock. That was in a year when coyote numbers were relatively low. This year the BLM and I might digress for just a moment, the ranchers themselves were asked by the BLM to call them first to have them assess the damage, and then they would call in the trappers.

They were the first ones on the spot, other than the sheepherder himself. They reported a loss of less than 1 percent of the total flock in a year when the coyote numbers are supposed to be high. I suppose the thrust of this argument is that I believe the sheep people overemphasize their losses. That is not to say that they do not have losses. Some of them have severe losses, and it is, certainly, a financial burden.

But the control measures that have been conducted in the past such as poisoning cannot be tolerated. I have seen animals, particularly fox and badgers, that were not able to make it back to their den for some reason or other.

I can only assume, like other people, probably, that they were poisoned, because they were certainly not shot at the time.

We have heard in the testimony that the sheep people do not feel that the flying program would be successful in any measure.

I do not agree with the flying program, either, but it is interesting to note that in the annual report of the Utah Wildlife Services, Division of Wildlife Services, and I quote from page 9 which I would like to make part of my report:

The aerial hunting team has proved its effectiveness again this year. This team is composed of a pilot, gunner, and one or more men as ground crew. With specialized techniques developed in Utah, the ground crew locates the coyotes in areas where damage is occurring, or where there is a history of repeated livestock losses. They direct the plane to those coyotes for their hunting methods. This team effort accounted for 635 coyotes and two bobcats in 708 hours of flying. One of their most spectacular efforts was the removal of a coyote in an area where killing had occurred for an extended period. This coyote has been hunted by private parties with both fixed and rotary wing aircraft prior to the efforts of the Division's aerial hunting team.

I am not suggesting that flying is the answer by any means, but I am certain that some of our people from the Woolgrowers Associations would like to throw this flying program out. I think in one area there has been a good deal of success.

We have heard a great deal today about the depredations on our game herds. And having filmed the life cycle of the mule deer, I feel I am qualified to speak in that behalf.

I have visited every State in the United States that has a deer population, and I have had the opportunity of seeing what effects the total numbers of deer, and certainly the coyote has very little effect on the animals.

That is not to say that the coyotes do not prey upon the deer herds. Most of the animals would not survive the winter anyway, so it is actually a benefit to have these predators mingling with our deer population. It has also been suggested that the sheep people have been a tremendous benefit. In some ways, they have, but one of the reasons why our deer populations increased in the first place was the fact that there was overgrazing principally by sheep, and they allow a habitat improvement that favored the deer population and its growth.

That is the principal reason why we have had an increase of the deer populations, and certainly the natural predators has played a part, the lack of natural predators. To me it is no crime to see a coyote take an occasional deer.

Sheepherders on the Dugway area, west desert of Utah, did not lose any sheep on the winter range, yet the herders reported a high number of coyotes—more than they had seen for years. They also observed a higher number of jackrabbits than usual.

Yet, in another area, one sheepman reported over 200 sheep lost to coyotes. It seems the hunters from the more populated areas like Salt Lake City came to the area, where his sheep winter, to hunt jackrabbits. I observed and the shepherd told me that there were few rabbits there because of the overhunting and, in his words "they" (meaning coyotes) "gotta eat."

He went on to say that "if those rabbit hunters would leave the rabbits alone, we would have a lot less trouble with coyotes going after sheep."

It has been my experience with many years in the out of doors as a wildlife photographer, that if there is ample natural food for predators, you have less domestic stock damage.

One spring, while traveling with a Government trapper on nine calls reported as coyote kills, only two were confirmed. Most of the sheep were frozen to death with two calls later identified as dog kills by the sheepmen's own dogs. But they were all originally reported as coyote kills.

I have witnessed with alarm that kit foxes and badgers, which are nontarget animals, were found dead in the vicinity of 1,080 stations. The direct reduction of these nontarget species, poisoned by devices placed over the landscape for coyotes, cannot be ignored. As a photographer looking for these animals, I have found far less kit fox and badger dens recently than I have in the past.

In a few of the interviews with sheepmen, I have asked the question of whether the use of poison is doing them any good in reducing their sheep losses. A number of them have said "No" as their losses remain about the same. They question whether they should continue the funding of the program.

While giving a classroom lecture to a group of elementary grade students last winter, I displayed a picture of a coyote and asked, "What do you think these animals eat?" A small boy raised his hand and said, "sheep." I showed the students a picture of a bobcat and asked the question, "What do you think these animals eat?" The same small boy raised his hand and said "sheep."

I then presented a picture of a rattlesnake and my question was the same. The same boy's hand shot up and his reply was "sheep." I then asked him where he got his information and he said, "My grandfather herds sheep and he says that everything out in the desert eats sheep."

This example may sound ridiculous, but it indicates a prevailing attitude with our sheep people that "everything is out after their sheep."

Although my evidence suggests the sheepman exaggerates his losses, there is no question in my mind that many ranchers experience heavy losses which is certainly a financial burden. I recognize a need to protect their interests. But I don't believe poisoning is the answer.

If it is true that the coyotes are on the increase within the last 4 years, they have done so with the poisoning program in effect. The Utah Audubon Society would like to go on record as opposing any poisoning program.

I would like to interrupt my own comments for a moment by stating that the last page on the report which I referred to earlier indicates that in the year 1971, and this is by the Division of Wildlife Services, that the reports on kills which we talked about today as far as the amount of cattle killed by coyotes and other predators, predatory animals, is very light.

The fact is, there were 14 known kills in the State of Utah by coyotes, and we have been led to believe today that there were many more.

It is also interesting to note within this report produced by the State that they have talked about all the livestock losses, other than the flying program, but not once have they mentioned a single loss of any other predatory animal, which is interesting for me to note, because it proves that these people are most sensitive to the fact that they are losing—that the program is not a popular program.

Thank you, sir.

Senator Moss. Thank you, Mr. Moss, for your testimony, and the report to which you referred will be included in the record, since it has information in it that we want to have in the record. I appreciate your testimony from firsthand observation, since you have gone around the Western States and other States. It is appreciated to have you here today.

Mr. Moss. Thank you.  
(The material follows:)

#### INTRODUCTION

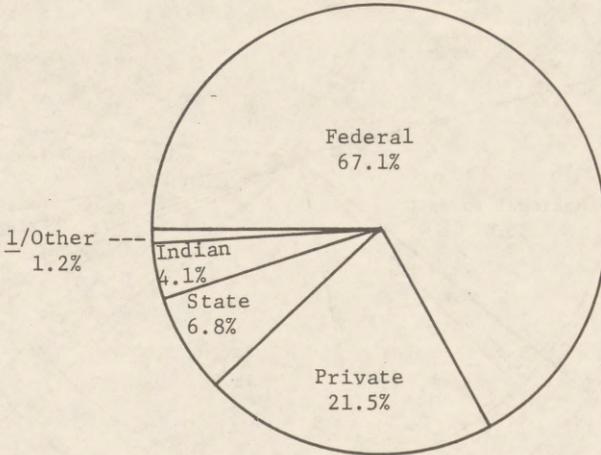
In fiscal year 1971 the Utah Wildlife Services program employed an average of 30 district field assistants under the direction of two district supervisors. The major program effort was the management of damaging wildlife to promote health and safety, improve agricultural production, protect wildlife and other natural resources, and protect urban and industrial services. Various other activities under the titles of "Pesticide Appraisal and Monitoring" and "Wildlife Enhancement" rounded out the year's activities.

Utah programs were funded by the Utah State Department of Agriculture, the Utah Division of Fish and Game, several grazing boards, and a Federal budget. Suggestions for program improvement were received from the State and the Utah Woolgrowers Predatory Animal Control Committees.

Recreational activities of all types continued to increase on Utah public lands and more frequent complaints were heard from those people whose activities were inconvenienced by animal control tools or programs. Approximately 67% of Utah lands are under the jurisdiction of the Federal Government and many of the private lands are not fenced. This combination of factors has made it necessary to modify control programs. The more time consuming and costly control methods are necessary to provide effective animal control for the livestock industry and a margin of safety to the public and their pets.

Most of Utah's land area is used for agricultural purposes; however, the great majority is suitable only for grazing livestock. According to the Utah Conservation Needs Inventory Report, Soil Conservation Service, U. S. Department of Agriculture, October 1970, only 4.1 percent of the land area in Utah was cropland in 1967. Of this amount, nearly two-thirds was irrigated cropland. Counties in North Central Utah had the highest proportion of their land area in cropland—varying from 10.6 percent in Utah and Box Elder Counties to 25.4 percent in Cache. In other sections of the State, every county had less than 10 percent of its land area in cropland and most had less than 4 percent with the lowest, 0.3 percent, in Grand.

Land in Utah is mostly under Federal ownership and control, which includes two-thirds of the State total, according to the above report. State-owned lands amount to 7 percent of the total area, and Indian lands are 4 percent of the total. Urban areas, roads, railroads, and small water areas account for less than 1 percent of the total. This leaves only about 21 percent of the State's total land area under private ownership (excluding cities and towns). In north central counties, private ownership as a percent of the total land area varies from 47 percent to 92 percent. In contrast, in south central and southeast counties, only 4 to 8 percent of the land area is under private ownership. (Utah Agricultural Statistics 1971.)



LAND AREA BY OWNERSHIP, UTAH, 1967  
(Total exceeds 100% due to duplication in one county.)

1/ Urban, roads, railroads, and small water areas.

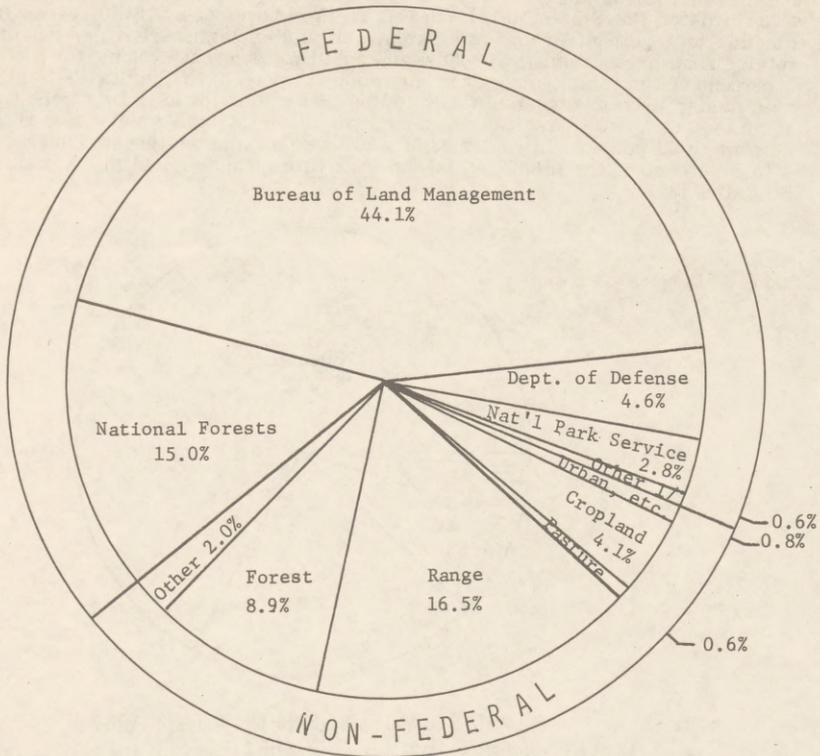
JACKET NO. 84 - 539      OFFSET ILLUS. No. Ha

Width 26 1/2, Depth 18 1/2

Sq. Ht.     Line     Broad     Paster    80 %  
(FOCUS)

Duo Tone     Rescreen

Add'l. Info: \_\_\_\_\_



USE OF NON-FEDERAL LANDS AND ADMINISTRATION  
OF FEDERAL LANDS, UTAH, 1967.

1/ Other Federal includes Bureau of Reclamation and Bureau of Sport Fisheries and Wildlife.

#### PESTICIDES SURVEILLANCE AND MONITORING

Utah personnel collected five lots of ten starlings each at designated areas near Salt Lake City, Ogden, Roosevelt, Moab, and Richfield. These birds were frozen and shipped to a laboratory for pesticides analysis as Utah's part of the national monitoring program.

The birds collected near Salt Lake City this year will be analyzed for mercury and lead as part of the national sampling designated to determine baseline indexes for these chemical elements in the environment.

#### WILDLIFE ENHANCEMENT

The Uintah and Ouray Indian Reservation has been a focal point of Division activities in Wildlife Enhancement. Principal DFA Laughlin conducted several training sessions with Tribal personnel on Sage Hen strutting ground counts, eagle census, Mountain Lion-Bighorn Sheep conflicts, and rodent and predatory animal problems related to lands adjoining the Reservation.

A Bighorn Sheep planting was planned for the Florence Creek area of the Uintah and Ouray Indian Reservation. In preparation for this, Principal DFA's Laughlin and Rollins assisted DFA Philip Taylor on a two-week Mountain Lion removal project. The weather turned from cold snow conditions to soft snow and mud. This made their efforts nearly ineffective. One Mountain Lion was

removed, although there was evidence of 6-8 Mountain Lions in that area. The Bighorn Sheep planting was delayed for other reasons.

Two aerial waterfowl surveys were conducted with the Fish Springs National Wildlife Refuge and two surveys at the Bear River Refuge.

Information on game and non-game wildlife species was delivered to Federal and State agency personnel during the post grazing season meetings. Information on wild horses was given at the same time. DFA's and the aerial hunting team are in an excellent position to provide this information and have received praise from these agencies for their efforts.

There were 6,085 acres of prairie dog towns surveyed for the presence of Black-footed Ferrets. No evidence of ferret sign was noted, although Conservation Education Coordinator Charles Chadieux reported sighting a ferret near Vernal on July 29, 1970.

The Division has participated in a continuing census of eagles in Utah. This has been conducted by recording the number of eagles sighted and miles traveled by the DFA's. The aerial hunting team records the eagles sighted and hours flown. Eagle census records have been faithfully reported by the Uintah and Ouray Tribal Rangers. This has provided a valuable addition to this census record.

## EAGLE SUMMARY, FISCAL YEAR 1971

	Golden eagle		Bald eagle		Uniden- tified	Aircraft hours	Mileage totals
	Adult	Juvenile	Adult	Juvenile			
June 1971.....	172	25	2	0	11	73.4	43,433
May 1971.....	225	57	9	0	24	87.0	48,094
April 1971.....	295	118	7	1	2	82.0	54,807
March 1971.....	556	144	157	39	30	71.9	57,695
February 1971.....	372	81	188	23	28	65.4	44,345
January 1971.....	344	49	148	24	14	81.3	44,839
December 1970.....	255	84	219	44	22	69.1	54,773
November 1970.....	190	64	19	4	2	52.5	21,952
October 1970.....	233	48	9	6	12	24.8	53,018
September 1970.....	173	38	4	0	1	-----	47,696
August 1970.....	87	20	4	0	4	-----	46,898
July 1970.....	126	26	1	0	29	-----	46,875
Totals.....	3,028	754	767	149	179	607.4	564,425

Reported by DFA's, Uintah and Ouray Indian Reservation personnel aircraft crew.

## CERTIFICATION OF FERRET FREE PRAIRIE DOG TOWNS, FISCAL YEAR 1971

County	Acres	Evidence of ferret sign	Eagles		Burrowing owls
			Golden	Bald	
Daggett.....	10	0	0	0	0
Emery.....	100	0	0	0	0
Do.....	100	0	0	0	0
Do.....	150	0	0	0	4
Do.....	150	0	0	0	0
Do.....	100	0	0	0	2
Do.....	100	0	0	0	0
Do.....	150	0	0	0	4
Do.....	100	0	2	0	0
Do.....	150	0	2	0	4
Do.....	50	0	0	0	2
Do.....	80	0	0	0	0
Do.....	150	0	0	0	4
Do.....	50	0	0	0	0
San Juan.....	4,645	0	0	0	0
Total.....	6,085	0	4	0	16

## ANIMAL DAMAGE CONTROL

## PROTECTION OF HUMAN HEALTH AND SAFETY

DFA's Davis, Boothe, and Stephensen collected coyote and dog intestinal tracts as a part of the study of Echinococcosis in Utah. Brigham Young University associate professor Ferron L. Andersen requested the assistance of this Division in this study, principally in the Utah and Salt Lake County area.

As a background report of this disease Professor Andersen reported the following: "Echinococcosis (hydatidosis) is one of the most important helminthic zoonoses of man. The causative organism is a small tapeworm (about 3-5 mm) that occurs in carnivores. The eggs from the tapeworm pass out with the feces and may be picked up by grazing ruminants, in which the larval stages develop as internal cysts, most frequently found in the lungs or liver of this intermediate host. The cycle is completed again when the carnivore eats viscera containing these larval forms. Humans become infected with larval cystic forms also, after contamination with dog feces containing infective tapeworm eggs.

"Recently considerable attention has been focussed on this condition in Utah, and this state is now labeled an endemic area for this disease. . . . Last year an 11-year old boy from Herrimann, Utah, died during attempted surgical removal of internal hydatid cysts and a 17-year old lad from Riverton was operated on for this same condition on October 15th of this year. In all, there have been 40 diagnosed cases of Echinococcosis in humans from the Salt Lake and Utah Valley regions since 1946. It is likely that there have been many more that have occurred, but have not been diagnosed due to the insidious nature of this disease."

This collection was begun November 20, 1970, and ended February 26, 1971. *Echinococcus granulosus* was found in the single sheep dog submitted, but was not found in any of the coyotes.

The State office, District Supervisors, and DFA's have received frequent requests to assist in skunk removal in residential areas. Because of a shortage of manpower, our efforts have been restricted to advice and whatever effort could be expended on the off-duty hours. One positive rabies identification was made on a skunk taken in Davis County.

#### PROTECTION OF URBAN AND INDUSTRIAL FACILITIES

Starling projects were again limited to technical advice to county, state, and municipal representatives. The starling problem seems to be reduced considerably over that which existed at the beginning of this program in 1968.

Rat control projects have been referred to commercial pest control operators.

#### PROTECTION OF FOREST, RANGE, AND WILDLIFE RESOURCES

District Supervisors and the State Supervisor have provided technical guidance in forest, range, and wildlife habitat improvement where animal damage control has been considered necessary. No intensive campaigns were conducted. Several rodent control areas were included in the program plan.

Two National Forests conducted rodent reduction campaigns under this Division's technical guidance.

There were numerous small projects conducted by DFA's to control rodents and rabbits on a local basis.

Non-Bureau supervised projects were conducted by private landowners working through their County Agricultural Extension Agents. Strychnine treated grain and zinc phosphide treated grain was obtained for this purpose from the Pocatello Supply Depot.

#### PROTECTION OF CROPS AND LIVESTOCK

Technical guidance for non-Bureau supervised control programs on pocket gopher, ground squirrel, mouse and kangaroo rat provided the bulk of this Division's efforts on protection of crops. Lethal agents for this control work were obtained from the Pocatello Supply Depot.

The rabbit populations in Box Elder, Tooele, Juab, and Millard counties seemed to reach a peak during this period. Requests for information and assistance were received. Limited assistance was available for operational control and then only on a very local basis. Most requests were answered with advice or information on a place to purchase lethal agents and traps.

District Field Assistants spent the major portion of their time in the protection of livestock. This activity occurred in every county within the State, although activity was very limited in Salt Lake and Davis counties.

The livestock losses were controlled, depending on the predator involved, by the use of toxic agents, steel traps, M-44's (spring loaded device replacing the Humane Coyote Getter, snares, dogs, aircraft, den hunting, and animal calling.

Methods used were first considered on the basis of human safety and the safety of non-target species.

The aerial hunting team has proved its effectiveness again this year. This team is composed of a pilot, gunner, and one or more men as ground crew. With specialized techniques developed in Utah, the ground crew locates the coyotes in areas where damage is occurring, or where there is a history of repeated livestock losses. They direct the plane to those coyotes for their hunting methods. This team effort accounted for 635 coyotes and two bobcats in 708 hours of flying. One of their most spectacular efforts was the removal of a coyote in an area where killing had occurred for an extended period. This coyote had been hunted by private parties with both fixed and rotary wing aircraft prior to the efforts of the Division's aerial hunting team.

#### SUPPORT ITEMS

##### EMPLOYEE ORIENTATION AND TRAINING

Supervisors Oppenheimer, Laughlin, and Unger participated in the 40-hour training, "Supervision and Human Behavior." This course is designed to give the first-line supervisor a better understanding of supervision and the reaction of those whom he supervises.

The Short Course was given in two sessions at Utah State University. One session was for those who had not received this training and the other was classed as an advance training group. DFA's Maycock, Cox, Stephensen, Hansen, Boothe, Rollins, and Warnick were participants.

Employees who were newly assigned to use GSA trucks received the National Safety Council's Defensive Driver Training Course.

##### SPECIAL ASSIGNMENTS

The State Supervisor received two assignments to the Washington, D.C. office of the Division. One assignment was to make final preparations of the aerial hunting policy and the M-44 policy. The other assignment was to assist in the preparation of background material on animal species that might be affected by animal damage control programs.

During the State Supervisor's first assignment to Washington the position of Acting State Supervisor was occupied for one week each by Jerry Ridgway, Rober Oppenheimer, LeRoy Unger, and Mike Laughlin. Preparation of the F. Y. 1970 Annual Report fell in this period. Messrs. Oppenheimer, Unger, and Laughlin were particularly helpful in that assignment.

Wyoming Assistant State Supervisor Robert Reynolds was Acting State Supervisor during the second assignment to Washington. Mr. Reynolds had the bulk of the effort in providing information as requested for the two legal actions registered against the Division's animal damage control program.

##### PERSONNEL CHANGES

Resignations: Jerry V. Ridgway, Assistant State Supervisor; Leon Cox, District Field Assistant; Lew Hackford, District Field Assistant; and A. Douglas Meacham, District Field Assistant.

Reduction in Force: Wayne Bettridge, District Field Assistant; and Robert Dickson, District Field Assistant.

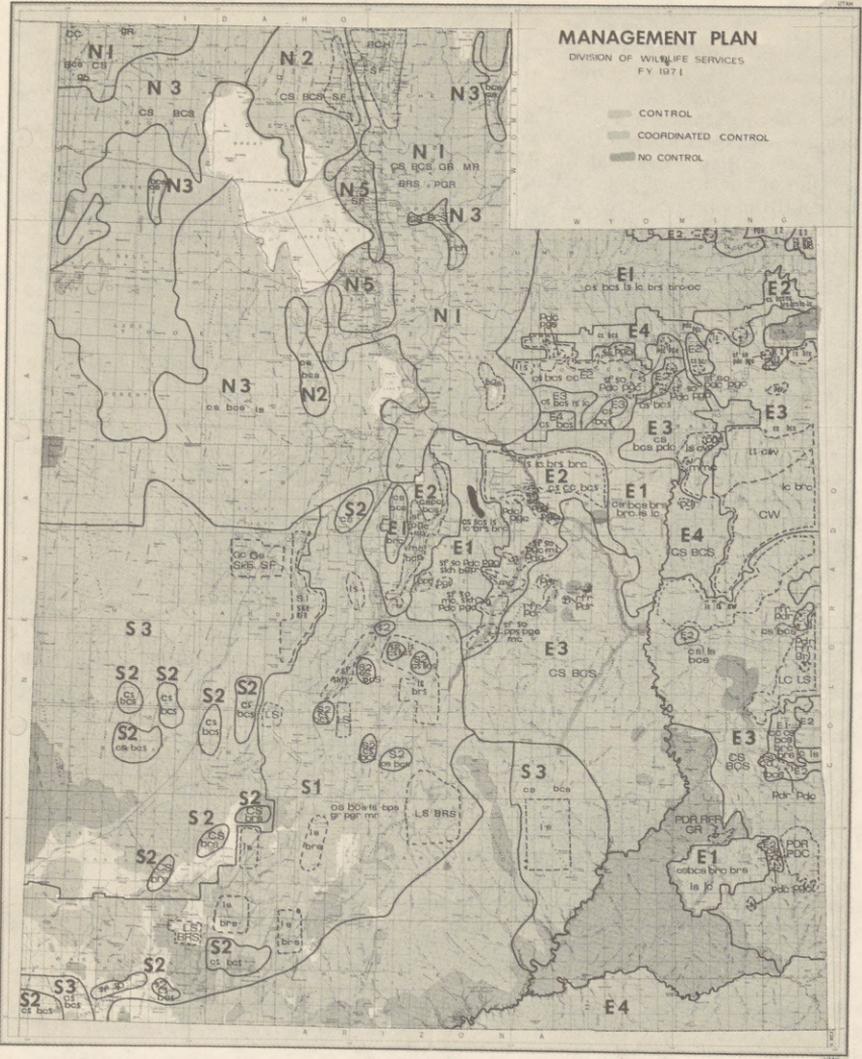
Transfers: Jerry V. Ridgway—Salt Lake City to Logan; LeRoy A. Unger—Logan to Salt Lake City; and Jerry V. Decker—Las Vegas, Nevada, to Logan.

Promotions: James M. Laughlin—DFA to Principal DFA.

##### SPECIAL RECOGNITION

This writer gives special recognition to the extra workload assumed by the employees of this program in Utah. Particularly evident is the workload carried by Lola Meehan, Clerk. She is complimented on her willing acceptance of these extra assignments and the miracle of making the time match the paper mountains.

DONALD G. DONAHOO.





## WS-2—EMPLOYMENTS AND EXPENDITURES, WILDLIFE ENHANCEMENT, FISCAL YEAR 1971

Source of funds	Man-years worked				Indian		Military		Other	
	Man-years of employment	Salaries	Other	Total	Migratory birds	Other wild-life	Migratory birds	Other wild-life	Migratory birds	Other wild-life
Bureau funds: 0150	1/12	796	340	1,136	-----	1,136	-----	-----	-----	-----
Total 0150 funds	1/12	796	340	1,136	-----	1,136	-----	-----	-----	-----
Cooperative funds	1/12	240	160	400	-----	400	-----	-----	-----	-----
Total funds	2/12	1,036	500	1,536	-----	1,536	-----	-----	-----	-----

## WS-3 EMPLOYMENTS AND EXPENDITURES, PESTICIDES SURVEILLANCE AND MONITORING, FISCAL YEAR 1970

Source of funds	Man-years worked and source of funds				Field appraisal				Monitoring (starlings)	
	Man-years of employment	Salaries	Other	Total	Federal lands		Non-Federal lands		Funds	Number of collection sites
					Number of Funds	Number of projects	Number of Funds	Number of projects		
Bureau funds: 0150	(1)	255	155	410	-----	-----	-----	-----	410	4
State department of agriculture: Total cooperative funds	(1)	25	15	40	-----	-----	-----	-----	40	1
Total funds	(1)	280	170	450	-----	-----	-----	-----	450	5

<sup>1</sup> Less than 1/2.

## WS-4—COOPERATIVE PROJECT AGREEMENT

Cooperative project	Fiscal year 1971 agreement amount	Number	Expect fiscal year 1972
State of Utah Department of Agriculture	\$198,526	1	\$138,000
Brigham City District Advisory Board No. 1	1,200	41	1,200
Cedar City District Advisory Board No. 4	300	11	300
Fillmore Grazing District Advisory Board No. 10	300	8	300
Kanab Grazing District Advisory Board No. 11	230	14	230
Monticello Grazing District Advisory Board No. 9	300	9	300
Richfield Grazing District Advisory Board No. 5	260	12	260
Uinta Sheep Protection Society <sup>1</sup>	6,403	-----	8,088
Utah State Department of Wildlife Resources	15,000	-----	15,000
Total	222,519	-----	163,678

<sup>1</sup> Salary and benefits for DFA Golden Steele, funds distributed by the State Department of Agriculture.

## WS-5—RESOURCE LOSSES, FISCAL YEAR 1971

[This chart does not represent the total losses caused by predators (see below)]

Species	Adult sheep <sup>1</sup>		Lambs <sup>2</sup>		Cows		Calves		Pigs		Turkeys		Chickens		Ducks		Deer		
	Num-ber	Value	Num-ber	Value	Num-ber	Value	Num-ber	Value	Num-ber	Value	Num-ber	Value	Num-ber	Value	Num-ber	Value	Num-ber	Value	
Coyote.....	532	\$22,156	1,408	\$34,090			11	\$1,100										5	
Bobcat.....	20	800	33	825														1	
Cougar.....	177	7,080	147	3,675			1	100										4	
Bear.....	75	3,000	39	975	1	\$225	2	200											
Eagle.....			34	850															
Badger.....			11	275														20	\$24
Feral dogs.....	32	1,280																	
Undetermined losses.....	12	480	70	1,750															
Total.....	848	34,796	1,742	42,440	1	225	14	1,400										20	24

Note: These are the losses reported to district field assistants and confirmed by them in field investigation. This chart does not represent the total losses caused by predators, but only those that were recorded and confirmed.

<sup>1</sup> Based on average value 2- to 5-year-old pregnant ewe, \$35 (from secretary, Utah Wool Marketing Board, Salt Lake City, Utah).

<sup>2</sup> Utah Agriculture Statistics, 1971—U.S. Department of Agriculture Statistical Reporting Service.

<sup>3</sup> Lambs valued at \$25.60 per hundredweight. (Rounded to \$25 per hundredweight in computations.)

Senator Moss. Mr. Bernard Fensterwald, Jr., Counsel of the Committee for Humane Legislation, Inc. We will be glad to hear from you, Mr. Fensterwald.

**STATEMENT OF BERNARD FENSTERWALD, JR., COUNSEL,  
COMMITTEE FOR HUMANE LEGISLATION, INC.**

Mr. FENSTERWALD. Thank you, Mr. Chairman.

I think I am the cleanup batter for the day, and it is late in the day, and I know you have heard a great deal of testimony. As my statement will be put into the record, I won't bother either reading it or really trying to summarize it.

My remarks will be brief. I would first like to pay tribute to you and other members of the committee, particularly Senator Spong, for taking the time and trouble to hold these hearings late in the session.

These are important matters for a lot of people, and we appreciate your holding these hearings. Secondly, I would like to pay tribute to my friend, Senator Bayh, who introduced one of the first bills (S. 2083) on this subject; it is one of the bills before you today.

Lastly, I would like to pay tribute to the staff of the subcommittee, all of whom have been helpful, and have worked hard, but particularly Miss Lee Tyner, who is always helpful to those of us interested in legislation before this subcommittee.

As to the legislation itself, we would prefer S. 2083, which is the Bayh bill, primarily because it is concise and effective and because it contains a double pronged approach. It puts into effect not only the Executive order of the President, but also the EPA order banning the use of certain poisons in interstate commerce and/or for predator control.

The only thing we would like to see added to S. 2083, if it could be done, would be the banning of the use of these poisons on any land, whether it is public or private land. We think that wildlife, particularly birds, are not respecters of private or public lands, and the secondary effects of these poisons, wherever they are used, are quite harmful.

As between S. 3334 and the House bill, we greatly prefer the Senate bill. A number of other witnesses have commented on the same weaknesses in H.R. 13152, primarily the provision with respect to "significant loss of livestock," which is something of an open ended loophole in the bill. There is no provision as to who would decide what is 'significant'; and there is no provision for public hearings or anything as to what poisons can be used in the 'exceptional' case.

We would prefer the live trapping of single offenders wherever possible. That, too, has been suggested today.

It has also been suggested that the predator control program be kept ultimately under Federal control. I think that is a good idea.

Lastly, we think that the \$5 million in Federal funds is a tremendous increase for so-called predator control, and we question whether this amount of money per year is necessary.

In my written statement, we have listed a number of additional recommendations in the Cain report which we would like to see enacted into law, either in this legislation or at a later date.

There have been a number of lengthy discussions today of the coyote. One thing that has not been said about the coyote problem, and I am

sure this is true in Utah as well as throughout the west, is that the sheep herders' problem with the coyote is partly of their own making.

In my estimation, the reason that the coyote is such a menace today is that the poison program that started in 1931, and that has been accelerated since, has wiped out a great deal of the natural food of the coyote . . . the prairie dog, the rabbit, and other animals. And the program has also wiped out most of the animals that prey on the coyote . . . the large cats, bears, et cetera. The coyote, being tougher and shrewder, has survived the poisoning. Other predators have not.

What we are really discussing is not the use of poisons but rather a question of use of land generally. This has been a subject of great concern and controversy for several years now in the Congress. There is before the Senate now S. 632, which comes out of the Interior Committee, and which would establish a new Land Use Policy and Planning Assistance Act. With respect to that bill, I would just like to read one short paragraph which the chairman of that committee, Senator Jackson, made in the hearings and which has included in the report of the bill.

Between now and the year 2000 we must build again all that we have built before. We must build as many homes, schools, and hospitals in the next three decades as we have built in the previous three centuries. In the past, land use decisions were made too often by those whose interests were selfish, short-term and private. In the future, in the face of these immense pressures on our limited land resources, these decisions must be long-term and public.

I think that Senator Jackson has capsulized what we are talking about here. The sheep herders have used the public lands so long for their own selfish, short-term, private purposes that they, in effect, feel that these public lands belong to them. The lands that they raise their sheep on are not primarily private; they belong to the people of the United States. And it is my feeling that there is a change in public feeling going on, and that most of the people of the United States think their public lands should not necessarily be used for commercial purposes but for the preservation of our natural resources.

I am not opposed to sheep grazing in general; but as the population pressure and other pressures increase, there will be less and less public land to use for this purpose.

The question is, what do we want to use these public lands for?

I speak for an organization that thinks they should be used in good part to preserve wildlife. We certainly think that use is as important as use for commercial purposes. But in many cases, it is just simply a question of choice, and I think in this case it is basically a question of choice. We would opt in favor of using the public lands for what we think the public generally would favor.

One of the witnesses this morning said this is a preservation bill, and he spoke of it in a negative tone when he called it that. To the extent that it is a preservation bill, we would certainly enthusiastically support it.

In conclusion, I would like to submit to the committee four short articles from the "Defenders of Wildlife News" on this subject in the last few months for possible inclusion in the record.

Senator Moss. They will be received, and they may be printed in the record.

(The articles follow :)

[News release from the Department of the Interior, Feb. 10, 1972]

USE OF POISONS HALTED BY INTERIOR IN ANIMAL DAMAGE CONTROL PROGRAM

Secretary of the Interior Rogers C. B. Morton announced today that his Department's Fish and Wildlife Service has ceased to formulate, distribute, or use poison for killing predatory animals on Federal lands.

His action implements a new Presidential order directing drastic overhaul of the animal damage control program on public lands, both with administrative changes and proposed new legislation.

The Secretary said toxicants on hand are being held, and retrieval of bait already placed in the field has begun. All baits will be removed as quickly as weather and the terms of current agreements with cooperators will permit.

"President Nixon's Message on the Environment demonstrates that he means business—and so does the Department of the Interior," Secretary Morton said. "We are moving ahead with both administrative and legislative remedies to correct a situation that needs reform."

As ordered by the President, use is also being halted of toxic chemicals with "secondary poisoning effects." These are poisons aimed at the prey of predators, such as rodents, birds and other creatures, whose carcasses could contain dangerous residues of poison.

Exceptions to these bans will be made only if the use of poison is required to protect human life, health, or safety; to preserve a wildlife species threatened with extinction or likely soon to become so threatened; or to prevent substantial irretrievable damage to nationally significant natural resources.

Even under such circumstances, each exception would have to be specially justified by a written report, prepared following consultation with the Secretaries of the Interior, Agriculture, and Health, Education and Welfare, and the Administrator of the Environmental Protection Agency, and determining that the emergency cannot be dealt with except by use of poisons.

Fish and Wildlife Service personnel and available cooperating personnel are authorized to continue to protect crops and livestock by using nonchemical techniques such as trapping, shooting, or denning (removal of young) in those States where these practices are legal under local laws.

Legislation is being proposed to Congress by Secretary Morton to abolish direct Federal participation in predator control activity and to provide for intensified research to develop safer control methods, and to investigate predatory species fully. This information would be provided to the States. In addition, the proposed bill would provide for a three-year phased period for the States to assume responsibility for animal damage control programs on a matching fund grant-in-aid basis. Until such legislation is passed the Service will continue to conduct its program without using poisons.

Assistant Secretary of the Interior Nathaniel P. Reed, who heads Interior's programs for fish, wildlife and parks, stated: "We recognize that a difficult transition period is ahead. We intend to do our best to minimize any potential problems by cooperating fully, within the constraints of the new national and Interior policies, with all individuals and organizations that are involved with animal damage control programs."

Reed commended the Service personnel who have conducted the control program, as "men who have carried on a controversial program in a responsible manner under difficult circumstances, in accordance with the mandates of the Congress and Federal policy. We have now moved into a period of public concern where changes are possible."

The problem of cooperative predator control programs administered by the Interior Department was highlighted by Secretary Morton last July 9, in a speech to the National Wildlife Federal Conservation Summit at Estes Park, Colorado.

At that time, Mr. Morton announced appointment of a blue-ribbon task force to study predator control programs throughout the country. Sponsored jointly by Interior and the Council on Environmental Quality, the task force was made up entirely of wildlife management experts from various universities and chaired by Dr. Stanley Cain of the University of Michigan.

The group's 207-page report, calling for major changes in predator control techniques, was released this week. Titled, "Predator Control—1971, Report to the Council on Environmental Quality and the Department of the Interior by the Advisory Committee on Predator Control," it is available in limited quantities

by writing to the Director, Bureau of Sport Fisheries and Wildlife, Department of the Interior, Washington, D.C. 20240.

#### A GLIMPSE FROM LIFTED WOOL

(By Gerald A. Cole)

Gory tales of coyote depredation on helpless sheep and lambs are common here in the West. The losses claimed by sheepmen seem much higher, however, than one can reasonably accept; ten percent is often quoted. I have contended that some level below one per cent is closer to fact. Some recent items from *The Arizona Republic*, Phoenix's morning paper, provide information permitting further comment, and suggest the herdsmen are overestimating the financial punishment meted out to them by coyotes.

Pete Espil, President of the Arizona Woolgrowers Association, was quoted in the paper of March 19, 1972 (p. 14E) as stating that 1,500 sheep from the state's herd of 350,000 were lost to coyotes last year. Accepting these statistics, the loss is 0.43 per cent less than one-half of one per cent, and well below the fantastic claims that have appeared in the pages of the *Republic* at other times.

Espil went further, saying that the destruction amounted to \$500,000. This means that each sheep brought down by a coyote was worth about \$333! Referring to the *U.S. Census of Agriculture* for 1964 (Vol. 1, part 43) one finds that Arizona sheep and lambs were valued at a little less than \$18 a head at that time. The results of the 1969 census for Arizona have not been received by our library yet. Only the New Jersey data (part 8) are available. They show that each sheep in the Garden State had increased in monetary worth to \$21.80 by 1969. From this, it seems to me that \$25 per head would be a fair appraisal of cost for an average Arizona sheep during 1971. This reduces the damage done by coyotes to \$37,500—in other words, \$462,500 less than Espil's claim!

On another page (p. 16B) of the same issue of the *Republic* was a list of Arizona farm operators who received federal subsidies greater than \$20,000 last year. There is difficulty in ferreting out various State Representatives, Senators, and some two-fisted movie actors from the roster because personal names are not often given, but there among the Maricopa County ranchers is listed the Espil Sheep Company. Pete's company received \$37,891 in federal subsidy during 1971.

Did, then, one sheepman in one county of Arizona receive more in federal support than the total value of sheep destroyed by coyotes in the entire state? Was this received in addition to the relatively inexpensive grazing privileges on public lands, and the more than \$250,000 state and federal funds that have been spent annually for the past six or seven years to destroy an important segment of Arizona's wildlife, the carnivores?

[From Defenders of Wildlife News—March-April 1972]

#### PREDATOR CONTROL AFTER THE POISON BAN

(By Paul Buser)

It is a fallacy for anyone to believe that the predator control controversy has been substantially solved by President Nixon's recent ban on the use of poisons on public lands to control predators, and by the subsequent announcement from the Environmental Protection Agency prohibiting interstate transportation of certain predator poisons. These courageous but long overdue actions will, however, spare the lives of hundreds of thousands of nontarget species which have been dying nationwide for decades as a result of the totally unselective and in some cases agonizingly slow poisons.

A predictable reaction—hysteria—came from the sheep industry, which accused Washington officials of taking the conservationists' bad advice.

The woolgrowers conveniently forgot that the poison ban came about to a large degree because of the lawless conduct of the individuals from their own ranks who were responsible for the eagle massacres last year. It was these killings which prompted an intensive investigation by federal authorities.

The sheepmen are prepared to spend more money to finance vastly increased predator control activities. Indeed, in many areas they have already voted to increase the mill levy for this purpose. Every penny will be spent for hiring more trappers, initiating new bounty programs, more shooting from aircraft and more culling and denning.

No monies are ever put aside for any research into the role of the coyote in the ecosystem.

Incredibly, the woolgrowers have never made a study of coyotes as they affect sheep raising. Even the Bureau of Sport Fisheries & Wildlife has only touched on this most fleetingly. The Bureau exists for the purpose of studying all forms of wildlife and preparing recommendations on their habitat and survival. Its lack of research into this area of wildlife management is unforgivable.

The resulting backlash caused by the poison ban will create an increased "harvest" of those predators considered by the sheepmen to be a threat to their industry, notably the coyote.

As a matter of fact, we can expect more coyotes to die than ever before, especially by means of shooting from aircraft and new bounty programs. As an example, in Sweetwater County, Wyoming alone during a 120-day period last winter approximately 1,200 coyotes were killed by the Division of Wildlife Services and approximately 80% were shot from airplanes. In addition to that staggering figure, another 400 coyotes in that county were "harvested" during this short period through a new incentive-type bounty program which not only consists of a \$20 bounty payment on every coyote killed by any private individual, but on a weekly basis a special monetary award of \$100 is made to the hunters killing the largest and smallest coyotes and an additional \$150 is paid out weekly as the ultimate reward for the hunter that kills the most coyotes during that week. Is it any wonder then, that in view of these practices and methods, last winter more coyotes were killed in that county than during the previous three years put together? Similar developments are a matter of record in many other areas in the West.

Public Law 92-159 (H.R. 5060) prohibiting shooting wildlife from aircraft will not take effect in Wyoming until March 15, 1973. Even then we can expect the massacre of predators by this killing method to increase since the State Administrators in this case will be either the Wyoming Department of Agriculture or the Wyoming Game & Fish Department. Whoever is designated to administer and enforce this law can, through amendments provided for, issue as many special licenses as they wish with no restrictions whatsoever. Since both these agencies are practically controlled by livestock interests this Public Law will in no way help to halt the indiscriminate killing of predators.

Woolgrowers, it seems, cannot accept the possibility that by continual harassment and killing of coyotes—animals with a highly developed territorial imperative—they are in actuality disrupting their normal habits and are making them, in effect, into different animals. These animals, desperate and itinerant, may become sheep killers.

Non-lethal methods of predator control such as taste and odor repellants and high frequency sound responses are being researched but are hopelessly underfunded. Here again the woolgrowers have never made funds available in this direction and the Bureau of Sport Fisheries and Wildlife had a meager \$100 last year for this purpose. The Department of Agriculture just recently finally appropriated \$125 for non-lethal research. Meanwhile approximately \$10,000 a year is spent on the wholesale slaughter of predators with total disregard for their ecological niche. Other types of research, desperately needed but never even considered hitherto, to hopefully find real answers and solutions to the predator control controversy must include:

(a) Verified sheep and lamb losses due to predators to determine the actual loss ratios.

(b) Population dynamics and movement of predators.

(c) The positive values of predators in both natural and managed ecosystems.

The predator control program has flourished and expanded for many years in spite of mounting criticism, and without any scientific basis whatsoever to support the killings.

If the woolgrowers could accept the fact that the many knowledgeable and unbiased individuals who have pointed out the real problems facing the sheep industry and the shortcomings of the present predator control program are not just "ill-informed conservationists" who do not know what they are talking about and, likewise, if wildlife conservationists can also accept the fact that by no means all sheepmen are indiscriminate predator-killers and refrain from unnecessary and exaggerated or untruthful publicity, hopefully we can get down to the problem of finding the real solutions to end the predator control controversy.

Whether any satisfactory solutions can be found cannot be predicted until the proper search is done. Conversely unless the work is done, we will never find out. One cannot predict the unknown, but research can unravel the pathway. Will desperately needed substantial funding for all types of research bringing about a solution? Yes and no. Unless we ask the right questions, we will not get the right answers and just to face research is often wasteful. The area of this type of research has been starved for support far too long because existing methods were taken for granted.

Unfortunately, in the present heat of the controversy it is doubtful that decisions will wait for research, and in the absence of information regrettable mistakes are almost certain to be made.

This writer also believes that the real key to understanding the massive indiscriminate slaughter of predators by livestock-interests is the ethos of the early American West. This ethos must be understood in all dimensions possible and then cracked from within—changed from the heart, if you will. I do not believe that repression, and that is unfortunately what most conservationist moves are pointing toward, is a true means of solving a problem. It only drives matters underground to erupt at a later time.

[From Colorado-Rocky Mountain West, Denver, Colo.]

#### PREDATOR POISONING IN THE ROCKIES

A behind-the-scenes report on predator poisoning in the Rockies appears in the new March/April edition of the *Colorado-Rocky Mountain West* magazine now on sale at all local newsstands. The copyrighted article in the nationally circulated publication reveals how over the years the federal government has furtively cooperated with western sheepmen to exterminate much of the nation's wildlife.

Disclosing heretofore unpublished information from the restricted policy handbook of an obscure federal agency (the Division of Wildlife Services in the Bureau of Sport Fisheries and Wildlife, Department of the Interior), the magazine has printed facts and figures about government predator control practices, which in 1970 killed 190,763 larger mammals.

"The mind-boggling figure," says publisher Merrill G. Hastings, "amounts to an appalling 522 dead animals daily—an average of 27 raccoons killed a day, 66 foxes a day, 56 lynxes and bobcats a day, 19 badgers a day, 7 wolves a day, 245 coyotes a day—plus two bears and usually one mountain lion each day. Any day. Every day."

According to the editors of the Denver-based publication, a confidential 5-page chart issued from Washington in July of 1971 listed eight different poisons in 34 various forms and concentrations for the killing of wildlife. The magazine states that in 1970 about 25 tons of 1080-poisoned bait were put out in the state of Wyoming alone, and two tons of treated grain were used to poison prairie dogs.

The hard-hitting article primarily criticizes the use of indiscriminate poisons on the open range, and the editors have documented the loss of the American eagle and other birds as innocent victims. The highly critical story points to the sheep industry as the prime instigator of the deadly predator control program, and the magazine blames the government's partnership with western woolgrowers for the mass killing of hundreds of thousands of wild animals.

Citing from the official Cain Committee Report on Predator Control which was recently released by the White House, Hastings, in an introductory message to the reader, points out that, "Urban people seeking recreation in the country find the large predators of aesthetic value. There is resentment toward the killing of these animals, particularly on public lands, to support a range industry that is shrinking and of questionable future vitality."

The *Colorado Rocky Mountain West* magazine is currently involved in a \$2½-million lawsuit which was filed last summer by a Wyoming sheep rancher who alleged that he was libeled in an article entitled "They're Poisoning Your Wildlife," which appeared in the July/August 1971 issue.

Senator Moss. I guess I should say in defense of the woolgrowers, that they do, of course, pay a fee for using the public lands that is required of them by the Federal Government, and they are regulated as to what land areas they may be on.

Now there is debate about whether the fees are adequate or inadequate, but nevertheless, they do pay what the Federal Government charges them.

So they have some reason to feel that they, of course, are entitled to the use of public lands, having paid for their permits and having paid their annual rentals.

Mr. Rich of the Idaho Woolgrowers pointed out that 1080 is used for rat control in the cities more than for control of coyotes. Do you think 1080 should continue to be used in the cities to control rats?

Mr. FENSTERWALD. Mr. Chairman, I am really not qualified to answer. I think what we are talking about here is a health question, and I think rats are notorious for carrying various diseases, and that most cities have ordinances which take precautions to clean up rats.

Poison is normally used. I personally can't see where 1080 is doing any harm when it is being used for urban rat control, but again I say this seems to be a health problem and not a land use problem.

Senator Moss. It is my understanding that 1080 is a persistent sort of chemical that passes on through the system into other animals that might feed on the rats or some way get that into their systems. So I wondered about that factor of it.

Mr. FENSTERWALD. Mr. Chairman, I believe, like DDT, if enough 1080 is used, no matter where, it may have to be banned because it is nonbiodegradable, and it does persist and it may endanger urban water supplies or health in some other ways.

I just don't know. There are other poisons which are quite effective on rats, and which are biodegradable.

Senator Moss. If the woolgrowers turn out to be right that because of the failure to control coyotes they increase in numbers and there is very substantial loss of their livestock, what would you recommend be done?

Mr. FENSTERWALD. I think there are several things which would be helpful to the sheep growers without doing the damage that the poisons do. I think the Missouri plan, which seems to be quite successful in trapping individual predators, is good.

The program which has been rejected out of hand by the sheep growers, which is one of reimbursing them for losses from predators, is a good one.

I have had a suspicion all along that part of their opposition to that plan has not been that they find it ethically unsuitable, but in many cases it could be very difficult to prove how a particular animal died. One of the questions, as you yourself pointed out, is that there is really no good evidence, scientific evidence, as to the loss from predators as opposed to other causes.

Senator Moss. Well, we do thank you, Mr. Fensterwald, for coming and testifying, and your statement, which is in the record, and the insertion that was made.

You and the other witnesses have provided us with a great deal of good information today, and as you indicate, you are the cleanup witness on the list here.

I appreciate your staying to the end. In fact, I appreciate the fact that so many people have stayed all through this hearing, listening carefully to what witnesses had to say. It is obvious we are confronted with a difficult problem which requires a solution rather soon, and that is the reason the hearings are being held so late in the legislative year.

(The statement follows:)

STATEMENT OF BERNARD FENSTERWALD, JR., COMMITTEE FOR HUMANE  
LEGISLATION, INC.

The Committee for Humane Legislation wishes to thank the Subcommittee and its distinguished Chairman for taking up this Bill in this very busy Session of Congress and at this time of the year. We also wish to express our thanks for the opportunity to appear before this distinguished Committee.

I am the Counsel for the Committee for Humane Legislation, headed by Miss Alice Herrington which attempts to conserve wildlife, insure humane treatment for all animals, wild and domestic, and save depleted and endangered species from extinction.

Our comment will be addressed to S. 2083, S. 3334, and H.R. 13152. Of the three bills we prefer S. 2083, introduced by Senator Bayh.

S. 2083 is brief and to the point. It forbids the use of poisons or chemical sterilants to kill any animal or bird in public lands. It provides for public hearings when the Secretary of Interior or Agriculture believes because of unusual and extraordinary circumstances that poisons need to be used.

The interstate commerce of thallium and sodium fluoracetate (Poison 1080) is forbidden.

In comparing H.R. 13152 with the Administration Bill, S. 3334, we prefer S. 3334. The basic reason for this preference is that H.R. 13152 includes a provision which we oppose: the use of toxic chemicals in "emergency" conditions relating to loss of livestock, without use of the Federal Register or public hearings.

Although there are significant features in the H.R. 13152 which are improvements over the existing situation, the Committee for Humane Legislation cannot support the bill unless significant changes are made.

Our major problem with the bill is the underlying assumption, implicit throughout the bill, that predator control programs of the Federal and State governments are needed and that the Federal government should indefinitely support the State governments in predator control. The fact of the matter is that necessary scientific information is not available to make such a judgment, on either ecological or economic grounds. The first clause of the first sentence of the Act reflects this assumption: "To authorize the Secretary of the Interior to assist the states in controlling damage caused by predatory animals." We recommend minimizing or eliminating this aspect of the bill. We recommend emphasizing the ban on toxicants and initiation of research programs to determine what changes need to be made to the existing predator control program to reflect ecologic and economic realities.

We recommend a policy statement which would reiterate Section 1 of the White House Executive Order, Environmental Safeguards on Activities for Animal Damage Control on Federal Lands, February 8, 1972, and extend that statement appropriately worded to include all lands, not just Federal lands.

The Bill does include some of the provisions of the White House Executive Order. However, as has already been noted, a major loophole has been added. It gives the Secretary of the Interior authority to authorize the use of chemical toxicants in emergencies relating "to the prevention in specific areas of damage to domestic livestock" on Federal lands.

The same provisions is in the Bill relating to the Secretary's approval and Federal financial support of State emergency programs utilizing chemical toxicants relating "to the prevention in specific areas of damage to domestic livestock." We strongly recommend deletion of these provisions. In the event your committee should decide to include them, we are providing recommended changes as attachments, which would provide for submission of views of interested parties and public hearings, if requested, prior to the Secretary's decision.

The bill should take cognizance of the extension trapper-trainer system being successfully employed by several states and prescribe that Federal and state operational programs for the control of predatory animals be established as a means of aiding land owners in the minimum necessary control. The operational programs should place greater emphasis on harmless live trapping and transport.

The Bill, in some ways, is not consistent with the timely and excellent study made for the Council on Environmental Quality and the Department of Interior. "Predator Control-197" (the so-called Cain Report).

We urge you to insure that the bill specifically include the following recommendations of the Cain Report:

2. We recommend that immediate Congressional action be sought to remove all existing toxic chemical from registration and use for operational predator control. We further recommend that these restrictions extend to those toxicants used in field rodent control whose action is characterized by the secondary poisoning of scavengers. Pending, and in addition to such Congressional action, we recommend that the Secretary of the Interior disallow use of the aforementioned chemicals in the federal operational program of predator and rodent control, and that this ruling be made a standard in cooperative agreements with the states. Moreover, we recommend that the individual states pass legislation to ban the use of toxicants in predator control.

4. We recommend that in all states a cooperative trapper-trainer extension program be established as a means of aiding landowners in the minimum necessary control of predators on private land.

6. We recommend that grazing permits and leases written by federal land management agencies provide for possible suspension or revocation of grazing privileges if regulations governing predator control is violated.

7. We recommend that all methods of predator control be prohibited on statutory wilderness areas.

9. We recommend to the Federal Aviation Authority that a provision be made for suspending or revoking the license of a private pilot and the confiscation of aircraft when he knowingly carries a passenger whose acts lead to conviction for illegal predator control, such as shooting from the aircraft or distributing poisons.

11. We recommend that action be taken by Congress to rule out the broadcast of toxicants for the control of rodents, rabbits, and other vertebrate pests on federal lands, and that the possibility of correlative action be explored for private lands as well.

12. We recommend that the Division of Wildlife Research of the Bureau of Sport Fisheries and Wildlife undertake a detailed socio-economic study of cost-benefit ratios of predator control as a means of evaluating the need for and efficacy of the program and its separate parts.

14. We recommend that Congress give the Secretary of Interior authority to take measures necessary to protect all species of predators that have been placed on the Endangered Species List by the Federal Government.

15. We recommend that the several states take measures to supplement the federal protection of rare and endangered species by enacting laws and taking measures to protect locally rare populations.

The urgent need is for legislation to halt the predator control poisoning program that existed prior to the Executive Order on Federal land and continues to exist on State and privately owned land.

In summary, of the three bills we have discussed, we greatly prefer S. 2083, introduced by Senator Bayh. Between Senator Magnuson's S. 3334 and H.R. 13152 we prefer S. 3334. However, both bills need to be strengthened by the addition of provision for Federal Register publication and public hearings related to proposed use of toxic chemicals to control predators in "emergency" situations.

They also need to repeat the substances of the EPA Order issued March 10, 1972—ordering immediate halt to the interstate shipment of all pesticides registered for use in controlling predatory animals, plus a halt to one pesticide, thallium sulfate, registered for use in rodent control only, but applied widely to control predators. H.R. 13152 requires the many changes we have discussed.

However, the absolute minimum essential is deleting, as a circumstance, permitting the use of toxic chemicals "for the prevention of major damage to domestic livestock is an area where he [Secretary of the Interior] determines that other measures of predator control will not prevent such damage."

I again thank you for the opportunity of appearing before you today.

[Attachments]

Page 5, Line 15 through 17:

Delete all after "resources". Add new sentences. "Such approval will not be made until in each specific case he makes a written finding, following consultation with the Secretaries of the Interior, Agriculture, and Health, Education, and Welfare, and Administrator of the Environmental Protection Agency, that an emergency exists that cannot be dealt with by any means which do not involve the use of chemical toxicants and that such use is essential for the emergency purposes cited above. (b) Prior to his decision to approve or disapprove, the Secretary shall publish notice in the Federal Register of each proposed emer-

gency use being considered under this section. Such notice shall invite the submission from interested parties, within thirty days after the date of notice, of written data and/or views with respect to the proposed emergency use.

(c) If within thirty days after the date of publication of notice pursuant to paragraph (b) of this subsection with reference to proposed emergency use, any interested party or parties request a hearing in connection therewith, the Secretary shall, within sixty days following such date of publication, afford to such party or parties an opportunity for such a hearing.

(d) As soon as practicable (but not later than thirty days) after the close of the hearing or, if no hearing is held, after the last day on which data, or views may be submitted pursuant to paragraph (b) the Secretary will provide notice of his decision in the Federal Register."

Page 8, Line 5, 6, and 7:

Delete all after "or". Add new sentences. "Such authorization will not be made until in each specific case he makes a written finding, following consultation with the Secretaries of Interior, Agriculture, and Health, Education and Welfare, and the Administrator of the Environmental Protection Agency, that an emergency exists that cannot be dealt with by any means which do not involve use of chemical toxicants and that such use is essential for the emergency purposes cited above. (b) Prior to his decision to approve or disapprove, the Secretary shall publish notice in the Federal Register of each proposed emergency use being considered under this section. Such notice shall invite the submission from interested parties, within thirty days after the date of notice, or written data or views with respect to the proposed emergency use.

(c) If within thirty days after the date of publication of notice pursuant to paragraph (b) of this subsection with reference to proposed emergency use, any interested party or parties request a hearing in connection therewith, the Secretary shall, within sixty days following such date of publication, afford to such party or parties an opportunity for such a hearing.

(d) As soon as practicable (but not later than thirty days) after the close of hearings or, if no hearing is held, after the last day on which data or views may be submitted pursuant to paragraph (b) the Secretary will provide notice of his decision in the Federal Register."

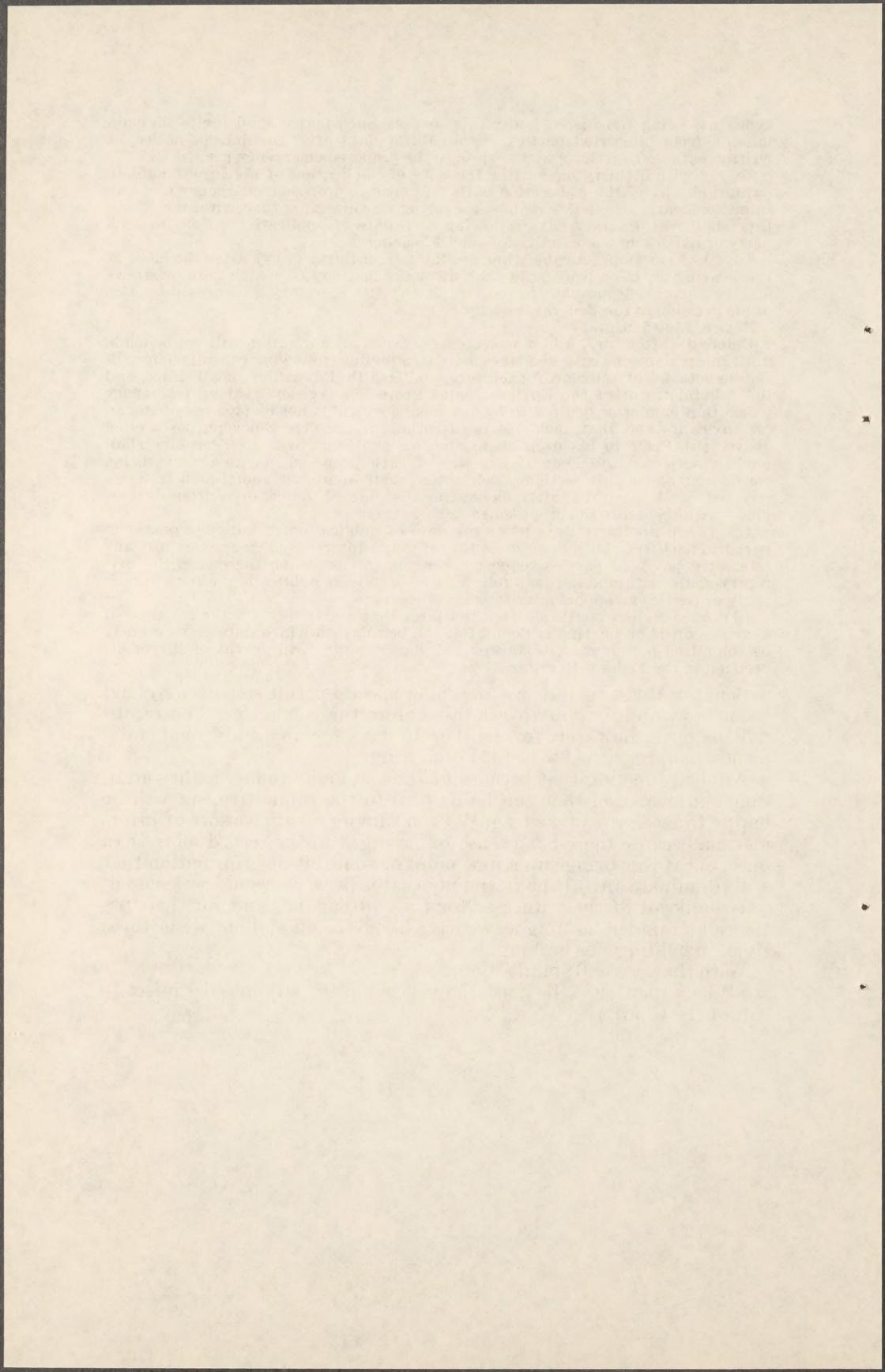
Senator Moss. In fact, we are under special permission even to hold them now, and I want to get this before the committee. The record will be open, however, for another 10 days for any additional statements that are wished to be filed in writing.

Anybody feeling that because of the testimony today, he has additional information that can be helpful to the committee, we will be happy to receive it in writing. We don't invite repetitive sort of information, because there is no sense in having it in the record more than once, but if this brings up a new point or some bit of information that will illuminate any of the testimony that is here, we would welcome it.

I thank all of the witnesses for their attendance and for their patience and understanding as we have had to be off and on two or three times in holding this hearing.

With that, we will stand adjourned.

(Whereupon, at 3:45 p.m., the subcommittee adjourned subject to call of the Chair.)



## ADDITIONAL ARTICLES, LETTERS, AND STATEMENTS

(The following information was referred to on p. 153:)

(Submitted by Robert C. Hughes)

### CONSIDERATIONS OF DOMESTIC SHEEP MORTALITY IN NORTH WESTERN COLORADO

By Sander Orent and J. William Levinson

#### Part 1

#### BACKGROUND

This research was designed to investigate primary causes of mortality in domestic sheep bands being grazed on high mountain summer ranges in Colorado. Special attention was directed to frequency and dynamics of predation on these animals specifically by the coyote *Canis latrans*. The major goal of the proposed research is to validate or refute the primary operating thesis of predator control programs—that predators, particularly *Canis latrans*, cause severe and economically crippling losses to sheep ranchers. To date this premise has been accepted with practically no evidence other than unverified loss reports from stockmen. In view of the high toxicities of the poisons used to suppress predator populations and the fact that the control is often practiced on public lands that are either leased for grazing or alleged to be reservoirs for the offending animals, the practice as of late has come under intense fire from conservation groups and private citizens. Research on the question is particularly timely in that there is a major court suit pending in which the Federal government is being sued for its participation in the program (Sierra Club versus Department of the Interior) and legislation on the issue is being investigated by many state governments and the Congress as well.

The design of the experiment called for investigation of sheep loss in two ways. First, by direct observation of the flocks in high coyote density areas, and secondly by necropsies of dead animals to ascertain cause of death if not directly observed. Intense interest in the results of this research have been expressed by many governmental agencies directly concerned with the problem, notably the Bureau of Land Management, the National Forest Service, the National Parks Service, Division of Wildlife Services, and other nongovernmental organizations such as Colorado Woolgrowers' Association, the Sierra Club, the Defenders of Wildlife, etc. In addition many individual ranchers were anxious to receive our input into the problem. We have received repeated requests from local functionaries of these organizations, again particularly the National Forest Service, to aid in the establishing criteria for when and where control programs should be implemented on grazing allotments and what type of control would be deemed best under given circumstances.

It was our intention to locate an area which fit four criteria which were delineated previous to the beginning of the research. These criteria are as listed below.

(1) The area must be uncontrolled in large part for coyotes—this being defined as an area where sodium fluoroacetate, thallium, and other poisons were not in use. Some control, it was found, is inevitable in all areas; acceptable levels of control were the use of steel traps on an occasional basis, or hunting for sport of the major predators.

(2) The area must have had high sheep densities and high predator densities. These high predator densities were determined by talking with the local inhabitants of the area to ascertain if there were sufficient numbers of predators to make the study worthwhile.

(3) There should be a reasonable number of standing complaints about stock loss by the local ranchers. The area chosen fit this criterion in all respects as will be discussed later.

(4) The area must be suitable for implementation of proposed experimental design. Specifically under this point, it was felt that the grazing of sheep in the area should be limited only to those times during which the study was to be carried out. No other losses occurring in the area at any other time of the year were to be considered.

#### STUDY AREA

The primary study area was in northwestern Colorado, approximately 200 miles northwest of Denver in the high mountain country. The area was composed largely of mixed aspen, lodge pole pine, alpine fir, spruce, and ponderosa pine intermixed with 5-50 acre mountain pastures. These pastures consisted mostly of brome-type grasses as well as large concentrations locally of false halibore and tall larkspur—two broad-leaved, poisonous plants.

Large parts of the study area were covered with enormous amounts of dead-fall making movement of animals difficult except on pre-established trails. This aided greatly in such activities as scat collection and tracking.

Within the area, there were three distinct bands of sheep under observation. These bands are described below.

The first band, hereafter designated farm flock, was a small band consisting of 180 ewes, and 195 lambs contained within a fenced area, approximately 750 acres of brome-type grass pasture. There was some timber present in the back area and between pastures. This band was confined to the 750 acres throughout the duration of the summer, being alternated between pastures to allow the grass to regenerate. The band was well cared for, herded, and bedded each night by the rancher that owned the sheep. The second band, hereafter designated Moore's band, comprised of 900 ewes 820 lambs, was grazed on the Routt National Forest, approximately 2,000 feet above the farm flock on a ridge. This grazing allotment was supplemented by the ranchers' inholdings within the national forest area. This band was well tended by a competent herder; the sheep were bedded each night but allowed to scatter through the timber during the day. The third band, hereafter designated Circle A, was run also on the Routt National Forest in the allotment adjoining Moore's band, and was of roughly equal size. This band was poorly tended; the sheep were not bedded and allowed to range widely through the timber with minimal amount of observation on the part of the herder.

In all of these cases, there was minimal or no control in the areas due to refusal of the Forest Service to implement control. The small rancher who owned the farm flock used only a rifle as his means of control and had no poison or traps on his property.

Again, in all cases, there were high losses reported to us by the owners of the sheep and in some cases these losses had been reported to the Forest Service in the previous year. As an example, the owner of the farm flock estimated that he lost 10% of his lamb crop in the previous summer to coyotes. The Circle A band reported losses of up to 35 head a day in the same season while grazing on the Routt National Forest.

#### METHODOLOGY

The primary focus of the study was on attempting to observe sheep in an undisturbed grazing state from a distance to allow predation events to occur naturally without interruption. This was attempted in several ways depending on the band being observed. In the case of the farm flock, the sheep were observed on a 24 hour basis throughout much of the summer—during the day from a ridge approximately one half of a mile away with high power spotting scopes and at night from a sheep wagon located from 100-200 yards from the bedded sheep. The night observation was accomplished through use of the army Starlight/night observation devices. In Moore's band, the only time sheep observation was feasible was during the evening and night hours when the sheep were on the bed ground. A tree platform 30 feet above the ground and approximately 150 yards from the bedded sheep was employed for this purpose. Prolonged observation of the Circle A band was found to be impossible due to its wide scattering through the timber.

Other directions of the study included coyote censusing to attempt to attain an estimate of the local coyote population, small mammal censusing in order to quantify other available food sources for the predators, carcass searching and necropsies of dead sheep, and scat collection and analysis to determine food preferences for these predators.

The thrust of the coyote census effort began with an emphasis on coyote trapping and marking; however, this was found to be unfeasible due to difficulty in trapping these animals and to the fact that one of the three coyotes that were trapped suffered severe damage from the trap jaws in spite of precautions taken such as the use of offset jaws and the presence of tranquilizer tabs wired to the jaws. Later emphasis was placed on the use of a siren to elicit howling responses from these animals and attempting to count the number of responses each night that the census was repeated. In addition, it is hoped that we will be able to obtain a handle on coyote populations through use of a scat model assuming a fixed defecation rate and computing number of scats in a given area over time.

The small mammal censusing was attempted through use of standard and modified Calhoun lines and through rabbit jack lighting on the road at night.

Carcass searches were done on horseback and on foot either every two days or more depending on the area, and in the case of the Circle A band, it became the primary method for obtaining an estimate of sheep mortality. It is standard procedure for a herder or rancher to check his sheep daily in this manner.

Scat collection was done on a systematic basis by covering trails or areas at a given time and re-searching these trails after a certain elapsed period. It was felt that we were able to collect the majority of the scats in the area due to the large amount of deadfall which probably prevented the movement of these animals anywhere but on the pre-established trails.

A good deal of the researchers' time was taken in speaking to and questioning local ranchers, sheepherders and personnel of the various governmental agencies involved in public lands administration. In addition, an agreement was made with the National Forest Service, the Bureau of Land Management, and several of the local sheep ranchers that in the event of large numbers of kills within their area or upon their sheep that we would be contacted to necropsy the deaths and evaluate the situation. A similar request was made to the Division of Wildlife Services, the agency responsible for dispensing poison and sending out trappers to control local problems; however, this request was in no way acknowledged, nor was any aid received from this organization.<sup>1</sup>

#### DISCUSSION OF DISTURBANCE ARTIFACT

Possible disturbance artifacts created by observers and researchers in the field running trap lines, etc. was a great cause of concern to this research group. However, throughout the course of the summer, several events convinced us that our disturbance artifacts were minimal in inhibiting predation on the sheep flocks. These events were as follows:

(1) Fresh coyote scats were found in close proximity to the location of many of our camp sites, in one instance only 20 yards away.

(2) Coyotes were often heard howling at night at distances no greater than 100 yards from the camp.

(3) On many of our sojourns, specifically carcass searches on horseback, we would accompany the sheepherder who can not be construed as a disturbance artifact in that this is standard procedure for him.

(4) A coyote pup was trapped at a distance of 200 yards from one of our camps.

(5) Two kills of sheep were noted at distances of no greater than 70-200 yards from an occupied sheep wagon that was located close to the bedding ground. In that in many instances the sheep wagon of a herder is located in close proximity to the bedding ground, it was felt that the presence of our sheep wagon created no great disturbance.

(6) The tree platform used to observe the Circle A band was 30 feet above ground, and we were assured numerous times by both faculty of the School of Natural Resources of Colorado State University and a government trapper that because the flow of air is lamellar, there should be a minimal scent disturbance from an occupant of the tree platform.

<sup>1</sup>The Division of Wildlife Services of the Bureau of Sport Fisheries and Wildlife of the United States Department of the Interior was on the whole largely uncooperative with this effort. It is felt by this team that these people went out of their way to avoid us; they refused to turn over to us any carcasses killed in their line of work so that we could do stomach content analyses of the predators; they refused to allow us to accompany their local trappers and field agents in pursuit of their duties; and they refused to supply us with any data on the numbers of predators taken within their jurisdiction. The notable exception to this critique was one government trapper who was quite cooperative and did allow us to accompany him on his controlling efforts. The comments and feelings of this individual will be discussed at a later point.

It is therefore our consensus of opinion that our disturbance artifact was minimal in preventing predation, and thus can not be considered a major factor in the predation figures that we accumulated over the course of the summer.

## Part 2

### RESULTS

#### I—CENSUS<sup>1</sup> AND PREDATOR ACTIVITY

The most obvious bias related to the use of a siren for coyote census is the universality of response by the local coyotes. We are fairly convinced that all coyotes did not respond at all times or that possibly because of the presence of wind or other factors, we were unable to hear the responses. It is not expected that the siren-census technique was a complete measure of the coyote population in the area; however, we feel that it did provide a useful comparative tool. In four instances where a den was known to exist, where we were able to elicit response 8 out of 10, times.

To obtain a minimum coyote density the following assumptions were made. 1) A coyote hearing the siren above a certain volume level will respond. 2) Once one coyote howls, other coyotes hearing him will also respond. 3) Responses can be heard for approximately one square mile. This is a somewhat arbitrary figure. It was in part arrived at by eliciting responses in an area where the coyote density is approximately known. Within the Federal Management Area Dinosaur National Monument (18 square miles) four coyotes were heard at four stations, which means that if responses can be heard for approximately one square mile, we arrive at a coyote density which agrees with Federal Wildlife Management population figure. It is clear that the ability of the researcher to hear responses is influenced to a large extent by environmental factors. Weather conditions clearly influenced the ability of the coyote to hear the siren, or the researcher to hear the coyotes, or the willingness of the coyote to respond. Censusing was usually only performed on clear calm nights and mornings. It is obvious that the type and amount of vegetation also influences the ability of the coyote to hear the siren, and the researchers to hear the howl. It is difficult to assess its exact attenuation except in the case of the ability of the human observer to hear the siren.

Results in the Green Ridge-Morrison Creek area comprising the Farm flock, Circle A band, and Moore's band are summarized in terms of a density. We feel however, that a density figure is not entirely the correct variable to use, since it implies a uniform distribution. The study area comprised a large amount of area that was unsuitable for coyote habitat because of the large amount of dead-fall. This would result in a locally higher density in those areas where the habitat was more suited to coyotes, and a lower density in those areas where a coyote must remain on pre-established trails and logging roads. A more appropriate variable to use would be the total number of coyotes within hunting distance of sheep flock.

In this area a total of 44 coyotes were heard in a linear sampling distance of 134 miles or about 0.3 coyotes per square mile. The total sampling area was on the order of 150 square miles and we feel relatively sure we heard most of the coyotes present. This figure is somewhat conservative in that we attempted to omit those responses that were heard at different times which we could attribute to the same coyote for reason of location. The greatest separation between the terminating points of sampling was less than 20 miles. It is therefore not unreasonable to conclude that all 44 coyotes heard are within range of attacking the sheep. In addition we are reasonably assured that there is a population of approximately 18 coyotes in the valley 15 miles long in which the farm flock was grazed.

Coyote activity as determined by scat collection was accomplished by clearing and re-searching known coyote trails after a period of time had elapsed. There are enough unresolved questions in and a sufficient number of assumptions in this method so as to justify it for an order of magnitude calculation only. The assumptions made are:

<sup>1</sup> Siren census data evaluated by Martin Hable.

(1) All scats were picked up in an area and the number that were missed on the first run was probably also missed on the second run; hence, we should have a good idea of the number of scats on a trail over a given period of time. Every area of known coyote activity was searched for scats. Eleven areas were re-searched for scats in the Green Ridge-Morrison Creek area. Three of these areas were omitted from the calculations because the ecology was such that it did not limit the area that could be traveled by coyotes, and therefore systematic collection of scats was not possible. Another re-hunt was omitted because it did not yield any new scats.

(2) Defecation rate of the coyote was three scats per day, which was obtained from two individuals who have captive coyotes.

The calculation performed is:

$$X = \frac{LDT}{S} \cdot \frac{N}{R}$$

X=the distance traveled by the coyote

R=how often he returns to this trail in days per repeat

N=the number of coyotes using the trail

L=the length of the trail

D=defecation rate (assumed to be 3/day)

T=time interval between scat searches

S=the number of scats found on the re-search.

Results for  $\frac{XR}{N}$  are:

#### Rehunt No.—miles

1—210  
2—81

3—38  
5—135

6—90  
7—36

8—247

It can be seen in re-hunts 1 and 8 that the distance traveled is only reasonable if the return time is greater than one day. In cases 3 and 7 the distance is only reasonable if one assumes more than one coyote hunting in that area or the coyote returns more than once a day. In no case were there sufficient scats in a short enough period of time to definitely conclude that more than one coyote was hunting a particular area.

The environment near the farm flock was not defined in trails as the area near the circle A band or Moore's band to perform a scat re-hunt type analysis there. However, the distance between the various bands was never more than seven miles, and therefore the above conclusions about coyote behavior can be assumed to apply to the farm flock also.

Obtaining a coyote density from these figures is impossible, since coyote trails are not defined well enough to associate an area with a total linear distance. However, we feel the potential for this type of coyote census is enormous especially since the mathematics of the random walk in two dimensions with certain constraints can be applied using data from scat collection.

It has been shown elsewhere in this report that there is probably such a thing as a single offending coyote. That coupled with this information that more than one coyote hunts a particular area, substantiates more strongly that the majority of coyotes in the vicinity of sheep do not prey upon them.

#### II—SHEEP MORTALITY

(See Table II)

Contained in this table are figures for sheep mortality; total numbers at onset and termination refer to the rancher's counts, other figures represent our documented findings.

The owner of the farm flock stated his losses were on the light side of average, while the owner of Moore's band stated his season was normal or perhaps slightly worse than usual.

TABLE II.—SHEEP MORTALITY STATISTICS

	Farm flock	Moore's band	Circle A
Band ewes on turnout.....	180.....	900.....	932.....
Band lambs on turnout.....	195.....	820.....	1,000.....
Date of turnout.....	May 15.....	June 15.....	June 30.....
Total ewes retrieved.....	180.....	885.....	930.....
Total lambs retrieved.....	148.....	780.....	990.....
Lambs lost to predation.....	17.....	5.....	7 (?).....
Lambs lost to disease.....	13.....	5.....	(?).....
Lambs lost to displacement.....	.....	20 to 30.....	(?).....
Unaccounted for.....	2.....	0 to 10.....	5.....
Total loss.....	32.....	40.....	12.....

## (A) DISEASE AS A CAUSE OF SHEEP MORTALITY

In the farm flock, one sheep was known to die of disease, apparently from a spinal abscess of unknown origin. The other 12 died of unknown causes immediately before and after our period of research. In Moore's band, three sheep were lost to mastitis, commonly called blue bag, and two were lost to infected abscesses which apparently resulted in widespread systemic infection. Disease figures were unavailable on the Circle A band in that the diseased sheep probably wandered off through the timber and died where it was impossible to locate their carcasses.

## (B) PREDATION AS A CAUSE OF MORTALITY

The following are predation statistics presented chronologically.

Two members of the study team arrived a few days prior to the shipment of the farm flock from its winter range. Immediately upon the sheep's arrival, nine kills ensued on nine consecutive nights. These kills were unobserved due to the lack of night observation equipment. The rancher attempted control of the offending animal; he was able to shoot at the animal twice, however, he was unable to stop the kills.

Upon the arrival of the rest of the crew, a coyote was observed three times harassing the sheep; however, no kills were made. Because of concurrence of the rancher and the crew members who observed the coyote, it is felt that the animal visualized was the same. He was morphologically distinct being quite large and atypically very lightly colored.

Eight of the lambs suffered head injuries while the other died from a neck wound. Only two were eaten on; the others were untouched. The cessation of the kills at this time may be due to either our early disturbance artifact or the fact that the rancher attempted to shoot at the animal twice. Most probably it had to do with changing environmental factors or breeding factors that remain undelineated.

The next kills occurred on Moore's band late in June, almost immediately after their advent on their summer range. The kills were badly mutilated, and there was an absence of head or neck wounds. They were killed in the timber and were very well fed upon. The probable cause of death was a broken neck, but this was indeterminate due to the condition of the carcasses. It is our feeling, therefore, that these animals were killed by a bear; the shepherd concurred with this conclusion.

The mortality of all bands ceased at this time for approximately a month at which time the howling activities of the coyotes appeared to increase. We were hearing several on each night.

At the end of July, four kills occurred on four consecutive nights, all lambs in the farm flock. Each died of neck wounds. Two occurred in very close proximity to an occupied sheep wagon; however, the occupant had dozed so the kills had not been observed. The other two occurred during the afternoon. Deaths ensued within four to five days of each other. They were well utilized as a food source—particularly the liver, heart, and parts of the shoulder. Dr. Divers termed them sloppy kills. One fang mark was quite indistinct on all of these sheep as determined by a peeling procedure in which the skin of the neck was peeled back, and trauma may be clearly exposed.

Immediately following these kills, a coyote was trapped in one of our steel traps under a fence surrounding the farm flock. This coyote had several characteristics worthy of note. It was a sterile female of approximately two to three years. It had one broken lower canine tooth, and the veterinarian hypothesized

that in view of the fact of the presence of an enlarged and partially infarcted kidney, there may have been present in this animal sublethal doses of thallium poison. Rib samples were saved and analyzed by Poisonlab, Inc., Denver, Colorado. The explanation of their analysis is quoted below.

"We found this rib to contain an 8.4 mcg thallium per 100 grams of total bone. . . . It is difficult to state the precise meaning of this level, since we have no idea of the background thallium level in the area in which this particular specimen was collected. It is my general impression though, this is slightly elevated, since we generally find trace materials in 5 mcg per 100 grams or less quantity."

Normal background thallium levels range from 0-4 ppm in land mammals, this primarily accumulating in the kidney. It is highly toxic in elevated amounts.<sup>1</sup>

The analysis presented above was of dry bone which would not normally present with such levels. Hence, in view of the condition of the animals' kidneys, its sterility, and the more than double maximum background amounts of this element in dry (no marrow) bone, we are convinced a greatly elevated amount of thallium, causing severe systemic (primarily renal) damage, was present.

It would be of interest to investigate the hypothesis, implied by this information, that sublethal doses of thallium could weaken a coyote sufficiently that it could no longer hunt wild game, but must survive on more easily captured domestic animals.

After the demise of this coyote, the killings ceased. It is therefore our feeling that in view of this fact and because of the presence of the indistinct fang mark on each of the four dead lambs, this coyote was responsible for these kills. However, the killing resumed late in August after the researchers left the field. Four dead lambs were found by the rancher. A few days later the rancher's wife shot and killed a coyote in the vicinity of the sheep and again noted that the killing stopped.

Discussion of mortality in the Circle A band will be deferred until a later time due to some unusual characteristics.

#### (C) SUBSTANTIATION OF CLAIMED LOSSES

One main reason for choosing our primary study area was the absence of extremely high loss claims by the owner of the Circle A band. In past years as mentioned previously, this rancher claimed losses to coyotes and bear as high as 35 head a day. Only twice throughout the course of this summer did the rancher complain of problems. The first time he estimated that he lost eleven lambs to coyotes in late June; the second incident involved the loss of 100 lambs and ewes to a bear in a period of five to six days toward the end of July. We were unable to locate any of the initial eleven carcasses claimed to be killed by coyotes.

In the bear incident the rancher contacted the Colorado game and fish officer, under whose authority falls the wildlife of the national forest, and indicated that his flock was being decimated by a bear. It was therefore necessary for this officer to issue a permit for a bear hunter to come in and attempt to extirpate the predator that was allegedly causing the rancher such high loss. This officer appeared in our camp on one morning and requested that we show him the rancher's sheep. We informed the officer of the fact that it would take us approximately four to five hours to take him to a place where we could even locate a small part of the band in view of the fact that they were so widely scattered, and much longer to attempt to locate any carcasses. We told him that we were unaware of the fact that there had been any loss in this band. He subsequently requested we take him to a viewpoint where he might look down on the mountainside in that he did not have time to attempt to locate the sheep. We did so. He spent approximately twenty minutes with us and was unable to view even a live animal grazing in the pastures. He then informed us that it was necessary to leave the area and that he would probably not authorize a bear hunter. This officer made the statement at this time—"I never met sheep rancher that I could trust."

The following day, we were confronted by two hunters on horseback on the mountain who claimed that they had been authorized to hunt this bear. They told us that they had been hired by the owner of the Circle A band, and that they had received permission by the Colorado Game, Fish and Parks to pursue

<sup>1</sup> Bowen, *Trace Elements in Biochemistry*, Academic Press, London 1966.

their hunting. At this time, we had been still unable to locate any carcasses. The hunter told us that he had seen four carcasses that morning of bear-killed sheep. The rancher rode up shortly thereafter and claimed that he had seen also four or five more. We asked him how many sheep he had lost at that time and he replied, "Well over a hundred."

Eleven team members scoured the side of the mountain in an attempt to find these carcasses. We spent approximately fourteen hours in this process and covered the mountain quite thoroughly. We were unable to uncover one carcass which our autopsy showed that had been killed by a coyote in view of the tooth marks around the neck. When confronted with this fact at a later time, the rancher said, "Well, I saw four carcasses here, and therefore there must be 90 to 100 scattered all over the rest of the mountain." When asked whether he had actually seen these 100 carcasses, he said, "No. However, if there are four here, the bear must have killed 90 more."<sup>1</sup>

The rancher's herder, who was somewhat ineffectual, when asked about the incidents of kills in his hand said that—"Yes," there had been approximately four kills to a bear and approximately three to a coyote which he had seen when out tending the sheep—but was unable to verify losses of 100 animals. He added that as far as he knew that was his total loss to date for the summer. Final counts on this band revealed a total of 12 sheep<sup>2</sup> lost during the season; comparing rather poorly with previous claims of 100+ sheep in one episode or 35 head a day the previous year.

#### (D) SHEEP LOSS VERSUS PREDATION

##### *Evaluations and Conclusions*

In general, the sole method utilized by ranchers, land management agencies, and agricultural statistics reports for evaluating stock loss is the number of head counted at the end of the season subtracted from the total number turned out to graze at its onset. As far as we have been able to ascertain from discussions with numerous ranchers and land management personnel, the majority of those unaccounted for are charged to predators.

However, Table II brings to light some interesting observations. Notably, the great fraction of Moore's band found missing over the summer was not directly attributable to either predation or disease. His feelings, and those of his herders were that the sheep were merely lost in the extensive and unfenced wilderness of the national forest, and that some may have joined with the Circle A band and were not returned. Judging from the number of Circle A band lambs he himself accumulated (some 20 odd) an equal number of his own may have been in a similar situation. This concept of large numbers of sheep being displaced from their herds and unrecovered was supported by several events this season:

(1) The herders of both Moore's and the Circle A bands, with whom we lived in very close daily contact, often reported groups of 10-100 sheep missing as determined by the presence or absence of certain "markers". It seemed that in at least two cases these sheep were apparently never located.

(2) Moore's herder stated that the owner would make at best a cursory effort to locate these strays at the end of the summer.

(3) On two occasions when Moore's band was shifted to bed grounds 2-5 miles from previous locations, sheep were left behind and not retrieved. In the first case, a ewe which had given birth shortly before the move was abandoned with her lamb, and in the other instance 10 ewes and lambs were left in old bed ground due to their absence during the move itself.

(4) The owner of the farm flock, whose sheep were confined and located approximately 2,000 feet below the Routt National Forest allotments, reported that in the past several years he had on occasion found groups of Circle A sheep on the fence behind his property long after the band had been withdrawn from the National Forest. These sheep had apparently wandered off through the timber and had been unclaimed by the rancher at the time of his withdrawal.

Much of the terrain in northwestern Colorado, and high mountain pastures elsewhere is at least as rugged as our study area on the Routt. Even in a well tended herd such as Moore's, losses of sheep in this manner were relatively high. The fate of these animals is probably impossible to ascertain, but it is likely that few if any over winter probably due to climatic extremes. The depth of the snow

<sup>1</sup> The hunter did not get the bear, and we were unable to locate the Colorado game, fish, and parks officer for comment on this incident.

<sup>2</sup> Final count from National Forest Service Records.

and severe cold at 10,000' elevations in all likelihood result in the rapid demise of these rather fragile animals.

Though our actual experience with this type of displacement loss was limited, the implications are clear, and we feel large numbers of sheep grazed on areas of this nature are lost in such a manner. In fact, our data suggest that, at least locally, such displacements constitute an overwhelming proportion of total loss. It is perhaps natural for a rancher to blame missing sheep on predators, but we believe there is good cause to question such assertions.

Occurrences such as the aforementioned bear incidents, in which the rancher's arithmetic was shoddy at best, coupled with the actual fact of numerous sheep turning up missing at season's end may give insight into the genesis of the high predator loss claims reported by some operators.

However, the active role of the predator in domestic sheep loss is difficult to state precisely. We do know that coyotes kill sheep. Their reasons for doing so are at times clearly for food sources, and at other times obscure at best.

The repeated observations of a morphologically distinct coyote harassing the farm flock, the cessation of kills immediately and for long periods after the death of two coyotes (see below), and the apparent inability of one of these to fend for itself in another manner, coupled with a certainty of a coyote population in the area numbering well over three lead us to believe that all coyotes do not kill sheep, even if given the chance. The low incidence of kills in both Moore's and the Circle A bands concomitant with great amounts of howling activity and numerous scats in these allotments lead us to even further to suggest that killer coyotes are true miscreants and are the exception rather than the rule.

We do not mean to infer that predators do not in any instance cause significant levels of mortality to range sheep. There may in fact be instances where predation is severe enough to economically injure the rancher, however, we were unable to document any such evidence, and hence believe that these are rare occurrences. By maintaining contact with many sheep ranchers and local land management agencies we were able to indirectly follow many operations over a wide area throughout the summer. Our repeated requests for reports of predator damages from any of these parties met (significantly) with no response. Therefore, we must infer that there were few if any instances of significant predation losses over much of the northwestern Colorado sheep ranges this summer.

### PART 3. ATTITUDES, OPINIONS, AND RECOMMENDATIONS ON PREDATION LOSS AND CONTROL

Throughout the course of the summer, rapport was established and maintained with several sheep ranchers throughout the area whose operations varied in size from 350 lambs and ewes to well over 8,000.

It is of interest to note the conflicting nature of the views held on predation by the small and the large operators. (A small operation is defined as less than 1,000 ewes and lambs.) There was a strong concurrence of opinion among small ranchers that predation damage was caused primarily by one or two local coyotes, the rest playing no role whatsoever in their losses. Many of them felt that a well tended herd has greatly reduced losses from those under less careful management. Further the majority of these individuals were opposed to the use of broad spectrum poisons and were of the opinion that specific control through use of rifles or steel traps was quite effective in reducing the predation loss.

The large ranchiers were quite diametrically opposed to this view and made such statements as, "Without 1080 (i.e. sodium fluoroacetate), our outfits would go broke. It is this poison that has saved our lives." On the whole, the large operators feel that all coyotes are killers and that they must be largely eliminated in order to reduce stock loss. In addition, they feel that predator numbers are constantly on the rise, in spite of control measures.

The major discrepancy between the large rancher and the small rancher is the per cent of their lamb crop per year reported lost to predators. Large outfit loss estimate ran as high as 30-40%, whereas small ranchers were much more conservative. The highest figure that we received from a small rancher was 10% lamb loss.

It is interesting to observe that the owner of the Circle A Band, who constantly demanded control in his allotment, and was constantly refused, suffered the lowest losses (see Table I). He once attempted to shoot a coyote on the allotment, but was unsuccessful. Through careful operation, we are certain there were no traps or cyanide guns on his allotment or on adjoining land. Of all parties contacted throughout the summer, this rancher was perhaps the most vehement coyote hater.

Many operators, particularly the smaller outfits, believe that the best method of reducing stock loss was by careful management. This, however, remains to be documented.

#### ADMINISTRATION OF PREDATOR CONTROL PROGRAMS

In general, the law provides that it is necessary prior to the initiation of a control program for the agency on whose land the control is to be done to verify high loss claims and to make a direct request to the Division of Wildlife Services. It is not possible for a sheep owner to go directly to the Wildlife Services and request control on public lands.

The official policy of the United States Forest Service whose jurisdiction included part of our study area is that all forms of native wildlife have a place on the national forest. It is only when there is a need to realize wildlife management objectives or severe damage to private property that predator control is permitted. The basic density of the predators is not a factor instituting control. Licensed trappers are favored, chemicals must be registered, and rigid control over poison is required. Before March 1st of each year, recommendations are received from the Bureau of Sport Fisheries and Wildlife. A map is thereafter exhibited where control is permitted and not permitted. This map must be evaluated by local interested groups. Prior to April 1st, necessary control is requested from the Bureau of Sport Fisheries and Wildlife for the coming season on the basis of complaints from the previous year. The requests must be accompanied by a plan which includes permitted control areas, noncontrolled areas, the methods to be used, and the justification for control. No one agency may launch emergency techniques without coordination with other agencies—that is to say that the Bureau of Sport Fisheries and Wildlife may not institute its own control programs without prior consent from the Forest Service. Before September 1st, the location of lethal bait and coyote getters must be pinpointed clearly, and these locations must be posted. Any deviations from above must be approved. In general, controls that are permitted on sheep ranges are not permitted on cattle ranges.

This research group has found considerable cause to question the field administration of these regulations. For instance, one of the district rangers of the Forest Service in our area reported to us that he had had problems with the Bureau of Sport Fisheries and Wildlife in their control activities. He stated that several times they had failed to make requests for changes in original plans, had not placed poison where it had been requested and had placed it elsewhere, where there had been no authorization given, and that not all of their poison baits were liquidated at the proper time. Furthermore, the owner of the Circle A band who ran sheep in other allotments within the National Forest, spoke highly of a district ranger who was very cooperative in permitting control work to be done simply on the basis of a phone conversation. This ranger took neither the time nor the trouble to personally verify any stock loss due to predation before he would authorize control.

Admittedly, it may be difficult for an administrator to verify stock loss within an area; however, if the rancher has been able to locate predator-killed carcasses, it is possible, desirable, and necessary under the law for representatives of the agency concerned to see these carcasses for themselves.

In addition to the insufficient enforcement of control regulations on public lands, we received reports of violations on the part of the Bureau of Sport Fisheries and Wildlife of their use of poisons on the lands of private individuals. Two parties in the Craig, Colo. area stated that they had found government placed poisons on their properties without their prior consent. In addition, one of these individuals was aware of three sodium fluoroacetate bait stations within a 3,000 acre area far exceeding the limits imposed on the Bureau of one bait station per township.

One party in Routt county discussed with us an event where an official of the Bureau of Sport Fisheries and Wildlife implicated that he would place government poisons on this individual's private land for "a little money under the table".

It is apparent to us that at least at some local levels the Bureau of Sport Fisheries and Wildlife is exceeding the levels of its jurisdiction, and there seems to be little thrust from other agencies to retain this organization within the limits imposed on it by law.

## EVALUATION OF PREDATOR CONTROL PROGRAMS

In our estimation, the single most important criterion for implementing a program of predator control is that of demonstrated need. On public lands, control should be implemented only after reasonable investigation by an officer under whose jurisdiction these lands fall. This officer should be held responsible to the public for his recommendations on predator control. It is further our sentiment that use of government poisons on private land be abolished completely due to the current tendencies on the part of officials of the Bureau of Sport Fisheries and Wildlife to bow to the pressures of the ranchers and not remain within their lawful bounds.

Control programs of any type designed to eliminate so-called "reservoirs" should be abolished. The primary reason behind this recommendation is that it is apparent from our study as well as from the opinions of many ranchers within our study area that all coyotes or bear are not killers of domestic livestock. For this reason it appears fallacious to institute control on a broad basis simply in an attempt to destroy all local predators assuming them guilty before any evidence is rendered of their guilt.

This same reasoning leads us to suggest the abandonment of all broad spectrum poisons for the reason that in the majority of cases this poisoning is done during seasons when the sheep are not grazing on the meadows. For instance within our study area, the sheep were present only during the months of June, July, and August. However, were sodium fluoroacetate poison bait stations instituted, by law they must be placed out during the winter months. Consequently, there is absolutely no specificity of these poisons guaranteed to kill animals which caused trouble to the stockmen.

Many ranchers, both large and small operators, as well as a government trapper of our acquaintance concurred that despite high levels of control, predation loss levels each year appear to remain fairly constant. Many ranchers justify the use of poison not only to protect their stock but to protect other wildlife as well. Specifically in this category, they include deer and elk. These individuals state that there is a very high correlation between increasing predator densities and decreasing game populations even despite control measures. They feel quite strongly that increased control measures are therefore necessary to save the remaining game herds. There is little evidence to suggest that the predator populations, controlled or otherwise, are on the increase, despite contrary claims by many stock owners and sport hunters.<sup>1</sup>

It is interesting to note that many small ranchers as well as local inhabitants of our study area were of the general opinion that the primary cause of the decreased game populations were not due to depredations of predators, but rather to the use of broad spectrum poisons—such as sodium fluoroacetate, i.e. 1080, thallium and strychnine. Several of these individuals appeared to fear the consequences of poison run-off into their watersheds.

## EVALUATION OF THE USEFULNESS OF THE VARIOUS AVAILABLE CONTROL METHODS

*Thallium*

Government use of thallium has been illegal for several years. However, it appears that it is still in widespread use within many of the western states.

The general opinion of all individuals contacted throughout the course of the summer was that thallium is a highly detrimental poison whose purchase and use should be totally illegal. All of the people that we contacted were apparently incensed by the death of the eagles in Wyoming reported this summer. Regardless of their status, whether sheepmen, hunters, local residents, or government officials, they were united in the belief that thallium poison has no function on the western range. Each individual without exception felt that strong enforcement measures should be instituted in order to discontinue its use.

According to reports that we received from individuals in the Craig area, it is still possible to walk into the drugstore and purchase thallium over the counter.

Thallium is a slow acting metabolic poison which appears in sublethal doses to cause a wide variety of systemic effects. These include loss of teeth and body hair. Death after ingestion of this poison is generally prolonged, occurring in

<sup>1</sup> Tully, Robert. Colorado Department of Game Fish and Parks. Personal communication.

three to five days. It is apparently nonspecific in its action, and all mammals and birds appear to be subject to its effects. It is most often applied by injection into bait carcasses.

#### *Sodium fluoroacetate*

Also referred to as 1080, this poison is the main-staff of the government's predator control programs. It is an odorless, tasteless white crystal which in doses as low as 4 mg is highly lethal to canines of up to 60 lb. or more. Its manner of application is similar to that of thallium, and there are levels preset by law for its dose in any given bait animal.

The specificity of the action of this poison is at the present time a subject of great controversy. However, it appears to be a metabolic inhibitor which acts by interrupting the oxidative phosphorylation chain. Therefore theoretically, it should be toxic to all animals, although it is known that lethal doses vary a great deal between the bird and mammal orders, and interspecifically within them.

As previously stated, among large sheep ranchers, a very few cattlemen, in some circumstances land management agencies, and the Bureau of Sport Fisheries and Wildlife, there is widespread and continuing support for the use of this compound. These individuals and organizations are convinced that the compound is highly canine specific, has no secondary or tertiary poisoning effects, and may be used with a large degree of safety by humans. However, many small ranchers and local inhabitants were strongly against the use of this poison; not only because they were convinced that the poison was nonspecific and resulted in a decrease of all native predatory animals and birds within the area, but also they believed this poison to act in secondary and tertiary manners—that is to say that a given predator feeding upon a 1080 bait station wanders a distance, and after his death becomes a bait station himself. Sodium fluoroacetate apparently does not break down or at least its half life appears to be quite long. Therefore there is some evidence that this statement may be true. However, there is no reliable field data available on this point.

Our research group feels that the use of sodium fluoroacetate should be discontinued for the following reasons:

(1) To date there is no evidence as to the specificity and the secondary nature of its actions (although that it is clear that the poison is more toxic to canines than any other species).

(2) It does not seem to be in the realm of good wildlife management to utilize this poison without knowledge of its impact on all predator populations. There may indeed be a large element of risk to all native predators concomitant with the use of this poison. It is felt that much further AND in depth research is necessary before this poison should in any manner be applied at the levels that it is now in use.

(3) Irrespective of the specificity of sodium fluoroacetate interspecifically, it obviously has no specificity as to the coyote which feeds upon it. There is no way that a sodium fluoroacetate bait station may distinguish between a coyote which is a chronic livestock killer, one that is even responsible for a single kill, or one that is entirely innocent of molesting these grazing animals. This is particularly true in instances where sodium fluoroacetate control is applied during the winter on summer sheep ranges.

#### *Strychnine*

Strychnine is perhaps the oldest of the various predator poisons now in use. It is a poison that affects the nervous system of the animal, appears nonspecific toward the animal that ingests it, and is administered generally in the form of tallow drop baits. These drop baits are either jettisoned from aircraft, snowmobiles, or jeeps.

It appears to this research group that the very size of the tallow drop baits makes it liable to be picked up by any predatory or scavenging organism in the area. This may not in fact even be limited to predators; however, this is probably the general case. Certainly, the poison in these circumstances is nonspecific, and there is some evidence that scavenger birds may be the first to reach these baits.<sup>2</sup>

<sup>2</sup> Donald Balsler, Wildlife Research Division, Bureau of Sport Fisheries and Wildlife, reported difficulty in attempting to administer stilbesterol to predator populations through use of a tallow bait because a very high percentage of the baits were ingested by crows immediately after their administration.

### *Cyanide guns*

The cyanide gun or coyote-getter is a device consisting of a narrow pipe driven into the ground, capped by either a spring-loaded or explosive cartridge. Within this cartridge is contained a dose of cyanide powder and around its rim is placed a scent. The idea behind its use is that a predator will scent the meat odor upon the cap of the gun, pull the cap with his teeth, and henceforth inject the cyanide into his mouth. The poison is absorbed immediately through the mucosal membranes and death ensues within seconds. There is no secondary or tertiary action of cyanide poison when administered in this fashion.

The cyanide gun can be a valuable tool in predator control if used properly. The law provides that all cyanide guns must be carefully marked by conspicuous signs in their proximity. Assuming this precaution is carefully and meticulously adhered to and the guns are of the spring-loaded type, there appears to be little danger to humans in their use. Furthermore, if set during the course of a predator problem in the proximity of the sheep, there is reasonable cause to believe that the predator killed will be the one responsible for the sheep loss.

The cyanide guns do not appear to be species-specific; however, if set carefully and in much the same manner as one would set a steel trap for a coyote, one may well eliminate the probability of extirpating another nontarget organism.

Two further advantages of the use of this control measure are that: 1) the death is rapid and painless; and 2) it is possible to know when a predator has been killed. In the cases where poisons such as thallium, 1080, or strychnine are used, the animal may travel a good distance before it dies and the carcas may never be found; consequently, control measures may be continued in the belief that the predator is still at large. The cyanide gun leaves little doubt as to the fate of the animal.

The primary restrictions that we feel should be placed on the use of this device are:

(1) That it not be used in areas of public land frequented by the public or their domestic pets (in that there is some danger to children who are not capable of understanding the nature of the warning signs, and certainly dogs can not discriminate these objects).

(2) Their numbers be limited to sets appropriate to the size of the sheep band in question with the idea in mind that these guns are used to eliminate only the offending predator or predators. The current use of cyanide guns often involves long strings of these devices planted in a wide area and may in fact be responsible for the deaths of nontarget and innocent predators. By limiting the numbers, the probability of destroying a nontarget predator such as a mink, weasel, skunk, etc. are minimized, and the probability of destroying an innocent coyote is greatly reduced.

### *Steel Trapping*

The technique of steel trapping requires a good deal of time and skill on the part of the trapper. However, when used properly, it may be an extremely effective means of predator control.

Traps may be placed within and near runs and trails around where the sheep are being grazed, particularly on those trails where it is likely that the offending predator is entering. Provided that these traps are checked frequently, suffering of trapped animals may be minimized, and there is some possibility that accidental trapping victims may be released with a minimum of harm.

It is therefore the recommendation of this research team that steel trapping be used as a means of predator control. This does not only provide an opportunity for the Bureau of Sport Fisheries and Wildlife to maintain its already ample budget by increased manpower and training, but is perhaps the least controversial of methods currently available for use.

### *Sport Hunting of Coyotes*

Our experiences with *Canis latrans* proved to us that the coyote may be a largely neglected source of interesting and challenging sport hunting. It is doubtful that sport hunting would greatly affect the numbers of this predator in that they are intelligent, crafty, and quite difficult even to spot. However, it may provide a means to eliminate problem predators by posing the challenge to local sportsmen.

### CONCLUSIONS

Perhaps one of the most important findings to be derived from our research was a greater understanding of local attitudes toward predators and predator

control. The informal and unobtrusive manner (c.f. use of questionnaires, etc.) in which this information was gathered we feel lends greatly to its validity. Individuals unconcerned with the economics of sheep ranching, and those sheepmen whose use of public lands was minimal were either opposed or largely apathetic toward control of poison. A few, particularly cattlemen, were quite fond of coyotes and thankfully attribute control of ground squirrel populations to them; few if any strongly favored the use of poison. Large sheep operators were almost unanimously of the belief that poison is vital to their economic survival.

Our biological data suggests that widespread and high predator depredations do not in fact occur. In addition, predators that do kill stock should probably be termed miscreants, as their activities apparently constitute exceptions to "average" predator behavior.

However, in the instances where damage is being perpetrated on livestock, some control is justifiable. This control, particularly when implemented on public land, should be undertaken always with the concept firmly in mind that predators are public domain, and there are a large number of individuals in this country that do not wish to see them decimated.

#### PERSONNEL

The study was carried out by fifteen members of an interdisciplinary team comprised of:

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Barbara Divers, D.V.M.

Luann Arney, student of veterinary medicine.

Charles Lenkner, student of veterinary medicine.

Laurie Patla, graduate student in wildlife management.

John Luton, Bachelor in Forestry, graduate student in Biometry.

Martin Hable, Bachelor in Engineering, graduate student in wildlife management.

Ronald Phillips, graduate student in natural resources' economics.

Thomas Hadwin, undergraduate in biochemistry.

Peter Hochman and Susan Hampton, general labor.

#### I. INTRODUCTION

Scat analysis is a classic and proven method of approaching food habits analysis of wildlife. Hairs of the prey animal eaten pass through the digestive system of the predator without losing their basic characteristic structures. This fact makes possible the systematic identification of these hairs and thus the analysis itself.

The primary purpose of this analysis was to determine the frequency of occurrence of wool in coyote scats and thus allow some general inferences of the importance of domestic sheep in the diet of the coyote.

The secondary purpose was to develop possible correlations between the steady and/or fluctuating sizes of naturally occurring prey populations, and the corresponding levels of predatory pressure on domestic sheep.

#### II. METHODOLOGY

After discussing the project with a number of food habits specialists, (see Appendix II), it was decided that a very general food habits study of the coyote would be more than satisfactory for our purposes, considering the objectives of the study and the amount of resources and time available to \* \* \*.

Seven food classes for identification were set up for the study, the criterion for identification being primarily a readily studied and easily distinguishable component of hair structure, the medulla. The medulla is the central core of the hair, composed of loosely packed cuboidal cells and, for our study, it was the shape, number, and arrangement of these cells which served to easily distinguish the hairs of the different categories of animals with which we were concerned.

The seven categories, each with a brief description of their pertinent gross and medullary characteristics were as follows:

(1) Sheep: the wool is either all white or all black and extremely kinky while the medulla is obscurely defined and appears almost transparent.

(2) Rodentia (mice, squirrels, etc.): of the species we were concerned with, the medulla is composed of more than one parallel rows of cells, an arrangement known as compounding.

(3) Lagomorpha (hares and rabbits): the medulla is also compounded, but is easily distinguishable from those of Rodentia by a distinctive regular order to the compounding.

(4) Cervidae (deer and elk): the medulla is easily distinguished from those of the other classes by an isodiametric or honeycombed type of arrangement.

(5) Aves (all birds): the branching structure of the feathers easily distinguishes this class from others.

(6) Other: this included all mammals which could positively be identified as belonging to classes other than the above, such as all of the Carnivora (coyote, bobcat, weasels, etc.).

(7) Unidentified: this class included all hairs which could not be positively identified as belonging to any of the above classes.

These seven classes were considered most useful for our analysis for two reasons: first, for their relevant biological significance to coyote food habits as was determined from past studies, and, second, the facility of study and accuracy of results which could be obtained using the easily distinguishable medullary characteristics of these particular classes as the primary criterion for identification.

Other criteria which were considered useful for identification were used. When helpful gross characteristics of certain types of mammalian hair provided easy clues to the identity of its owner. For instance, wool is never banded and is very kinky, unlike the hair or underfur of any other animal relevant to the study. Small skulls, tooth structures, and bones, when positive identification was possible, also provided a useful criterion for identification when hair samples were insufficient in themselves. Whenever possible, though, the medullary characteristics of the hair were used for identification while gross characteristics of the hair and bone identification were used only to supplement or validate the analysis based on medullary characteristics.

The actual procedure of analysis was to first break the scat apart and select representative samples of all the different types of hair and bones which could be discerned, next to analyze the hair under a standard light microscope and to finally tabulate the data.

An easily workable and valid key for hair identification was constructed using information obtained from food habits specialists and from the available literature. Also, a reference slide collection was prepared using hair samples obtained from the local animal populations and from the extensive mammal hair collections of Colorado State University and the Wildlife Research Laboratories at the Federal Center in Denver.

To satisfactorily familiarize ourselves with the medullary characteristics of all species of animals relevant to the study and also check for discrepancies or exceptions that might occur with our prescribed study key, time was spent studying the slide collection of mammalian hair at the Wildlife Research Laboratories in Denver.

### III. RESULTS

Based on: 376 scats; 472 total hair type occurrences.

Type	Frequency of occurrence	Percent of scats found in	Percent of total occurrence
Rodent.....	121	121/376=32.2	121/472=25.6
Rabbit.....	136	36.2	28.8
Sheep.....	27	7.2	5.7
Deer.....	69	18.4	14.6
Bird.....	9	2.4	1.9
Other.....	73	19.4	15.5
Unidentifiable.....	37	9.8	7.9

### IV. DISCUSSION

Scats in the unidentifiable class were those which did not contain enough hair or bones for positive identification or in which the hair was too weathered to reasonably analyze. This class was further sub-divided into two categories, one being those hairs which could definitely be considered other than wool, but could be specified no further. The other had absolutely no identifying characteristics.

No available, reliable criteria existed to identify carrion. To have done so requires direct field observation of a carrion event, which was impractical in the heavily forested study area. Stomach analysis techniques require bait station trapping of the coyote. The coyotes of the study area involved could not be eliminated without destroying the dynamics of predation being studied. Sperry (6) reports that 25% of the annual diet is carrion. Sheep were included in the greater part of the carrion occurrences.

Due to the nature of the categories, misclassification has been considered highly improbable. After a first identification was made, utmost caution was used before dismissing the possibility of another animal's hair being present in the same scat. The majority of scats, however, contained only one set of hairs.

A minor problem encountered was that of excessive dirt on the hairs. This was alleviated either by the use of alcohol as the mounting medium or, if necessary, soaking the hairs in alcohol.

#### V. CONCLUSIONS

It would be inaccurate to infer that the frequency of occurrence in scats indicates precisely the frequency with which the animal whose fur is represented is utilized as a food source by the predator. It does set limits on what constitutes reasonable claims, in either direction. The information obtained in the analysis seems to better represent our observed predator loss figures, rather than some high claims of certain sheep ranchers.

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## A POSITION ON PREDATOR MANAGEMENT

(By Robert A. McCabe, Department of Wildlife Ecology, University of Wisconsin, Madison; and Edward L. Kozicky, Conservation Department, Winchester-Western Division Olin, East Alton, Ill.)

*Abstract.*—This paper recognizes the need to control predators in some cases and sets forth ways in which control can be exercised without greatly disrupting other organisms in the ecosystem concerned. Not all the suggestions of the Leopold Committee (Leopold 1964) have been put into practice. A limited assessment is made and a recommendation put forth that any committee (namely, the Leopold committee) be held active for an extended period after its report is submitted to evaluate the results of its proposals to the unit of government that charged the committee. Two predator control cases are examined: the sea lamprey (*Petromyzon marinus*) problem and the coyote (*Canis latrans*)—sheep problem. The basic responsibility of the federal government to engage in the killing of predators is challenged on the basis of a conflict of interest in resource management. We recommend that the U.S. government divest itself of the field operation in predator control and instead act as the agency that legally regulates and enforces all aspects of predator control methodology.

Man has become a worldwide and master predator, exploiting many animal resources and eliminating competing predators. His mastery is increasingly secure by virtue of his numbers, technology, and innovations in husbandry. His intolerance, however, towards other predatory animals—contesting them to the death—continues largely unabated. From childhood, man's legends, art, religion, and literature steep him too well in fear and enmity of the larger predatory species.

Only a minority of the people dares question man's uniquely punitive attitude toward those species of animals that may include some offending individuals.

We have hope, but little optimism, that mankind will discard irrational and emotional hostility toward predators and substitute a scientific position on their management. But to people other than biologists or ecologists, the word *predator* has long meant something malicious—the wicked preying upon the good.

We were engaged for 5 years as two members of a three-man editorial team for a subcommittee of the Agricultural Board for the National Academy of Science, in preparing a bulletin *Vertebrate Pests: Problems and Control* (McCabe 1970). The difficulties of the effort were many and varied and did not allow for the development of a position statement on predator control, and predator control comprises a major component of vertebrate control. What follows is an assessment and position statement on predator control that was, in the main, rejected by the Academy as being beyond the charge of the (sub) committee. However, five of the nine members of the subcommittee felt that an assessment and position statement on predator control was within the committee purview and necessary for perspective and an understanding of basic issues.

A position statement on any aspect of human endeavor must, among other qualifications, be objective and free from bias. In no other effort in the field of wildlife management are these criteria of greater importance than in the program of predator control. The history of predator control in the United States, up to and including the present, has not always been either objective or free from bias.

A predator is an animal that kills another and more often than not eats its prey. If the prey species is abundant and of no economic or recreational value, the public does not become excited except perhaps to regard the predator as a repugnant killer. Repugnant or not, a predator must kill in order to survive, a detail often overlooked by the layman who feels revulsion at the sight of blood and body parts.

To manage any animal group implies efforts to increase, decrease, or to hold stable the group in question. In the case of predators, the greatest emphasis is usually placed on reduction of numbers and only rarely on increasing or maintaining predator populations.

The role of this paper is to develop a position statement on predator management by assessing and bringing into perspective the data, events, agencies and organizations, and occasionally individuals involved in or concerned with the control of predators.

Many persons contributed directly and indirectly to the ideas presented here on the general subject of predator control. From each we learned something. In particular, the National Academy of Science Subcommittee on Vertebrates and Pests helped shape our thinking. J. J. Hickey, Marie S. McCabe, and John Madson helped with manuscript suggestions. We are grateful to all who offered opinions and advice regardless of whether they agreed or disagreed with our positions as presented.

#### PREDATION

Predation as a natural biological phenomenon is usually regarded by scientists and the informed public in two ways: the first reaction is philosophical and the second is practical.

##### PHILOSOPHICAL

The philosophical position is one in which there is no anthropomorphic issue of morality when one animal kills another, however gory the process. Indeed, the skills of the hunter in searching, finding, stalking, struggling, dispatching, and consuming are often biologically interesting and aesthetically awe-inspiring. This would hold for the stooping of the peregrine falcon (*Falco peregrinus*), the pack hunting of wolves (*Canis lupus*), or the race for survival between a Thomson's gazelle (*Gazelle thomsonii*) and a cheetah (*Acinonyx jubatus*). There are those who see beauty in these relationships imposed by evolution on the animals and the environments of which they are a part, even when such relationships place one animal in the role of predator and the other the prey. Education has, and hopefully it will continue to have, great impact in developing an inner satisfaction in seeing or just in knowing that there exist in our culture places where native animals can remain wild and free, and where, on occasion, they should rate a higher priority than the socioeconomic schemes of men. The philosophical approach appeals to man's ethical and aesthetic values. The values are no less real than bread and butter.

##### PRACTICAL

The practical or pragmatic reaction is essentially a "what will it do for me" attitude toward predator management and can be divided into three categories.

*Economics.*—Most emphasis must be placed on the economics-oriented concern since it is most widespread (essentially in the western U.S.), publicized, costly, and politically conscious. There are numerous small-scale predator problems east of the Mississippi, the majority of which can be solved by individual effort and that require, for example, no broad-gauge program of trapping or poisoning. In the West, however, particularly in the areas where sheep are grazed, coyotes become the major predator. Although there are predator problems in agriculture and cattle raising, and animal depredation in horticulture and forestry, the confrontation of sheep and coyotes dwarfs all others.

*Recreation.*—Man, the consummate predator, is covetous of all other creatures that impinge on his predatory prerogative. Thus, even though his predatory instincts are often recreational, as in fishing and hunting, he protects his potential prey by efforts to eliminate competition from other predators. The extensive kill of predators, raptors, and fish-eating birds in particular (at game farms and fish hatcheries, for example), has on occasion been shameful in both method and

magnitude. Deer, waterfowl, and upland game birds have also been protected at times by programs designed to eliminate predation by nonhuman predatory competitors. The benefits from such protection are limited, if not doubtful.

*Welfare.*—Vertebrate predation with regard to human health and safety (welfare) is indirect but obviously real. Two prime examples concern animals that are potential vectors during rabies epidemics and birds that endanger aircraft. Efforts to control the former are of questionable value, and control of the latter is under investigation in both the United States and Canada.

#### ENDANGERED SPECIES

There are a number of endangered species of predators, some of which are recognized as endangered by the Bureau of Sport Fisheries and Wildlife (BSFW). When predator-control operations fail to be selective, the endangered species are in even greater jeopardy. The Director of the BSFW, in assessing such a situation, replied before a Congressional hearing (U.S. House of Representatives 1966:48) that "our program therefore is designed so that it will recognize our responsibility to help out the rancher who needs the help, but also to guarantee the American public that these forms [large predators] of wildlife will continue to exist." However, he also stated in the same report (p. 48) that "with respect to predator animals, we would only have them [population estimates] really for an animal like the black bear or the grizzly. We do not have at this time a good population estimate for coyotes, for example. For the other predators, the mountain lion [*Felis concolor*], I think this would be subject to a great deal of guesswork, also."

Wolves, and the red wolf (*Canis niger*) in particular, doubtless also fall into this class. One wonders, since there are no population censuses or usable estimates, and in the presence of a predator-control program, whether even the BSFW can or should be responsible for "guaranteeing that large predators will continue to exist."

#### CONTROL DECISION

The initial decision to invoke control is a legal matter, and even here, responsibility for such decisions is not clear. Nonmigratory predators are under the jurisdiction of the individual states. Migratory predators (for example, eagles) are the responsibility of the federal government, as are all predators on lands held by the government. The efforts of the federal government do not stop here. The cadre of specialists—members of the former Branch of Predator and Rodent Control and now the Division of Wildlife Services (within the Bureau of Sport Fisheries and Wildlife)—who trap and poison are available to private landowners who may request assistance. Demands on the Bureau range from control of rodents, birds, skunks, foxes, mountain lions, bobcats (*Lynx rufus*), and coyotes to *wolves*, often overlapping the authority and responsibility of other federal and state agencies. The result has been that existing organizations and programs for controlling vertebrate animals were complicated almost beyond belief. The aggregate control, spearheaded by the Division of Wildlife Services (DWS), has been unwarranted overcontrol of predators (Leopold 1964) and of the large carnivores in particular.

#### THE LEOPOLD REPORT

Because of the overcontrol and other shortcomings, the government found itself in the eye of the storm. In 1963, Secretary of the Interior Stuart Udall asked his Advisory Board on Wildlife Management to address itself to "predator and rodent control in the United States." The end result of the efforts of the Advisory Board was the Leopold Report (Leopold 1964).

#### *Two Tenets*

Two basic tenets were adopted by the Leopold Committee (Leopold 1964:29) as the basis for its recommendations:

"(1) All native animals are resources of inherent interest and value to the people of the United States. Basic government policy therefore should be one of husbandry of all forms of wildlife.

"(2) At the same time, local population control is an essential part of a management policy, where a species is causing significant damage to other resources or crops, or where it endangers human health or safety. Control should be limited strictly to the troublesome species, preferably to the troublesome in-

dividuals, and in any event to the localities where substantial damage or danger exists."

The Leopold Committee (Leopold 1964:29) was unanimous in the opinion that (predator and rodent) "control as actually practiced today is considerably in excess of the amount that can be justified in terms of the total public interest." This is one of the most significant statements in the entire report, because it focuses attention on the reasons for the excess, the methodology resulting in excess, the biosocial meaning of excessive control, and the responsibility for guiding a program of excessive control.

#### *Demonstrated Need*

As a prime antidote to this untenable situation, the Leopold Committee (Leopold 1964:44) recommended, and the DWS accepted (Berryman 1966), the provision that there be a "clearly demonstrated need" for control before the DWS would participate.

Ideally, this is an excellent criterion for governmental participation when any private enterprise is in trouble and deserves help. In this case, we feel that such a criterion is virtually impossible to achieve because of the sheer subjective nature of the judgment required. Demonstrated need also assumes that judgments can be made rapidly, as they often must be if remedial or prophylactic measures are to be effective.

On February 2, 1966, the Director of the BSWF said (U.S. House of Representatives 1966:47), in answer to a query as to what demonstrated need for control would be, "But, to come now to these considerations which we face most commonly, and which involve the relationship of predators to agriculture, here the demonstrated need is basically related to the characteristics of a coyote or a group of coyotes which have shown a predilection for preying upon a particular rancher's sheep flock or calf crop.

"If he is being bothered regularly, and with obvious losses to the extent that, in the judgment of our man on the ground, our supervisor, it requires some assistance, then we would consider this a demonstrated need.

"Now, we have not as of yet, and remember that we are still in the growing pain period of this whole program, come up with any quantified estimates of a demonstrated need. It is a very difficult, involved question, but it is one that we recognize has to be solved ultimately, if we are to put this whole program on the plane of responsibility which we believe it deserves."

We agree completely that the question is involved and difficult, and we agree also that quantified estimates of a demonstrated need are required to put the control program on a plane of responsibility that it deserves. However, in 1968 (and 1969), 5 years after the Leopold Report was submitted, we looked in vain for any objective criteria that would produce the sought-after quantification.

In lieu, therefore, of any objective standards, the predator control "man on the ground" was and, as far as we know, still is rendering judgment on demonstrated need. These supervisors, many of whom were old PARC men and whose earlier activities of overcontrol prompted the Leopold investigation, are now asked to be objective in assessing the *bother* that coyotes create.

#### *Major Recommendations*

The Report went on to condemn and also approve parts of the government's activities in control. Also discussed were the damage caused by predators; the use of the very lethal poison 1080 (sodium monofluoroacetate), particularly secondary poisoning; rabies outbreaks; rodent and bird depredation and control, particularly the role of the golden eagle (*Aquila chrysaetos*) in sheep; and research on control methods.

From deliberations on these and associated aspects of the problem came four pertinent recommendations:

1. The appointment of a predator and rodent control board advisory to the Secretary of the Interior.
2. Improvements in predator and rodent control operations: (a) explicit criteria to guide control decisions, (b) continued cooperative programs to be maintained with other agencies, (c) proof of control need (documentation), (d) extension trapper programs replacing bounty schemes, and (e) flying squads of control agents to be maintained to cope with rabies outbreaks (in the eastern United States).
3. Greatly amplified research program for specific controls and nonlethal control devices.
4. Legal controls to regulate the use of poisons in control operations and to prevent shipment of such poisons to foreign countries lacking adequate controls.

The Report (Leopold 1964:47) concluded with the notation that control programs should be guided by real need and scientific management.

It is not our purpose to analyze the Report, but an obvious obstacle to workability will be how to prove *real need* by those seeking federal assistance in the field. There are as yet no published guidelines to eliminate or minimize subjective judgment and its attendant biases—another omission in the scientific approach to predator management. The Secretary of the Interior himself tended to limit the impact of the recommendations by referring to the Leopold Report as a "general guidepost for Department policy." The Report might well have been a *policy mandate!*

It would be foolhardy for the public, or even for militant conservationists, to expect *guidepost suggestions* to alter promptly the programs of an entrenched agency with personnel many of whom have limited scientific training. A central administration can make abrupt shifts, but, at the field level, the current of public tradition and operational habit allow for no such rapid response (Hill 1966:105).

After almost 7 years of the *new look* in federal predator and rodent control, there was both criticism (Etter 1966) and progress (Gottschalk 1967). An advisory board (the Leopold Committee) can set the stage for efficient operation, but unless there is built into the program a system of feedback to test the implementation of the recommendations and to make improving alterations private watchdog organizations serve as the only evaluators. There is both merit and discord in such an arrangement: when government abrogates responsibility for program-evaluation to outside sources, it leaves itself vulnerable to public criticism.

#### HOLDING AN ADVISORY COMMITTEE

A far better use of an advisory committee, particularly to an agency responsible for animal control, would be to hold the members ready to evaluate and adjust committee recommendations, once field results are obtained in response to the recommendations. In some cases, advisory committees move from one problem to another without having an opportunity to check the functioning of recommended action on any problem.

If there is no vehicle for feedback, the public—through militant groups—will react strongly, sometimes with bias, and virtually always with emotion. This is not to say that such reactions are without merit.

A case in point is the use of poison bait (1080) stations in the western United States. The Leopold Report (Leopold 1964:35) recommended one such station per township as reasonable and adequate for coyote control. Etter (1968 and personal communication) presents a situation in northwestern Colorado that flaunts the recommendation by using from 1 to 15 stations per township.

In a circumstance such as this, the major field problems should be returned to the Advisory Committee itself for reassessment and alternative action. In this manner, the chief administrator could obtain maximum benefit from the board of specialists best able to appraise the entire problem. Committees that recommend and then are dissolved find it difficult to determine whether or not their guidance is adequate.

Again, we find a lack of follow-through on the first recommendation of the Leopold Committee. This recommendation is one of the steps within the scientific approach to predator management—the appointment of an Advisory Committee (to the Secretary of the Interior) on Predator Control. Such a committee could establish protocol for control measures and program responsibility, and provide for a feedback to the committee so that the control program could be modified or otherwise implemented.

#### PREPARING FOR THE FIELD PROGRAM

The nature of control programs makes the determination proper field action difficult. In some cases, for example, when a favorable report on demonstrated need is received, the control required may be drastic and immediate in order to be effective. To what extent will alleged urgency play in decision making? Some problems can be averted, minimized, or eliminated by a carefully worked out long-range program in predator management. Will such protracted programs be accepted by those who press for immediate removal? Control methodology will undoubtedly differ from situation to situation; thus, not only will skill be required to say *if* a predatory situation deserves action, but also to say *how*, and what kind of action is needed.

There are specific requirements that we feel should be part of any predator management project:

1. Define the predator problem and demonstrate the need for control, objectively and fully. Although an obvious and logical first step, the problems and needs are seldom well defined.

2. Identify the predator and prey species conclusively. Too often a predator is only suspected.

3. Identify other species and conditions contributing to the predator problem.

4. Know the salient aspects of the predator's life history and evaluate its strengths and weaknesses.

5. Investigate, where control is necessary, all possible direct and indirect controls as well as any practical alternatives to control.

6. Employ only those controls that are specific for, or can be applied selectively to, the target predator. All possible precautions must be considered to avoid or minimize hazards to other fauna and flora and contamination or alteration of waters and soils.

7. Submit to the proper authority, for review and decisions, a full report on major predator problems, including a protocol for program responsibility and control measures. For example, the U.S. Government now has a Federal Committee on Pest Control whose charter provides that the Committee will review control programs for invertebrate, vertebrate, and plant pests from the standpoint of effectiveness, economic impact, and of hazards to human health, to livestock and crops, to fish and wildlife, and other elements of the environment. Based on its review, the Committee recommends to the heads of departments or agencies any necessary modifications that best serve the public interest.

8. Explore fully the question of funding for the entire program to make certain that the action taken is equitable, effective, and in keeping with sound conservation, if a decision for control is made by a review group.

9. Organize and exercise a system of feedback through reports and through conferences among the control group, the responsible agency, and the review committee so that the control program can be modified or otherwise implemented to accomplish its purpose promptly, safely, and economically.

Few of the predator control programs have included most of the steps listed above. Many predator-control operations in the past, for example, have seriously violated the basic steps: the problems were not objectively defined; the predators were not positively identified with the problem; nonspecific or inappropriate toxicants were applied, some resulting in contamination of the environment; operational plans were not referred to competent authority for review and decisions; or inadequate funding compromised success.

#### TWO PREDATOR-CONTROL PROGRAMS

Two classic problems in vertebrate pest control illustrate some of the credit and debit aspects of the national effort.

##### *The Sea Lamprey Problem*

The sea lamprey in the Great Lakes is a fine example of a recent, large-scale predator problem, and the evolution of a control program for lampreys—in accordance with a basic scientific approach—deserves some discussion here.

The collapse of the lake trout (*Salvelinus namaycush*) populations in Lakes Huron and Michigan in the late 1940's and early 1950's was viewed with alarm by biologists, fishermen, legislators, and the public. There was no unanimity within or among the groups on the cause of the lake trout's disappearance.

Investigations by state and federal conservation agencies from 1948 on positively identified the predator. Concurrent and basic studies on the sea lamprey proved that it was capable of and indeed was preying heavily on lake trout (Applegate 1950, Lennon 1954, Parker and Lennon 1956). The lake trout at first bore the brunt of the lamprey predation because of their favorable size, and their preferred habitat within the lakes coincided with that of the lampreys. Also, as later studies showed, the odor of lake trout is especially attractive to sea lampreys (Kleerekoper 1969:140).

Once the highly vulnerable lake trout had disappeared, lamprey predation was extended to the larger species of food and games fishes in Lakes Huron, Michigan, and Superior, causing severe economic losses.

After identifying the predator species and unraveling its life history, how does one cope with the predation problem in a situation encompassing thousands of square miles of international waters, thousands of miles of coastline, hundreds of spawning streams, one province and eight states, and two federal governments? The Great Lakes Fishery Commission was formed, staffed, and funded

as the ultimate biopolitical instrument for assessing and correcting the predator problem.

This Commission was established by the United States and Canada in 1955 after about 7 years of deliberation among provincial, state, and federal governments. Funded through the Departments of State of the two nations on a pro rata basis, the Commission has two major responsibilities: to develop coordinated programs of research in the Great Lakes to support maximum sustained productivity of fish stocks, and to formulate and implement a program to eradicate or minimize sea lamprey populations in the Great Lakes.

The Commission has been capable, aggressive, and prestigious. It immediately concerned itself with lamprey control and awarded contracts for research, in the United States and Canada, which contributed to the development of a selective lampricide (TFM=3-trifluoromethyl-4-nitrophenol). The toxicant is effective in killing lamprey larvae of all year-classes, 0 through 7+ years, residing in the bottom materials of spawning streams (Baldwin 1968). The Commission also supported the application of AC-DC electrified weirs at the mouths of streams for capture of lampreys moving upstream to spawn.

The initial large-scale applications of chemical and electrical controls were devoted to Lake Superior, with excellent results in keeping with a scientifically based timetable. Control programs began several years later on Lake Michigan and more recently on Lake Huron. As lampreys were reduced in Lakes Superior and Michigan, long-term efforts to restore lake trout, brown trout (*Salmo trutta*), and rainbow trout (*S. gairdnerii*) (steelheads) and to establish coho salmon (*Oncorhynchus tshawytscha*) and chinook salmon (*Oncorhynchus tshawytscha*) and chinook salmon (*O. kisutch*) were started. The response of the stocked salmonids has been spectacular—up to a point. The sport fisheries are thriving and are worth millions of dollars to the State. However, the objective of restoring naturally propagating populations of lake trout is not being achieved, because residual populations of lampreys are preying heavily on the fish before they become sexually mature at 6 or 7 years of age. And the Commission now has inadequate funds to locate and control these residual populations. Thus, the predator problem persists, at a lower but still dangerous level, threatening fish restoration and the valuable sport fisheries, and postponing resumption of commercial fisheries.

There are lessons in predator control to be learned from the sea lamprey program. Predator-prey relationships and control measures were investigated by state, provincial, and federal conservation agencies with an exemplary degree of cooperation and coordination. An international commission was established by two nations to further the research and manage the control of the predator. However, despite a scientific approach by the competent biopolitical commission, the all-important funds come from legislative bodies—and legislators today are subject to frequent pleas for research monies for many other long-term and expensive biological problems. We must recognize that competition for legislative attention and support is keen and that the best of scientific timetables may relate poorly with annual funding processes.

Hence, as outlined earlier, the problem of an inadequate budget for a sufficient number of years could prevent the lamprey control program from being a success. Let us hope that this outstanding predator-control program will not be thwarted by a lack of funds at the 11th hour.

#### *The Coyote-Sheep Problem*

No predator-control problem has attracted more attention, churned up more human emotions, aroused more political furor, and demanded more unwarranted expenditures than the one involving the predators that prey on livestock (cattle, horses, sheep, swine, and poultry).

When all the polite considerations are stripped from the controversy of livestock depredation, there remains the classic confrontation of the coyote as the predator and the sheep as the prey. All socioeconomic conflicts of other species scale down from this end of the predator-prey spectrum. The biology, sociology, economics, and legislation of predator control are at once magnified and exemplified in an unresolved impasse.

To assess this chronic difficulty, the following facts and positions (McCabe 1970) must be understood and placed in proper perspective:

1. In some cases, the cost of predator control for sheep exceeds the on-the-hoof value of the livestock killed by predators (Leopold 1964). It could be argued that had no control been exerted, the losses would have been great. Until data on this aspect are available, no assessment can be made.

2. The federal government subsidizes the sheep industry by predator control; by allowing sheep and goats to graze on public lands; through tariffs on wool, woolsens, and on lamb and mutton; and by incentive payments to wool producers.

3. Sheep raising is of two kinds: as an animal crop in diversified farming (usually in the eastern half of the country) or as free-ranging sheep as single-crop ranching (in the western United States). It is the rancher who requests predator control.

4. Claims of losses caused by predators (including losses from eagles) cannot be accurately determined, in most cases. Those that have been verified are usually far fewer than claimed by stockmen (U.S. Senate 1962).

5. Not all coyotes (or eagles) take sheep. Coyotes scavenge on carcasses of sheep dead or dying from numerous natural causes.

6. The use of herders and lambing sheds is apparently too expensive for most sheep raisers, but losses could be cut considerably by this change in husbandry.

7. Methods of predator control are at times excessive and nonspecific, and they are leveled against species that are part of a national natural resource complex.

8. Most lethal poisons are available to the nonprofessional to use as he may in predator control.

9. The National Wool Growers Association is the most active agency promoting the use of federal funds for predator killing; the Defenders of Wildlife and the National Audubon Society are the mainstays in protecting target and non-target species from excessive predator control.

10. In 1965, it cost the government and cooperative agencies \$5,614,806 for the predator-control program alone. In the same year, 90,236 coyotes were killed, along with other predators taken accidentally or purposefully in the process. How many of the coyotes taken were nonsheep predators is unknown.

From this potpourri of difficult-to-obtain facts, grows a battery of charges and countercharges, one group seeking financial aid to kill flesh-eaters in the name of local economy and the other seeking protection for the predators under the banner of national conservation.

There has been limited scientific approach to predator management within the sheep-coyote controversy, and certainly the approach has not been commensurate with the magnitude of the problem. All possible direct and indirect controls have not been considered. And although control efforts have been substantial, they have not always been specific, for applied selectively to, target predators.

A basic scientific premise for the control of predators (or any animal) on the broad front where they conflict with human endeavor is not easy to formulate, and even the best premise will meet with objections and have obvious omissions. Nonetheless, any control measure—physical, chemical, or biological—must be specific for the animal or animals involved, not be detrimental to other organisms in the biota, including man, and be morally and socially acceptable to the scientists who must plan or guide the control effort.

#### RECOMMENDATIONS AND CONCLUSIONS

Our experiences in attempting to develop a scientific approach to predator control can be summarized as follows:

The Leopold Committee assessed the predator control program on a broad front and ultimately concentrated its investigations on the endeavors of the federal government, in particular the Predator and Rodent Control section of the BSWF. The Committee Report (Leopold 1964:29) stated that all animals have inherent interest and values to U.S. citizenry, and because local control may be required, "The issue is how to sharpen the tools of control so that they hew only where cuts are fully justified." Within the limits of such a purview, the excellent Leopold Report resulted.

A far more fundamental question was avoided, namely: *Should the BSWF be responsible for the actual control of predatory animals (other than on federal lands)?* In our considered judgment, it should not. This charge is outdated and should be removed. A phasing-out program would eliminate the need for a service staff in the field, whose activities were the cause of some public indignation and considerable administrative concern that promoted the need for professional investigation (namely, the Leopold Report).

In short, the federal government should divest itself of predator-control activity and put a professional staff and budget into monitoring and enforcing control programs undertaken by private business interests. Governmental concern would be exercised in stringent supervision over methods and materials. The need to

develop both program and field operation under federal law must then fall to the private sector. In such a situation, the government would have control but would not itself participate in the day-to-day work program. To be sure, this kind of a shift in organization, attitude, and legal responsibility may be difficult to achieve, but not so difficult that natural resources should suffer by a defaulting.

Nematodes and rootworms attack plant field crops, but no one expects the government to employ, at the expense of all, men and equipment to help the farmer in this battle; yet his monetary losses are just as real as those of sheepmen and others claiming losses from predation.

Regardless of what is ultimately done in assigning predator-control responsibility, federal programs must be divorced from private interests and financial participation. When overall costs of predator control are about 60 percent contributed by nonfederal sources, it is unrealistic to assume that private interests would not have precedence over national interests. This is the very impression one gets from reading the Hearings on Predatory Mammals (U.S. House of Representatives 1966).

Instead of putting federal funds and personnel on the programs of wild animal destruction, such monies might be used to help subsidize programs of domestic animal husbandry (for example, proper lambing conditions to reduce or eliminate predation) that would lessen or even abolish the need to remove predators by poisoning or trapping.

When the cost of government protection exceeds the losses of privately owned livestock (Leopold 1964:33), it seems to us that an insurance program of some kind to protect the livestock rancher is in order even if the government itself must act in lieu of private enterprise. Of particular concern are bona fide predations by rare or endangered species. Here government payment of loss protects the private owners of the prey and the public as owners of an endangered resource.

In Department of Interior programs, where committees or advisory boards made up of professional personnel make policy or administrative recommendations, a built-in feedback system should be used. The advisory body would be held intact and functional during the initial period of implementation of its recommendations. Such a system would allow for a testing period in the field so that at least one readjustment could be made in those recommendations that prove to be untenable, not feasible, or inadequate. Had such a feedback system been employed, the resurgence of the predator controversy might have been eliminated, and the call for a congressional hearing, only 2 years after the Leopold Report, in all probability would have been unnecessary.

Any control measure, however and by whomever administered, must be justified and the methods or materials, or both, made specific to the offending animal (or animals). The control must in no way be harmful to nontarget species and the environment, including man, and it should be in keeping with the basic principles of conservation. In addition, control must be guided by ethical and aesthetic considerations as well as by economic values; and at all times by a rationale supported by scientific data.

Delay is the enemy of any report, and our contribution for the Academy bulletin and this paper have suffered from delay. Changes of program, attitude, or policy affecting the various aspects of predator control may have occurred since the writing of this paper for the Midwest Wildlife Predator Control Symposium in 1969. The passive erosion occasioned by delay does not, however, affect the basic tenets of this report. All published reports are history. We apologize for any gross omissions.

#### IN RETROSPECT

Premeditated control of animals is a prerogative that only man can exercise. He must do so for his health, economy, comfort, and recreation. In a period when the technology of the Atomic Age has overrun its ability to provide adequate safeguards against its own *too much*, we must reconcile the conflict between man and other vertebrates. Here, too, technology has provided control methods without adequate safeguards for non pest species, and in some cases for man himself. In such situations, we are required to make value judgments on the confrontations with other vertebrate coinhabitants of world environments.

Judgments of this kind are not rendered swift and easy by obvious cause-and-effect relationships. Many man-animal interactions are multifaceted in cause, effect, and ultimate solution. Problems are often ill-defined ecologically, legally, and socially. To understand the difficulty of effecting ecologically sound relief from pest situations, one needs only to be aware of the roles that habit and tradition

play in moderating and altering the effectiveness of scientific developments. Extrapolation from one geographic, cultural, or political area to another in control methodology is a value judgment in itself.

It would be naive in the extreme to assume that western stockmen have no predator problems. Our position debates current programs and questions the role of the involvement of the federal government. And our concern is for the predators as a natural resource that should be managed, adjusted for, protected when threatened with extinction, as well as controlled, when the case is justified.

We in the United States are well endowed with diverse talents to appraise our pest problems from the viewpoint of many disciplines. In addition, our technological society can make available the sophisticated methodology needed to cope with most predator situations.

Our basic requirement for compatible control of animals is to give order and system to what we know and have, so that safety and efficiency can be achieved in the process. Long-range benefits and safeguards must take precedence over the immediate and expedient treatment of animals in pest situations.

Modern civilized man assumes that his hypersensitivity to pest situations will always be resolved in his favor through technology, laws, or force. It is a false assumption. More and more, as the usable space for livelihood decreases through population growth, we will be required to live with our self-imposed pest situations. To do otherwise may be impossible, for there will be few acceptable alternatives.

Man is also the only animal with the capacity to exercise restraint through judgment, but this capacity will avail him nothing unless he understands and believes that all things wild and free have a place in the natural order. Control is a responsibility that denies this integrity for some animals at some times and places.

If man takes this responsibility lightly, he may alter the natural order and indirectly threaten his own place in the unnatural order thus created.

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PREDATOR ECOLOGY AND MANAGEMENT—WHAT NOW?

(By Maurice G. Hornocker, Idaho Cooperative Wildlife Research Unit, University of Idaho, Moscow)

*Abstract.*—Research is needed regarding not only the ecology and biology of predatory species but sociological and economic problems as well. Few comparisons of exploited and unexploited predator populations have been made, and no appraisal of the effectiveness of long-term killing has ever been carried out. Current control programs concern all wildlife managers. The major problem with implementing soundly based control programs lies with the field men. The answer suggested for this problem is to professionalize control agencies at all personnel levels. Public education, at it relates to predator control, has been inadequate and should be improved. Predator management and not traditional control should be stressed.

In this meeting, several outstanding people in the country presented reports on predator ecology and management. There is little I can add, and that is not my job. I will attempt to draw together some important points and focus attention on the future efforts obviously suggested by this symposium. In other words, "What now?"

But first, I think it is significant that this meeting was held. Its importance is obvious, but without the efforts of the program committee and many others in the North Central Chapter of The Wildlife Society the meeting would never have been held.

Webster defines predator as "one who or that which is predatory." Predatory means "of, pertaining to, or characterized by plundering; given to plundering or robbing." I have also heard predator defined as "any critter that gets something you wanted before you do." The definition offered by Berryman (1972) fits the wildlife manager's purpose. Whatever the definition, attitudes toward many predatory animals are changing. As the Leopold Report (Leopold 1964) pointed out, times and social values change—a more sophisticated, urbanized society places a higher value on all species of wildlife than did early civilization.

In some sections of the country, however, particularly the West, many people still view predatory animals as vermin. Hence, the controversy concerning predators is fraught with emotionalism on both sides. The emotionalism has not been limited to lay persons—professionals, for various reasons, often have chosen sides on the basis of feelings alone. I hope that conferences such as this one can place the professionals, at least, on common ground and that the problem can be approached in an objective scientific manner.

So what do we do now? First, we need more research. There has never been an objective appraisal of the effects of long-term killing on predator populations, in spite of the fact that millions of dollars have been spent. The assumption has been, and is, that the killing of predators is necessary and good, and few have questioned it. There has never been an objective study made of unexploited populations of coyotes (*Canis latrans*), the major predatory species from an economic standpoint, to determine what self-regulatory mechanisms operate and how these can be utilized in control. I cannot agree with Berryman (1972) that we have better scientific knowledge and data than we can apply because of social and political pressures. What we do have are improved means and methods of killing animals, and this is partly responsible for social pressures brought against many control programs. The public response to the recent NBC documentary, *The Wolf Men*, which showed aerial gunning of wolves, is proof of this.

We need to know more of the biology and ecology of predatory species. We need to know more about self-regulating mechanisms and how they can be used to advantage. We need to study and compare, simultaneously, exploited and unexploited populations. We need to recognize the genetic differences, as Pimentel (1968) has urged, between populations of predators and prey that have evolved together and those that have not. We need to appraise the long-range effects or intensive control practices on populations of both predator and prey. We need objective assessments of the socioeconomics of predator management. We need research on alternatives to direct killing, or reduction control, which has been,

and is, the chief management tool. I could go on, but I am repeating what has been said. I believe the application of species biology, as suggested by Knowlton (1972), is the key to future predator management. But first, we must *know* species biology.

The problem of control is of immediate concern. As game managers, we recognize predator control as a useful tool in certain situations and with certain species. Large-size prophylactic control, however, as practiced in much of the West, is a different problem. This kind of control has largely been reduction control, governed by economic considerations alone. The efforts of the Bureau of Sport Fisheries and Wildlife to implement the Leopold Report are admirable and are reflected in Berryman's (1972) statement that social and aesthetic values must be taken into account, along with economic considerations, in the total appraisal of resource worth. This contrasts rather sharply with Presnall's (1949:589) remarks 20 years ago at the 14th North American Wildlife Conference that "By and large, however, rodent and predator control policy should be based upon economics to a greater extent than on esthetics. . ."

In actual practice, and this is where it really counts, Presnall's views of 20 years ago are often followed today. All one has to do to confirm this is to spend a few hours with a western field agent. It has been and it will be extremely difficult to change existing practices. Why is this? There are several reasons, some simple, some quite complex, but all interrelated. Tradition is one, plus a strong sense of the pioneering spirit. Another is, as the Leopold Report pointed out, that local cooperating agencies have the major voice in determining where, when, and how much animal control is undertaken. Traditionally, control people have had rapport with local segments of society—they are providing an obvious service. Management and research personnel find it much more difficult to establish this rapport, particularly when predatory animals are involved. Often, the programs of management and research personnel are at odds with long-established practices; tangible evidence or results of these programs often are slow to come and sometimes are never evident to lay persons. Control personnel naturally are reluctant to give up their position in local society and to assume an unfavorable role, particularly when most of them fervently believe in the program they are pursuing. But this is exactly what must be done if control programs are ever to be scientifically and, in the near future, culturally acceptable.

A strong argument for control programs administered by professionals is that control efforts are much better off in the hands of professionals than in the hands of individual stockmen and landowners. But to function professionally, control operations must be more rigidly governed by the professionals in charge and not by the local cooperators.

Another problem at the local level is the two-headed approach. It is impossible to gain the support of local citizenry for any new program when agencies publicly propose differing programs. This is particularly true when divisions within the same agency offer conflicting programs. There are numerous examples of this.

What are acceptable alternatives to reduction control? Kalmbach (1948) made a plea for "avoidance and prevention" and cited improved sanitation and rat-proofing as effective means of dealing with rats. He suggested coyote-proof fencing, better herding practices, and decreased livestock pressure on overused ranges, which results in rehabilitation regardless of rodents present. The Leopold Report (Leopold 1964) suggested similar courses of action. Berryman (1972) suggested predator insurance as an alternative. Other methods might include direct payment for damage, encouragement of sport hunting for certain species, and, when our data and knowledge permit, no control at all.

In summarizing my thoughts on the problem of control, I offer some suggestions for change that I believe are realistic.

1. Increase research effort on problems I have outlined. Along with this, we need to examine closely the premise upon which current control practices are based.

2. Professionalize control agencies at all personnel levels. It does little good to espouse policy change within an agency if personnel at the ground level have no appreciation for the need for change and in fact, because of their background and experience, cannot change. The philosophy, if you will, of the field agent is all-important; the success of a predator management program depends in large part on the professional training of the individual field agent.

3. Reduce, and in some cases discontinue, the use of indiscriminate control methods, such as toxicants. The implementation of this goes hand in glove with research and, when control is necessary, with increased use of selective control methods.

4. Emphasize predator *management* as opposed to control in a traditional sense. Society's changing attitude toward the predatory species makes it imperative that we manage all wildlife, not just a few species.

These are all interrelated. If they were implemented, I believe they would alleviate many problems, both current and in the future.

This brings me to my last point—public education. We have not done our homework here. Schoenfeld (1968:225–226), writing on environmental pollution, has some thoughts that are applicable to wildlife management: "Why do we continue to have serious trouble translating federal intentions and state plans into timely, sound action on the land? One answer would certainly seem to be that it is only at the local and regional level that public policies can be translated into public and private practices, and it is here at the intrastate level where the forces of wise resource management continue to be ill-equipped to deal with the forces of exploitation. . . . While we do not yet understand all the scientific facts and social values attendant to environmental quality control, what we do know is not being applied on a scale commensurate with the present pace of environmental pollution. At the local and regional level, where most of the decisions affecting the quality of the environment are made, we must address ourselves more firmly to laying a basis for wise action by elucidating the choices in land and water use, relating them to general values and social objectives, instilling in people a desire for constructive change, and providing practical guidelines that encompass integrated rather than unilateral approaches."

If we can accomplish this on the local level, then most of our predator management programs will be judged on their merits, and not on emotionalism or traditional lines of thinking. But first, we have to find common professional ground.

Finally, I submit a question or two. We have, as McCabe and Kozicky (1972) pointed out, a definite moral responsibility to all wildlife. As society's values change, we must come to grips with that responsibility. Just what are man's (society's) responsibilities specifically where wildlife control is involved? Should we subsidize the citizen beset with coyote damage and ignore thousands of citizens oppressed by rats? Should we help, with public funds and manpower, the feedlot operator burdened by starling depredation but turn away the pleas for help from the florist suffering equally heavy economic losses to insects? These are extreme cases, but decisions on problems similar to these will have to be made. How we make them will determine our role as professional managers in the future. Symposiums such as this should help.

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## THE PRINCIPLES OF PREDATOR CONTROL

(By Jack H. Berryman, Division of Wildlife Services, Bureau of Sport Fisheries and Wildlife, Washington, D.C.)

*Abstract.*—Predator control or management cuts across the field of wildlife ecology and management; decisions for control are inseparable from other resource plans and decisions. Carnivores, omnivores, herbivores, and scavengers sometimes develop predatory tendencies and require control. Predator control should be practiced only when it is essential to accomplish planned management objectives including disease suppression, wildlife protection, and domestic animal protection. Planning for control requires (1) that control decisions not be made independently, (2) that planning involves several agencies and interdisciplinary talent, and (3) that an input of accurate data be assured. The criteria for determining need include a combination of aesthetic, social, economic, ecological, political, and administrative considerations. Control measures should be applied at a time, point, and place when the organism is most vulnerable and where there is least risk of side effects. Control methods should be applied in combination to achieve flexibility and selectivity. Methods include environmental modification, biological control, mechanical barriers and repellents, trapping and transplanting, hunter harvest, controlled killing, and economic reimbursement. Control can be accomplished by extension methods or conducted by professionals. It should be conducted by professionals when it may affect sensitive species, requires hazardous methods, or is conducted on public lands. Control should be applied only to the extent necessary to accomplish planned objectives and should be capable of acceleration or deceleration. Costs should be related to the overall worth of the ultimate management objectives and should be equated to social and aesthetic values.

It is impossible in this paper to cover predator management in detail. It is a broad subject, cutting across the entire field of wildlife ecology and management. To hold it up like an apple and view it as a discrete subject would be to violate the basic tenets of ecology. My goal is to deal with the subject in principles.

This symposium and the titles of the papers are indicative of the broad ramifications of predator control—more properly, predator management. It is encouraging to have serious, objective, and professional attention focused on this complex, often emotional subject for which there are simply no easy solutions or pat answers.

My objective, from the manager's standpoint, is to suggest some of the principles for the when, where, and how of predator management. I have a very strong personal and official interest in this subject because I have had staff responsibility for the development and conduct of a redirected federal program since 1965. It is not the purpose of this symposium nor my purpose here, however, to describe that redirection. It has been discussed before (Berryman 1966a, 1968).

From a management standpoint, it is important to identify what we mean by a predator. We must include more than the carnivores or the meat-eating species that we generally think of in relation to predator-prey relationships.

There are the classic and obvious examples of predation upon wild and domestic animals that place an animal in the predatory category, depending upon time and circumstance. It is important and necessary to identify the particular set of circumstances when the predatory tendencies of a given animal require that the animal be managed or regulated.

For example, man predators are valued because of their rareness, their sporting qualities, or their roles in the environment. Lions in some parts of America and Africa are examples. Some are protected or managed. The fact that they are predacious by nature may be of little or no concern. The management objective is to optimize the conditions for that particular predator.

On the other hand, some carnivores are controlled for reasons that are only incidental to their predatory habits—the control of skunks or foxes to prevent the spread of rabies.

There are instances in this country and elsewhere of omnivorous or herbivorous species developing a predatory tendency for a number of reasons. For example, the Cape baboon (*Papio ursinus*) in the Republic of South Africa

seems to show an increasing tendency to predation, with one farmer reporting 370 lambs and ewes lost to baboon depredations over a period of 7 months (Hey 1967).

The composition of many wildlife communities has changed, and these changes sometimes force changes in habits. Hey (1968) reports that in the Karoo of the Republic of South Africa, vultures have taken to sheep killing because their natural food, the remains of lion kills, is no longer available.

Hey (1967) also reports that the gray squirrel (*Sciurus carolinensis*), introduced to the Cape Peninsula of the Republic of South Africa during the last century, probably for ornamental purposes, is now firmly established and has become a major predator of nesting songbirds.

The example of the gray squirrel is of more than incidental interest. It illustrates the kinds of fundamental considerations that are sometimes overlooked, the ultimate consequence of which may be the need for control. In this case, the first question is that of introducing exotic species into any native environment without the most exhaustive ecological studies—assuming that such studies are capable of predicting a series of ecological events. In this instance, an interesting, attractive, and *harmless* animal was introduced. In the span of a century, it has become a problem in pine plantations and orchards, a threat to native songbirds, and the cause of concern as to rabies. This has led to a control program and, for a number of years, the payment of a squirrel bounty by local authorities. The result is a dispute as to the methods of control and the merits of the bounty system—all of which amounts to an examination of secondary considerations rather than fundamental causes. The point is pertinent here, because too often we try to isolate the subject of animal control. It cannot be done.

The point of these examples is *not* to prove that wildlife causes damage, which it does, but to illustrate that some herbivores, some omnivores, and even some scavengers, join the carnivores and become predators in some circumstances and for a variety of reasons.

I am leading to what I believe is a valid point: that the principles of management apply to any form of control regardless of the species and the damage caused. The principles apply to predators; they also apply to depredations by waterfowl (Berryman 1969). Control of animal numbers is one aspect of wildlife management. The *principles* of management are valid any place, any time. Leopold's (1933) principles are as sound in Africa applied to baboons as in Wisconsin applied to quail (*Colinus virginianus*). This is the only way that we as scientists, managers, and administrators can view and discuss predator management scientifically, objectively, and from an ecological viewpoint.

It is in this context that I am discussing when, where, how, the extent, and the cost—even why, which is not part of my assignment. I shall also try to point out that these questions and concerns are not limited to those of us in this country. Nor will all the answers be provided by the people considered knowledgeable in predator control. It will be necessary to turn to other disciplines and to several instrumentalities of government.

#### PREDATOR CONTROL

##### *When Should It Be Conducted?*

A number of studies have suggested some kinds of situations when control of predators is a useful game management tool. Balsler et al. (1968) discussed the effects of predator reduction on waterfowl nesting, Knowlton (1968) and Udy (1954) reported on predation and antelope management, and I have outlined the general situations when it is useful (Berryman 1966b, 1971). It has also been discussed by Jantzen (1971). We are concerned here, however, with the broader implications and principles.

Predator control should never be either the goal or the objective per se. Rather, predator control should be conducted when it is essential to accomplish a broader, planned management goal or objective. The objectives to be accomplished include disease suppression, wildlife protection, and domestic animal protection. Examples have been cited in earlier papers in this symposium.

The proposition that predator control should be conducted only to accomplish planned management objectives requires that at least three conditions prevail: (1) decisions for control are not arrived at independently from other resource decisions; (2) management objectives and plans are developed cooperatively with others having management responsibility and with talent from as many disciplines as may be needed; and (3) data, from whatever sources, are accurate.

To apply this decision-making process, it is necessary to involve several areas of responsibility, usually the state game managing agency, the state agricultural agency, the federal land managing agencies—the Bureau of Land Management and the U.S. Forest Service—and, in the case of disease suppression projects, the state and federal health agencies. It is also important to involve the interdisciplinary talents from these and other agencies and institutions—the game manager, the range ecologist, the economist, the epidemiologist, and others. And, it is very important to involve these areas and talents in different combinations to meet different situations.

This leads to the inevitable and inescapable conclusions that there is no single criterion for determining when control should be practiced, and there is no single standard for determining demonstrated need. The overriding consideration may be aesthetic, social, economic, ecological, political, or administrative. We can all think of examples of each. More often, however, the decision will be based on several of these considerations. This is how we make, or should make, all resource decisions. Again, the decision for predator control is inseparable from other resource plans and decisions.

Let me cite examples. Congress has authorized portions of the public land for grazing and has established agencies to manage these lands. By passage of the Multiple Use Act, it has specified the kinds of use and planning that shall take place. The responsible agency identifies certain of these lands for grazing and finds that a number of management practices are in order, including water development, fence repair, rotational grazing and range restoration, and protection of livestock from depredations by coyotes (*Canis latrans*). The state game agency, with legal responsibility for the coyote, concurs. This represents a collective judgment by the legislative and executive branches of the federal and state governments. The judgment includes social as well as economic considerations.

Or, the game manager finds that the survival of a remnant population of antelope (*Antilocapra americana*) is threatened by predation. He determines that it is necessary to reduce all mortality factors, including predation, to the absolute minimum until the population has the capacity to overcome the threshold of environmental pressures. The overriding consideration here is a game management objective.

#### *Where Should It Be Practiced?*

The where is as complex as the when. Its discussion, however, may be useful to illustrate an important point and perhaps dispel a common, but erroneous, assumption about limiting control to offending individuals.

After a decision has been made to control, the measures should be applied where they will be most selective and most efficient. Let me point out that I did *not* say that control should be limited only to the individual animals actually known to be causing the damage.

With most of the larger animals—bears, lions, and others—it is possible to limit control measures to individuals. It is more difficult and time consuming, but it can and should be done. This is not always feasible with the smaller, more numerous carnivores—the coyotes and skunks—and with other smaller animals, especially rodents.

It is, however, possible to limit control to the offending species, even to the offending population—sometimes to a segment of that population. This, however, requires the application of knowledge of population dynamics, behavior, movements, physiology, and ecology—knowledge that is sometimes inadequate or lacking.

Armed with this knowledge, however, it is possible to apply control techniques at a point in the population cycle where direct control may be most effective. In applying these techniques, we may be controlling a portion of the target population at some distance from the point of damage at a time when damage is not occurring—even to unborn animals, as must be the case with reproductive inhibitors.

This approach provides a range of choices and alternatives that make it possible to select a time, a place, and the methods that will be effective and that will also minimize hazards to nontarget species and the environment generally.

#### *How Should It Be Applied?*

No single control tool exists, now, nor will one ever be devised that is applicable to all situations.

The concept of integrated control—the application of several approaches in combination—should be applied more broadly. Ideally, this approach permits flexibility and selectivity in achieving the desired results. Integrated control really means management as opposed to control per se.

There are a number of preventive management practices including habitat manipulation, biological control, mechanical barriers, and repellents. Usually, however, control requires some form of population reduction. Hunter harvest should be employed whenever advisable. Public hunting has some advantages and provides sport. It also has some shortcomings. One is the lack of selectivity, especially with larger carnivores.

Other forms of reduction include environmental modification to render habitat unsuitable, physiological means of population suppression, trapping and transplanting, and direct killing by a number of means, as distasteful as killing may be. Any method should be as humane as our techniques permit.

Finally, economic means for making damage acceptable, including forms of insurance, should be explored. These means have not been thoroughly studied.

The question of *how* raises the corollary question of *who*. Several possibilities are apparent. They include the public at large, the hunting public, the party or agency suffering damage, private industry, and finally, agencies of local, state, and federal governments.

In principle, the question of who might conduct control requires an examination of at least three considerations, the first being the status of the target species. For example, management of a rare species should not be turned over to the public at large. The second is the hazard of the necessary tools, and the third is the status of the land and its planned use and the legal responsibilities for its use.

The extension approach, or making the know-how available to the public in general, as well as to a more limited and select public through workshops and demonstration, is an effective approach and should be applied wherever practical. The guiding principle, however, should be that control responsibilities are limited to and conducted or supervised by professionals when control is directed at or may affect sensitive species; when it requires methods that threaten human life, nontarget species, or permanent adverse environmental effects; and when practiced on public lands.

Regardless of who may be responsible for a specific kind of control, we are limited by the tools for control. We are even more limited by a lack of knowledge on the natural history of some of the species involved, their population dynamics, behavior, habitat requirements, and physiology. For now, we make do with what we have. But we must not be complacent in making a determined and continuing search for improved approaches—not for the hardware of control but for methods of management that reduce conflicts and assure a diversity of wildlife for the future.

#### *To What Extent Should It Be Practiced?*

I believe the question of extent is a simple one. Predator control, like any form of control or any other resource management practice, should be applied to the extent necessary to achieve predetermined and planned management objectives—no more, no less. Its parameter should be precise; its practice should be capable of acceleration or deceleration.

#### *How Much Should It Cost?*

The question of cost is unanswerable when considered alone. To indulge in a superficial examination of cost: benefit ratios is poor economics and can lead to poor resource decisions. The cost of control must be viewed in the context of the overall worth of the ultimate management objective and in relation to the other costs of the project. In addition to direct economic assessments, we need to be able to equate social and aesthetic values to the total appraisal of worth.

To cite one exaggerated but valid example, to protect captive breeding whooping cranes (*Grus americana*) from chance predation by foxes would justify some very high costs—some phenomenal costs. On the other hand, to mount a full-scale, operational reduction program for coyotes to protect scattered farm flocks would be indeed questionable. There are all variations of cost justifications.

Cost analysis and cost justification, like all other considerations relating to predator management, are complex and related to the end objective and to the merit and ultimate cost of that objective. These costs should be analyzed in relation to the aesthetic, social, and economic worth of the total project. In-depth

studies are needed to properly evaluate predator management and other resource management needs.

## SUMMING UP

Finally, in drawing together the when, where, how, extent, and cost of predator management, we come to the inescapable conclusion that predator management, predator control, or whatever semantic exercise we may pursue, is part and parcel of the resource management fabric. Predator management is not a goal but a means to an end. Decisions relating to the need, the practice, and the cost should not be made independently of other resource decisions. These decisions are no better than the collective data on which they are based. Better data of all sorts are needed, and improved decision-making processes are also needed. A fresh and objective philosophical perspective concerning the control of animal numbers is needed if we are to make objective decisions and secure professional and public acceptance of a necessary management function (Berryman 1968).

Along with understanding the *why* and *wherefores*, we need to recognize that control often becomes an emotional subject. Emotions are just as real as the physical components of the environment. I return again to a favorite concept: that science alone is not enough. Dansereau (1957) pointed out that resource management has moved from an ecological to a sociological period and that the application of what we know is limited by the accepted socio-political, economic framework or climate.

And, from another continent, a quote buttresses the same point. In closing a symposium held at the Royal Geographic Society in London, Chairman V. C. Wynne-Edwards (1968:240) said in part, "Given enough knowledge, rational decisions can be taken. But if people blindly take sides on questions of . . . control as a matter of principle, and insist on forcing the issue one way or the other by a trial of strength, the decisions reached must necessarily be political decisions, and they may do quite unnecessary harm or injustice to the less appreciated interests on the other side."

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## RECOMMENDATIONS

1. *We recommend that federal-state cooperation in predator control be continued, and that all funds in its support come from appropriations by Congress and by the legislatures.*

The federal cooperative-supervised program, as it is called, is financed by federal appropriation and by state and cooperatively provided funds that come from a variety of sources, including, at the state levels, transfers from game funds derived from sportsmen's license fees, a mill tax on livestock, and so on. On a national basis, federal funds are about 40 percent of the total. In some western states it is less than that. As a consequence, the federal agency cannot in fact really supervise effectively the actual predator control operations at the field level in areas where the problem is most critical. This is why we recommend that all predator control funds be appropriated. Federal funding is subject to review by Congress in the budgeting and appropriating processes. We believe that state funds should be subject to similar review, as they would be if they were appropriated directly by the several legislatures. The acceptance of this recommendation would allow general citizen review and input in decision-making, which is now largely absent in some states where long-term vested private interests have held political control.

We believe, for example, that sportsmen generally and state game agencies particularly feel that the diversion of funds from the game fund to predator control is a misuse of funds intended for the management and enhancement of game species. Some of the parameters of this issue appear in the action this year by the Colorado Game, Fish and Parks Commission to withhold \$45,000 (the Division's "share" of state funds for predator control) unless the use of poison is curtailed. This move is backed strongly by the Rocky Mountain Sportsmen's Federation, which states also that the transfer is illegal, and that the Game, Fish, and Parks Division of Colorado could lose \$1.2 million in federal aid grants if the transfer is made. Other western states are moving in this direction.

Public responsibility for wildlife research and management is traditionally and legally shared. This derives from the fact that the states have rights that the Constitution does not specifically reserve to the federal government. In some connections, Congress has acted by treaties, as when with Great Britain (for Canada) and later with Mexico, the federal government gained basic control over migratory birds. In other connections, Congress has acted with regard to interstate commerce. In general, however, the principle of state responsibility is sound, because wildlife as well as many other living natural resources are more or less site-bound, making local habitat management and game laws crucial. For those reasons, we recommend the joint federal-state funding of predator control activity, research, and associated needs, with the funding coming solely from direct appropriations. This principle does not preclude the possibility of actions by Congress which would give the federal government superior authority in regard to some of the matters about which we have made recommendations.

*See Sections III.B, C, E, L*

2. *We recommend that immediate Congressional action be sought to remove all existing toxic chemicals from registration and use for operational predator control. We further recommend that these restrictions extend to those toxicants used in field rodent control whose action is characterized by the secondary poisoning of scavengers. Pending, and in addition to, such Congressional action, we recommend that the Secretary of the Interior disallow use of the aforementioned chemicals in the federal operational program of predator and rodent control, and that this ruling be made a standard in cooperative agreements with the states. Moreover, we recommend that the individual states pass legislation to ban the use of toxicants in predator control.*

There has been direct and circumstantial evidence that the large-scale use of poisons for the control of predators and field rodents has resulted in frequent losses of non-target animals and that such methods are likely to be inhumane. Since efforts to evaluate total ecological effects have been minimal, it must be assumed that the relatively stable toxicants commonly used have been introduced to millions of acres of range and forest lands on a largely speculative basis.

The Bureau of Sport Fisheries and Wildlife and its Division of Wildlife Services have attempted to mitigate undesirable side effects and indiscriminate con-

trol operations through well-stated declarations of policy and what supervision could be given to some 700 field agents. This has been especially true since the review of predator and rodent control programs in 1964. However, in the judgment of this committee, proof that these operations are tolerable to a public vested with ownership of all wildlife and increasingly concerned for its welfare has not been forthcoming. Today's society places as high a value on prairie dogs, eagles, and coyotes as does the grazing lessee on public lands or the owner of a ranch on his flocks of sheep. A satisfactory equation of public and private interests in this field has not been attempted in the past, but it *can* be achieved.

We believe it appropriate that major changes be made in the federal-state cooperative animal damage control program. The foremost need is to discontinue all use of toxic chemicals in predator control, and to discontinue the use in rodent control of all such compounds capable of secondary poisoning. This recommendation applies to operational programs only and should not preclude continued research to find specific and ecologically acceptable control chemicals.

The reduction of livestock losses to economically tolerable levels through the control of coyotes or other non-endangered wildlife is a legitimate goal. We believe that all necessary killing of coyotes or other predators can be accomplished by means other than the use of poison baits. If satisfactory methods for specific purposes are not now available, this can be the basis of further technological developments to meet demonstrated needs.

The general removal of poisoning as a tool in predator control means that marginal control operations and so-called prophylactic or general control would be precluded. The killing of predators would become more selective, discriminating against animals actually doing damage. It will entail the use of greater skills by private employees on private land, using such methods as calling, shooting, denning, and trapping by the use of improved and humane devices. This approach will require a high level of technical and demonstration help by well qualified federal and state employees of the cooperative animal control program.

*It is recommended* that, concomitant with the prohibition of the use of toxicants for predator control, there should be compensatory federal efforts along several lines, including: (1) increased funding in support of selective aerial gunning of coyotes under special permit by professionally trained personnel of the federal-state control staff; (2) establishment in each state of a trapper-instructor extension program through which landowners or their employees could receive training in legal and humane methods of predator control; (3) the adoption of an insurance program which would cover heavy livestock losses from all causes without requiring the validation of predator depredations; this program could be federal, federal-state, or commercially operated with participating public funds; and (4) an expansion of fact-finding and research on more effective, specific, and economical control methods.

*See Sections III. F, L*

3. *We recommend that the field force of the Division of Wildlife Services be professionalized to emphasize employment of qualified wildlife biologists capable of administering and demonstrating a broadly-based program of predator management.*

In testimony at the 1966 Hearings on Predatory Mammals held by Representative John D. Dingell's subcommittee, the Bureau of Sport Fisheries and Wildlife stated that in 1965 it employed 114 biologists and 730 control agents in all of its activities. For some years the number of control agents has been of that order of magnitude. Whatever the number, this indicates clearly that the agency does not consider that its field agents are qualified wildlife biologists.

Considering the many interrelated recommendations of this committee, we believe that the field force can be greatly reduced in number. We also believe that such field agents as are employed should be qualified wildlife biologists who understand and concur with the total objectives of the program and who accept and respect public interests and values in wildlife as well as those of the livestock industry. A balance of interests cannot be optimized in any other way.

What constitutes qualification as a wildlife biologist is not for this committee to say, but we are certain that a large majority of present control agents are not qualified to meet the requirements of performance demanded by society.

*See Sections III. B, F, L*

4. *We recommend that in all states a cooperative trapper-trainer extension program be established as a means of aiding landowners in the minimum necessary control of predators on private land.*

The trapper-trainer program of predator control, commonly known as the "Missouri Plan," prevails among the central and eastern states. Precluding the use of poisons because of their hazard to non-target animals, the trapper-trainer program employs some denning, shooting, and use of modern humane traps that catch and hold an animal, such as a coyote, without physical injury. Such traps have wrapped, toothless jaws that are offset and hold without breaking bones.

With such programs, relatively few field agents are required for extension service in any state to demonstrate the use of traps and their best placement in the field. Ground shooting may also be used when conditions warrant, as may aerial gunning which, however, would be legally carried out only by authorized state and federal agents. It is assumed that federal-state cooperation would continue or be established.

*See Sections III. F, L*

5. *We recommend that Congress provide some means of alleviating the economic burden of livestock producers who experience heavy losses by predators.*

History shows that the livestock industry has been steadily declining for many years on rangelands despite various public subsidies, including protective tariffs, import quotas, price supports, and public predator control. Although the decline may be attributed to predation—"The coyotes are putting us out of business."—it seems to be due largely to the general competition that natural fibers receive from synthetic ones and that range livestock receive from livestock reared fully in the feed lots.

Be that as it may, the present committee does not desire nor intend to put the livestock industry out of business. It is interested in bringing predator control under proper regulation, and in developing a public program that recognizes the several interests in wildlife generally and in predators particularly, as well as the interests of stockmen.

Because there are times and places when predators cause severe losses of sheep and goats, especially young lambs and kids, and sometimes of calves, we believe that some means of protection is required. To this end, while we have recommended the abolition of poisons as presently used and the adoption of a trapper-trainer program of extension for the benefit of livestock producers, we believe also that Congress should consider the feasibility of some form of livestock insurance.

We believe that an insurance program, if experimented with, would be preferable to direct payment in that it encourage the self-reliance of the industry. The problem is such, however, that it would probably have to be based upon the following considerations, in addition to the problem of cost: (1) that a large number of livestock (sheep, for example) within any state probably would have to be covered because of the impracticality in most cases of determining and validating the actual cause of death; (2) that the industry should accept some loss as a part of doing business and that as a consequence only excessive losses would be covered; and (4) that it would be a participating program with livestock growers.

*See Sections III. G, L*

6. *We recommend that grazing permits and leases written by federal land management agencies provide for possible suspension or revocation of grazing privileges if regulations governing predator control are violated.*

We recognize that the privilege to graze private livestock on federal lands is one of several proper regulated uses of such lands. It is clear that heretofore only the conditions related strictly to grazing have been given consideration in grazing permits, except for liability for damage to federal physical property. In other words, such matters as the number of permits on an allotment, the number and kind of livestock to be grazed, and the time during which a permit is usable are the conditions of a permit that apply—all limited to the practice of livestock grazing. The general purpose is to limit the animal/unit/months to the carrying capacity of the range, or less than that when the range needs rehabilitation. This, of course, is sound management as far as it goes, but it tends in many cases to give top priority to the single private use—grazing of livestock.

Among the several federal land-managing agencies, the problem is most critical for the Bureau of Land Management and the Forest Service, but it is applicable to some extent to the Department of Defense, the Bureau of Indian Affairs, and the Bureau of Sport Fisheries and Wildlife.

We believe that several statutes, singly and severally, not only allow but require other considerations in the granting, suspension, and cancellation of grazing permits: statutes such as the Environmental Protection Act, the Taylor Grazing

Act and the Multiple Use-Sustained Yield Act. In this connection, see the paper in Appendix XVI, produced for us by the Environmental Defense Fund.

The practice of grassland and forest grazing of livestock on public lands brings us to examine the impact of this use on other public interests and values which are covered in the above Acts, such as wildlife management of both predators and prey, and the interests of sportsmen and of the general public which value wildlife for its own sake. Finally, the overriding management principle is the maintenance or, where necessary, the restoration of healthy, sustainable plant-animal communities without detriment to range, forest, soil, and water.

Without a broadening of management purposes, it would seem both responsible and necessary for the agency granting grazing permits to provide for revocation of them for any infraction related to sound management under the applicable laws. This would and should include such violations as illegal use of poisons by permit holders, illegal killing of game animals, illegal killing of endangered species, or any other illegal practice associated with livestock grazing and the control of predators. The case is clear when permit holders carry on such practices on federal land. It seems to us to be equally applicable when a permit holder is convicted of such violations on private land. Instances of violations are frequent and flagrant enough on both private and public land that it is clear that such livestock producers are not responsible permit holders.

*See Sections III, I, L*

*7. We recommend that all methods of predator control be prohibited on statutory Wilderness Areas.*

The Wilderness Act states that the grazing of livestock, where established prior to the effective date of the Act, shall be permitted to continue, subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture, in the case of the Forest Service. This specific reference to the Secretary of Agriculture results from the fact that the pre-existing administratively established wilderness areas on Forest Service lands were given statutory status by the Act, to initiate the federal system. All subsequent Wilderness Areas, whatever the administering agency, were to be established by specific actions of Congress.

We note in recent years that there is a trend toward voluntary reduction in livestock grazing on Wilderness Areas. We also note a reduction in the proportion of sheep to cattle, for which predation is less of a problem. Under the circumstances, we believe that the questionable practice of livestock grazing on such lands will be solved and the problem of the implicit incongruity between generally held wilderness values and private livestock grazing will soon disappear. In the meantime we recommend only that all methods of predator control be administratively prohibited on Wilderness Areas by the Secretary of Agriculture, at the risk of cancellation of the pertinent grazing permits upon violation.

*8. We recommend that federal and state legislation be passed that would make the shooting from aircraft of wildlife, including predators and game animals, illegal except under exceptional circumstances and then only by authorized wildlife biologists of the appropriate federal and state agencies.\**

Aerial gunning is an effective and selective tool for the killing of marauding predators, especially coyotes, where the terrain is suitable. This is preferable to poisoning, and gunning could be substituted in cases of urgent need. It should remain as an effective tool only in the hands of federal and state agents who are qualified wildlife biologists. There are numerous accounts of the taking of game species illegally by shooting from aircraft and of the inhumane crippling and abandonment of animals "because they would die anyway," just as there are accounts of the aerial scattering of poison pellets. Such practices by private individuals are so difficult to detect that poisoning from the air is sometimes extended beyond private land onto federal areas.

Even when direct shooting is not involved, aircraft are used to harry or drive wildlife for the benefit of shooters on the ground and to herd it off private land.

There seems to be only one effective approach to these practices—a strict federal law and rigorous enforcement. Such a law should have a clause permitting the use of aircraft by authorized federal and state agents for clearly defined exceptional purposes. The selective killing of marauding coyotes may be an example.

\*Since this recommendation was written the House and Senate have passed the bill, introduced by Representative John Dingell, that accomplishes the same purpose.

*See Sections III, F, H, L*

9. We recommend to the Federal Aviation Authority that a provision be made for suspending or revoking the license of a private pilot and the confiscation of the aircraft—when he knowingly carries a passenger whose acts lead to conviction for illegal predator control, such as shooting from the aircraft or distributing poisons.

We have learned from the FAA that the present reasons for cancellation of a private pilot's license are based solely on matters of safety, except for conviction of knowingly carrying certain drugs illegally. We believe that a pilot knowingly carrying passengers who engage in shooting predators from the air, or distributing strychnine pellets or other poisons, should have his private license cancelled and his aircraft confiscated upon conviction of any such passenger.

We believe that this recommendation has precedence in the clause presently used with regard to transporting certain drugs. If the action cannot be taken administratively, we recommend suitable action by Congress and state legislatures.

We do not accept the contention that a passenger's illegal actions are irrelevant to the requirements that should be imposed upon a pilot who is licensed to fly a private aircraft.

This recommendation is similar to that made for revocation of private grazing permits on public lands, in that both are sufficiently drastic and costly to the offenders that they would act as strong deterrents. Neither pilot licenses nor private grazing permits are "rights" but are privileges carrying public responsibility. The private holder of such privileges may come to view them possessively when they have been renewed repeatedly, as in the case of the ten-year grazing permit, which may be renewed indefinitely.

*See Sections III, F, L*

10. We recommend that action be taken by Congress to rule out the broadcast of toxicants for the control of rodents, rabbits, and other vertebrate pests on federal lands, and that the possibility of correlative action be explored for private lands as well.

This action is recommended because broadcast "saturation" of the landscape with non-specific poisons is completely uncontrollable with respect to secondary consequences for non-target species which are beneficial and necessary to the maintenance of natural and healthy ecosystems.

We note also that broadcast methods are used to control poisonous plants, plants which are unpalatable to livestock, and ones, whether weedy herbs or shrubby sagebrush, that are thought to compete with the grasses that are favored by livestock. Whether they are predators or prey, herbaceous weeds or brush, all organisms have roles to play in natural ecosystems. Our complaint, however, is against indiscriminant methods of animal reduction and the narrow policy that places livestock grazing and other commercial interests paramount to other values and uses of plant-animal communities. We believe also that broadcast methods of control are generally used without knowledge of the actual consequences for non-target species.

We believe that this recommended action could be taken administratively by the agencies that manage public lands. We feel, however, that the urgency is considerable and that the question would be better disposed of by the action of Congress.

*See Sections III, F, H, L*

11. We recommend a long-term research program based in the Division of Wildlife Research, Bureau of Sport Fisheries and Wildlife, that would cover the gamut of ecological problems associated with predators.

There is not now a sufficient body of information available on which a scientific evaluation of the role of major predators can be based. It is remarkable that the federal cooperative-supervised program has flourished over the decades without the objective information to warrant it, even in the face of public criticism.

The Division of Wildlife Research has two well-equipped stations, one at Denver, Colorado, the other at Laurel, Maryland. The well qualified staffs have worked on many wildlife problems, but in relation to predator control the principal thrust has been in the development of effective killing chemicals and devices. In this effort they have sought more selective substances and methods of using them so as to reduce the hazard for non-target animals, but with little success.

During the 20-year period of 1951-70, about \$110 million in federal and contributed funds have been spent on the cooperative animal damage control program. If an adequate fraction of that money had been allocated to broadening the factual base of the control program, it would have been rationalized and money saved, with both public and private interests better served.

The predator control program has been assumed to be right until proven wrong. However, the information necessary for such decisions have been missing. We have recommended, therefore, that the federal government take leadership in sponsoring the necessary research. This would include field studies to determine with all possible accuracy the actual livestock losses caused by each major predator. Livestock losses from birth defects, malnutrition of young, disease, poisonous plants, injury, weather, lost and strayed animals, and predation by feral dogs as well as by coyotes should be known. Such data would validate the causes of economic damage and guide actions to alleviate excessive losses. Thinking somewhat more broadly about research in relation to the conditions and needs of the western livestock industry, there appears to be a need for study of industry practices that could be improved. For example, some sheep breeds have considerably higher lamb-ewe ratios than others and some breeds are better adapted to regional conditions. Management and handling practices could be improved. In short, it would be useful to study western livestock production as an ecosystem, together with all pertinent environmental factors. This agroecology could be undertaken jointly by Interior and Agriculture.

The other side of the coin needs study. What are the positive values of predators in both natural and managed ecosystems? Of principal economic import here is the value of predators in helping stabilize damaging rodent populations which cause economic losses both in range deterioration and in expensive control programs. More general is the need for studies of the combined roles of predator and prey in ecosystems and of their intrinsic recreational and esthetic values to the general public.

There are both scientific and management needs for approaching the predator control problem on a basis of the systems of which predators are a part.

To evaluate predator control it would seem necessary to experiment on a local basis with various levels of control, including the absence of control, and to pay attention not only to the direct effects on predators but also to the consequences for non-target species which are innocent bystanders.

The accomplishment of these research objectives would require some staffing changes in the Division of Research, augmented, perhaps in large part, by contracting with qualified independent organizations.

*See Sections III. B, D, E, J, L*

12. *We recommend that the Division of Wildlife Research of the Bureau of Sport Fisheries and Wildlife undertake a detailed socio-economic study of cost-benefit ratios of predator control as a means of evaluating the need for the efficacy of the program and its separate parts.*

The most important premise on which predator control is based is economic welfare, yet the Bureau of Sport Fisheries and Wildlife has never been required to establish an adequate justification before receiving funds from Congress. The Leopold report in 1964 devoted considerable attention to this problem and called for the economic research necessary to the establishment of specific criteria to govern decisions on predator control. The report noted that it might be expected that decisions on control would logically bear a direct relationship to the amount of damages caused as expressed in dollars lost, or percent of lamb crop taken, or some other objective measure. But the Leopold committee concluded that this was not the case at all in practice. Instead, they found there was a great paucity of economic data on costs or damages, and in many cases what little data were available seemed to play little if any part in decision-making. Control decisions personnel in conference with livestock operators and farmers. Many control programs were undertaken merely because someone was interested enough to contribute matching funds; and the determining criteria frequently were more a matter of available financing and agency "program building" than of proven need.

A careful review of all cost and damage data available to this committee reveals that no progress has been made to rectify this situation during the seven years that have elapsed since the Leopold report. Control decisions are still based on the assumption of benefit rather than on proof of need. Bureau officials have frequently given lip service to the need for in-depth socio-economic studies,

but no firm effort has been made to obtain Congressional appropriations to accomplish this. We find this to be an untenable situation.

The effect of the present recommendation would be to shift the burden of proof from those concerned about the possible adverse impacts of the control program to those who are responsible for carrying it out. To be effective, this research must be undertaken by an objective, independent organization not connected with the existing control program.

*See Sections III. C, G, L*

13. *We recommend that the Division of Wildlife Research of the Bureau of Sport Fisheries and Wildlife be delegated the responsibility for the study of the epidemiology of rabies in the field by a team of specialists provided with adequate funding.*

Rabies control is frequently a responsibility of the Division of Wildlife Services of the Bureau of Sport Fisheries and Wildlife. When an outbreak occurs, a cooperative agreement is drawn up between local public health officials and Wildlife Services, providing for the latter to send control personnel into the field to trap and destroy skunks, foxes, coyotes, etc., which are supposed to be transmitting the disease. By the time that actual control begins, the epizootic is usually on the decline and termination would occur with or without the belated control measures. It has yet to be proven that sending trappers to a rabies outbreak does the slightest bit of good in terminating the disease. It does make the public and responsible officials feel better that something is being done, but this is scant reason, and certainly not a scientific one, to perpetuate a futile program. What is needed is more solid information on the epidemiology of rabies in wild animals, and this can be acquired only by trained research personnel, not by professional trappers. Responsibility for the entire rabies program therefore should rest entirely with the Division of Wildlife Research. Ample appropriation should be provided to meet this responsibility.

*See Sections III. J, L*

14. *We recommend that Congress give the Secretary of Interior authority to take measures necessary to protect all species of predators that have been placed on the Endangered Species List by the Federal Government.*

We believe that species that are endangered and threatened with extinction present a special case and that the ultimate responsibility to protect them must reside with the federal government.

Whereas our specific recommendation refers only to predators, we would call attention to the fact that some predators, such as eagles, are also scavengers and are subject to secondary as well as direct and purposeful poisoning, and to shooting. Likewise, some scavengers, such as the California Condor, are subject to secondary poisoning as a result of predator control activity.

In recommendation 15 we make a distinction between those species whose entire populations are endangered and others that have been locally exterminated or their populations greatly reduced in much of their former areas. We believe that many states will wish to take action to protect remnant populations. Some large predators, such as the grizzly bear, the mountain lion and the wolf could also be given a measure of protection if specific marauding animals were live trapped, rather than shot, and transported to federal or state lands for re-stocking the species where it is desired to re-establish local populations.

15. *We recommend that the several states take measures to supplement the federal protection of rare and endangered species by enacting laws and taking measures to protect locally rare populations.*

The history of extinction of species shows that it progresses by eradication of populations in one area after another. This is the history of such great predators as the mountain lion and the timber wolf, and appears to be the present trend for eagles, the black-footed ferret, and other endangered species. From the federal point of view a species is classified as rare and endangered when its entire population is reduced everywhere throughout its range. This position, which is proper for the federal government, needs to be supplemented by state action when a species population is approaching extirpation locally. Such cooperative programs are necessary before a species population is *in extremis* in its last refuges. Not only must all methods of direct killing, such as poisoning, trapping, snaring, and shooting of endangered species be eliminated but controls directed to other species also must be eliminated when they kill endangered species incidentally to rodent control and the reduction of pests and nuisance animals. For example, the black-footed ferret which is now nearly extinct has not been a target species, but is a victim of efforts to control prairie dogs.

The combining of federal and state efforts to save any species from extinction has a parallel with the preservation of wildlands and natural areas as habitat for wildlife generally. All or nearly all states have taken measures to provide local wildland habitat for the pleasure and edification of their citizens, irrespective of the federal effort to establish and protect large acreages of wildland by the formation of wildlife refuges, game ranges, wilderness areas, and national parks.

See Sections III. H, L

STATEMENT OF HON. GAYLORD NELSON, U.S. SENATOR FROM WISCONSIN

Mr. Chairman, I appreciate the opportunity to present this testimony for the record concerning the predator control program, a matter which has concerned me deeply for the past several years. This subcommittee is performing a valuable service in bringing this program, so long in need of major reform, before the public.

It is very heartening to see that the outcry of conservationists and other interested citizens is finally receiving a response by the Administration and the Congress. The President's Executive Order of February 8, 1972, banning the use of toxicants on Federal lands is a commendable step forward. It is a step that I have legislatively advocated for the past several years in S. 273. The banning of poisons is perhaps the most important recommendation of the Advisory Committee on Predator Control, the so-called Cain Committee, whose report, released in January of this year, states directly: "The foremost need is to discontinue all use of toxic chemicals in predator control, . . .".

Unfortunately, the legislation presently under consideration by this subcommittee leaves open several possible circumstances in which poisons may still be used. The chance that these administrative options and interpretations may be abused is in my opinion an entirely unnecessary risk. There simply is no need to allow for the use of these dangerous substances that have already wreaked so much death and destruction on our nation's wildlife resources. It is imperative that this subcommittee *completely* ban the use of these toxicants in predator control programs.

Drastic changes are needed in this program, which has become less effective and more expensive in recent years. Unfortunately, the widespread, indiscriminate use of toxicants as the principal method of predator control has been tragically effective in killing nontarget wildlife such as bald and golden eagles, majestic symbols of our nation's heritage. They have succeeded in disrupting the delicate ecological balance essential to healthy wildlife populations.

More than two years ago, in July of 1970, I wrote to Russell Train of the President's Council on Environmental Quality inquiring as to the status of the environmental impact statement required for the predator control program by the National Environmental Policy Act. A letter from the Interior Department in November of 1970 assured me that such a report was being prepared. A recent check with the Department reveals that the final impact statement is *still* not available more than two years after the initial inquiry, but a draft statement has been completed.

Despite this delay, the Cain Committee Report does provide answers to many of the questions that have been raised about this program, and contains 15 recommendations that would radically alter the present program. It was particularly gratifying to note that the essential feature of S. 273, which has been introduced in the past two Congresses, were included in the Cain Committee's recommendations.

This bill would prohibit the use of poisons or chemosterilants and provide for an extension mammal control agent program to demonstrate non-poison methods of predator control. One variation of this program, known as the "Missouri Plan", has been demonstrated over the past 20 years to be more effective, more humane, and less costly than the present Federal program. This subcommittee should consider the inclusion of this type of approach in any predator control legislation.

Concerning the need for toxicant use in predator control, the Cain Committee report states unequivocally in Recommendation II:

"The foremost need is to discontinue all use of toxic chemicals in predator control . . . We believe that all necessary killing of coyotes and *other predators can be accomplished by means other than the use of poison baits.*"

Unfortunately most of the bills now under consideration allow wide administrative discretion to authorize the use of poisons in a number of situations.

For much too long a period of time, special interest groups have dominated control over this program without regard to wider public interest, and without

the recognition that our wildlife populations are a significant national resource. As the Cain Committee stated,

"Today's society places as high a value on prairie dogs, eagles, and coyotes as does grazing lessee on public lands or the owner of a ranch on his flocks of sheep."

The Cain Committee has studied all the possibilities, ascertained to the best of their professional judgement the true facts of predator control—both ecologically and economically—and concluded that the use of poisons is simply not necessary.

Concomitant with the abolition of toxicant use, the Cain Committee suggested a varied compensatory Federal effort. Included in the Cain Committee's plan were the extension agent program mentioned earlier, and an insurance program to cover losses from predators, an idea which should be examined closely.

One other possibility tends to be overlooked and should be investigated. That is the effect of discontinuing the program altogether. I suggested in testimony on December 14, 1971, a program to study the comparative effects of not having any predator control program by designating certain areas as control and non-control areas. Then after determining the actual experience in both areas, the extent of any losses could be accurately compared. At this point I would like to ask that this testimony before the Senate Appropriations Subcommittee on Agriculture, Environmental and Consumer Protection, which elaborates on this alternative and the other possibilities, be included at an appropriate point at the end of this statement.

Mr. Chairman, the report of the Cain Committee is the most thorough, wide-ranging study of the predator control program ever undertaken. They have separated fact from myth, analyzed the available scientific data, and arrived at their conclusions. One of their conclusions was that it was *not* necessary to use toxicants! Why are we going to continue to allow the possible use of these deadly poisons? Such a policy flies in the face of all the evidence. This legislation needs a provision that follows the Cain Committee's recommendations to abolish all use of toxicants on Federal lands and to prohibit the use of Federal funds for state programs which employ any toxicants in predator control. There simply is no legitimate reason to continue to allow the use of these dangerous substances.

The Cain Committee has made a number of other worthwhile recommendations. Among these are the professionalization of predator control agents, the prohibition of all predator control in Wilderness Area, the need for further research into all the ecological problems associated with predators and into some of the cost-benefit aspects of the program, and measures to aid in the enforcement of predator control restrictions. Certainly serious thought ought to be given to the inclusion of each of these proposals in any kind of predator control legislation.

Some important forward steps have already been taken. The Cain Committee Report, the President's Executive Order, and renewed interest in reform legislation are significant.

Further research into non-poisonous methods of predator control, and continued Federal funding to insure that control over the program is not dominated by special interest groups, are essential parts of any legislation. Of foremost importance, however, is a *complete* ban on the use of the deadly toxicants that we have unfortunately relied on in the past. The dangers of these substances to all forms of life have already been demonstrated. The Cain Committee, after extensive study, concluded that toxicants are *not* necessary for predator control program. There *are* viable alternatives that have been shown to be more effective and less costly.

It is hoped that this subcommittee will rely on the scientific evidence and reject the myths that have so long been used to justify this unnecessary warfare on wildlife. The opportunity for meaningful reform is great. Let us make the most of it by implementing the Cain Committee's recommendations. Most importantly, let us eliminate the poisons and bring a measure of environmental sanity to a program that has lacked it for so long and with such tragic consequences.

STATEMENT OF HON. GAYLORD NELSON, U.S. SENATOR FROM WISCONSIN ON PREDATOR CONTROL AT HEARING BY SENATE APPROPRIATIONS SUBCOMMITTEE ON AGRICULTURE, ENVIRONMENTAL AND CONSUMER PROTECTION

Mr. Chairman, thank you for the opportunity to testify here today on predator control. Your hearings on this matter this week and earlier this year are an important public service in educating all Americans to this environmental issue and are a major contribution to the dialogue necessary to find some answers.

I would like to summarize quickly the points in this statement:

First, if the final environmental impact study required by the National Environmental Policy Act on the predator control program is not available by next year, Congress should delay appropriating any further predator control funds until such a report is submitted.

Second, it is already clear that fundamental changes are going to have to be made in the predator control program. Legislation I have introduced for the past two Congresses, S. 273, would put a halt to the use of the poisons out West and drastically reduce the present predator control program.

Third, an alternative to the current war on predators would be direct compensation or *insurance* to cover a rancher's losses from predators. In January, I intend to introduce an amendment to my predator control bill to provide for pilot programs for direct compensation.

For the pilot projects, parts of one or two Western states could be set aside as "non control" areas. In these test areas, instead of poisoning predators, ranchers would receive compensation for livestock losses.

Current predator control agents would verify the livestock losses, providing the facts needed for compensation.

And comparable areas would be provided where predator control efforts would continue as before. By comparing losses in the pilot project "non control" areas with those in the similar areas where the poisoning was still going on, we would determine whether current predator control is really effective and whether it is needed at all.

Four, other possible alternatives to present predator control include the so-called "Missouri Plan," an extension service program in Missouri and Kansas emphasizing selective predator control through trapping, an approach which could be followed under my bill, S. 273.

As noted in the 1964 Leopold report, some other possible approaches include the development of repellants, fences, and scare devices, hunting, and the use of less toxic poisons.

For more than half a century now, the American taxpayer has been shelling out steadily increasing funds for the so-called "predator control" program carried out by the Division of Wildlife Services in the Department of the Interior's Fish and Wildlife Service.

As was evident by the outcry nationwide over the recent criminal slaughter out West of more than 500 bald and golden eagles, symbols of our nation's heritage, these senseless campaigns of death have rapidly become an important environmental issue.

And the fact that the predator control program has been allowed to continue and expand for decades as a reckless orgy of killing is a sad monument to the indifference of Congress and until recently, an apathetic American public.

The evidence in favor of a dramatic change in predator control policy is clear and overwhelming—and has been for years.

In 1964, the report of the Leopold Committee commissioned by the Interior Secretary to review the program concluded: "... the program of animal control ... has become an end in itself and no longer is a balanced component of an overall scheme of wildlife husbandry and management."

Despite some steps cited as implementing the Leopold report's recommendations, the fact is that more money is being spent this year on the predator control program than ever before. Since 1964, the Federal share has increased nearly \$900,000. With state and other matching funds, the predator control program total this fiscal year has reached \$8,275,000, including \$3,615,000 in Federal dollars. A small army of some 600 agents carries out the war on predators.

On July 17, 1970, nearly a year and a half ago, I wrote to Russell Train, chairman of the President's Council on Environmental Quality, inquiring as to the status of the environmental impact statement obviously required for the predator control program by the National Environmental Policy Act passed in late 1969.

Mr. Train confirmed that such a statement should be filed, and after further correspondence I was assured in an Interior Department letter dated November 13, 1970, more than a year ago, that such a report was being prepared.

Mr. Chairman, I ask that a copy of this correspondence be printed in the hearing record at the end of these remarks.

As yet, no final environmental impact statement has been filed.

Early last July, a special task force to review the predator control program was established by the Interior Department and the Council on Environmental Quality.

At that time, the final report of that committee was expected by November 1. Almost a month and a half after that deadline, the report has not been filed.

My office has obtained a copy of what is described as a "draft" environmental impact statement prepared in the Department of the Interior and dated November, 1970.

This document, supposedly reviewing the environmental implications of this mammoth and far-reaching program, is only 10 pages long.

Of the predator control crusade, the draft statement says: "No permanent adverse environmental effects have occurred or are anticipated."

It adds: "There are no cumulative impacts nor will the uniqueness of present environments be significantly affected."

Yet seven years ago, the Leopold Report said, in direct contradiction: "It is the unanimous opinion of this Board that control as actually practiced today is considerably in excess of the amount that can be justified in terms of total public interests. As a consequence, many animals which have never offended private property owners or public resources values are being killed instantly."

I ask that the draft environmental impact statement be included in the hearing record at the end of these remarks.

Without comprehensive environmental reviews providing the necessary facts on the damages and the alternatives in the predator control program, Congress and the public are in no position to assess the predator control effort and make decisions regarding its future.

As a start, the final environmental impact statement required by the National Environmental Policy Act should be submitted with the Administration budget request to Congress in January for annual predator control funds.

And if the final statement is not available by the time Congress begins consideration of the predator control budget next year, I will urge that Congress delay the appropriation until the full and complete report is submitted.

As I pointed out earlier in this statement, it is already clear that fundamental changes are going to have to be made in the predator control program.

Legislation I have introduced for the past two Congresses, S. 273, would put a halt to the use of the poisons out West and drastically reduce the present predator control program. A similar bill is in the House.

Because there may be some need for predator control under circumstances that have been carefully evaluated and are carefully controlled, the bill authorizes a limited program using means other than poisons.

An alternative to the current war on wildlife in the West would be direct compensation or insurance to cover a rancher's losses from predators.

This approach could be tried out as a pilot project. Portions of one or two Western states could be set aside as "non control" areas. In these test areas, instead of attempting to eliminate predators, ranchers would receive compensation for their losses.

The agents who under the current program distribute the poison would in the pilot project, investigate and verify reports of livestock losses from predators, providing the facts needed for compensation.

Comparable areas would be provided where predator control efforts would continue as before. Careful investigations of livestock losses would be carried out in these areas too.

By comparing losses in the pilot project "non control" areas with those in comparable areas where the poisoning was still going on, we would determine whether current predator control is really effective and whether it is needed at all.

As it is now, we do not have any real idea how much livestock damage predators are causing or how effective the predator control program is.

Mr. Chairman, I am preparing a legislative proposal for such a pilot program of compensation for livestock losses from predators and intend to introduce it in January as an amendment to my predator control bill, S. 273.

Another possible alternative to present predator control would be the so-called "Missouri Plan," an approach which could be followed under my bill. This plan has been in effect for over 20 years in both Kansas and Missouri.

Essentially, this system is aimed at controlling the specific animal causing the damage. This means that so-called "non-target" wildlife would not be obliterated to remove these few pest animals.

The "Missouri Plan" emphasizes trapping as its means of control, because in Missouri and Kansas, this has been accepted as the most effective way of catching the target animal and is felt to be more selective than the poison baits and

poison "guns" used in the Western programs. The plan is implemented through extension service agents who train landowners.

Over the period the Missouri Plan has been in operation, trained farmers have reduced their predator damage losses an average of 80 percent.

The system works on the large ranches of Western Kansas as well as on the small farms of Eastern Kansas and Missouri. And cost analyses have shown that annual operation expenses were much less than the annual coyote bounty payments that preceded adoption of the plans.

Regarding other possible predator control alternatives, the Leopold Report in 1964 urged emphasis on finding more specific controls, and the development of repellants, fences, and scare-devices which would preclude the necessity for any killing at all.

Without arguing their merits at this point, other alternatives that have been mentioned include hunting, or the use of less toxic poisons.

Paradoxically, while the predator control budget goes up, and the total number of sheep being kept declines because of other problems in the industry, the total sheep deaths claimed to be caused by predators continues to rise.

One observer of the situation, familiar with the numerous ways available to inflate the count of livestock lost, said, "If we counted the votes like the sheep growers count sheep killed by the predators, the head of the wool growers would be elected President in no time."

Though figures of predators killed have been somewhat below earlier totals, Defenders of Wildlife reports that for a recent year, 1969, the tally still showed predator control had wiped out 74,199 coyotes, 8,478 bobcats, 380 bears, 142 mountain lions, 4,098 badgers, 10,374 foxes, 4,651 opossums, 2,147 procupines, 6,507 raccoons, 7,730 skunks, 2,586 beavers, and 562 other animals.

In 1970 the Public Land Law Review Commission said in its comprehensive report on the nation's public land policies: "We are convinced that predator control programs should be eliminated or reduced on Federal public lands in furtherance of wildlife management objectives stated above. While these programs may have been of some benefit to livestock operators in reducing cattle and sheep depredations by coyote, puma, cougar, and bear, they have upset important natural mechanisms for the population control of other species."

Most of the people who are protesting will never see the eagles of the other wildlife involved. But that is not the point. This systematic destruction of the natural species of the American West has come to represent the ultimate danger posed to all living things: Says author Jack Olson, who has written so eloquently on the predator control abuse, "We animals of the earth are a single family, and the death of one only hurries the others toward the final patch of darkness."

And ironically, much of the destruction is being carried out on lands owned and being managed by the Federal government supposedly on behalf of the U.S. citizen.

Between overgrazing and indiscriminate use of predator control poisons, these lands aren't being rented—they are being destroyed, a public resource being sold and disposed of like a raw commodity. It is a tragic abuse of the public trust, and a shame on the Federal agencies that have served as enthusiastic accomplices and actual promoters in the destruction.

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#### STATEMENT OF HON. CLIFFORD P. HANSEN, U.S. SENATOR FROM WYOMING

Mr. Chairman, I appreciate the opportunity of presenting this statement to the Committee. Although my comments apply to H.R. 13152 and S. 3334, all Federal predator controls are of extreme significance in my state. Wyoming ranks second in the nation in sheep production, which is much more significant when you remember that our economic base is narrow in comparison with other states.

Mr. Chairman, I strongly urge this Committee to delay action on H.R. 13152 and S. 3334. After the President issued his ban on the use of poisons on public lands, these bills were sent to Congress to develop a program to assist livestock owners with predator problems.

Since the objective of the legislation was to help livestock people, I think it is extremely important that the Committee recognize their (the livestock people) almost unanimous opposition to these bills. In my state of Wyoming, I have not talked to a single rancher who favors the Administration's proposal. This Committee should ask itself why the supposed benefactors of the legislation are so adamantly opposed to its enactment.

The answer is that farmers and ranchers are convinced that this legislation will not provide an adequate program for controlling predators.

In 1931, Congress recognized the responsibility of assisting the states to control predators. As reported in the U.S. Department of Interior's draft of the Environmental Statement on S. 3334 and H.R. 13152, the most effective tool in the control of predators is the use of poisons. That statement made a point I wish to emphasize, that 80% of all predators eliminated were killed by poisons.

In February of this year, the President, the Department of Interior, and the Environmental Protection Agency combined to ban the use of poisons—to take away the major tool for control of coyotes and other predators. In addition to banning poisons, H.R. 13152 would repeal the 1931 Act. H.R. 13152 says in effect that now that we have taken away the means whereby 80% of all predators have been controlled—now that poisons are gone—the Department of Interior no longer wants to be saddled with the responsibility of trying to meet this problem.

Mr. Chairman, for the Department of Interior to get out from under their responsibility in this case would be an injustice, since they have effectively tied the hands of those who would be left to face this problem.

I realize that Interior officials say that they do not need to use poisons to control coyotes; other tools are available which will take the place of poison. You have heard testimony that shooting from aircraft has exceeded cost estimates, and that it is not effective in timber or rough terrain. I do not know if these other tools can be used to such a degree as to provide effective controls. I don't think anyone does for sure. It is my hope that this Committee will see the wisdom in waiting and seeing if trapping, denning, and shooting from aircraft will do the job. Great emphasis is placed on future research, but that research does not meet present problems. If this legislation could be delayed, then viable alternatives could be developed.

Personally, I have grave doubts about this program. From my talks with livestock people throughout Wyoming, coyote population and predation are both increasing rapidly. I think that the ultimate figures will show a record loss to predators.

Mr. Chairman, let me make one further comment. I realize that there is wide-spread doubt about the loss figures resulting from predators. Secretary Reed, at an earlier hearing this year before the Agriculture Subcommittee of the Appropriations Committee, expressed doubt about the viability of these figures. Many others have expressed similar doubts. All of this points to the fact that I doubt the Department of Interior, nor the Environmental Protection Agency, nor the National Woolgrowers, nor even this Committee is really prepared to define the predator problem.

Mr. Chairman, until we are able to get a little better grasp of the problem, and until we are able to evaluate the alternative means available for predator control, I sincerely hope this Committee will delay this legislation.

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#### STATEMENT OF HON. JOHN TOWER, U.S. SENATOR FROM TEXAS

During the past several months, I have been working closely with various groups representing the sheep and goat raisers in an effort to develop a lawful program for predator control which would be acceptable to these stockmen. Since the imposition of a ban on the use of toxicants, these stockmen have, indeed, had cause for alarm for they have been stripped of their most effective means of preventing the costly losses incurred each year from predators. I have attempted to coordinate the efforts of the various departments involved in predator control, and the sheep and goat producers' associations to find a meaningful approach to combating the present problem. As modifications of the measure before you have been suggested, I have sought the advice and the comment of the individuals whose livelihoods are at stake here. Some of these individuals, representing various groups, will be testifying before you, and I feel sure you will sense their opposition to this measure.

The present bill will give Congressional consent to the Presidential order banning the use of toxicants. This is the reality. What we need now is a solution to the problems presented by the Executive Order—we need constructive legislation presenting satisfactory and effective alternatives. To date, we have been unable to develop such an alternative. My constituents expressed their inalterable opposition to this measure, and their faith that the Congress of the United States

will eventually approve legislation offering maximum protection. I therefore oppose this bill.

It would be impossible to estimate the magnitude of the stock losses which will be incurred under this order. When such figures are available, however, I am convinced the financial loss to Texas stockmen will be overwhelming. How will these producers be compensated? Even before the ban on toxicants, some losses were incurred, which emphasize the need for some effective means of control. It appears that the use of toxicants—the most effective means of control presently known—has only been holding the predator population to a small increase. Can we afford to experiment in figure gathering when our livestock industry is at stake? I think not.

What we need is a careful study of the effects of certain types of toxicants prior to placing a total ban on their use. When toxicants are used properly, they can be the most humane method of controlling the predator population. Extinction of the coyote or any other predator is not desirable. Stockmen realize their effectiveness in controlling rodents. Nevertheless, hunting and trapping fall short of the level of protection needed for the preservation of our livestock. Both require a large manpower force; traps must be checked often and many times only cripple an animal; rugged areas almost prohibit hunting; and the costs of both are excessive. Our stockmen need time to develop new methods of control before toxicants are banned entirely. I reiterate my opposition to this measure, and urge colleagues to oppose it.

STATEMENT OF LOUIS S. CLAPPER ON BEHALF OF THE NATIONAL  
WILDLIFE FEDERATION

I am Louis S. Clapper, Director of Conservation for the National Wildlife Federation, which has its national headquarters at 1412 Sixteenth Street, N.W., here in Washington, D. C.

Ours is a private organization which seeks to attain conservation goals through educational means. The Federation has independent affiliates in all 50 States, Guam, Puerto Rico and the Virgin Islands. These affiliates, in turn, are composed of local groups and individuals who, when combined with associate members and other supporters of the National Wildlife Federation, number an estimated 3,000-000 persons.

We are pleased to have this invitation and opportunity to comment upon S. 3334 and H.R. 13152, the proposed "Federal Animal Damage Control Act of 1972," and the other bills under consideration here today.

We were intensely interested when the President proposed a new approach to predator control in his Environmental Message of 1972. We also have been interested in reviewing the legislation, H.R. 13152, which would implement portions of the program, as recently passed by the House.

As one of the Nation's oldest and largest citizens-type conservation organizations, we long have been concerned about conflicts over the control of predators. Thomas L. Kimball, Executive Vice President of the National Wildlife Federation, served as a member of the Special Advisory Board on Wildlife Management (known as the "Leopold Committee") which studied and made recommendations to the Secretary of the Interior in 1964 on the federal predator and rodent control program. Last year, our organization adopted a resolution on the management of predators (copy attached). In this, we express opposition to widespread applications of dangerous chemicals and devices. We further recognize that individual animals must be controlled when they prey upon livestock and game species, but are firm in the belief that this control should be performed by trained governmental professionals.

Generally speaking, we are hopeful that the President's recent Executive Order (No. 11643) will help attack the problem by prohibiting the use of poisons for predator control on federal lands. We believe this action had to be accompanied by a prohibition on the availability of poisons such as 1080, cyanide, and strychnine to the public, and the announcement on March 10 by the Environmental Protection Agency to stop their interstate shipment should serve this purpose—if properly enforced. However, while agreeing with its objectives, we question whether or not S. 3334 is the proper vehicle to accomplish these purposes unless amended to agree with the House-passed version of H.R. 13152.

Mr. Chairman, we find it somewhat confusing that the Administration's position on S. 3334 and H.R. 13152 is to turn this wildlife program relating to resident species over to the states; yet, with respect to S. 3199 and H.R. 13081, also under

consideration in this Subcommittee, the federal government apparently would pre-empt state responsibilities on the management of other species, including resident species, when they are endangered. This inconsistency baffles us.

We were highly concerned about H.R. 13152, as originally introduced. We were concerned about the Federal Government's proposal to turn the predator control program over to the States without adequate help. However, we feel that H.R. 13152, as amended and passed by the House, overcomes our initial basic objections and we recommend that the Committee either approve of this bill or amend S. 3334 to conform with it.

We are pleased that H.R. 13152, as passed by the House, will give substantial and continuing support to the States in their programs to control predatory animals. This support, expressed in grants for State programs and for research, is buttressed by Federal funds for operational programs. And, one of our major objections to the original versions of these bills was removed by the House-approved language assuring that State hunting and fishing license money (or not more than 10 percent) could not be used to finance predator control programs. Finally, we concur in the legislative history provided by the House Committee on Merchant Marine and Fisheries which explains that these programs are for the purpose of "controlling" rather than "eradicating" any predatory species.

Section 5, subsection (a), of H.R. 13152 makes it unlawful for a person to "(1) make field use of chemical toxicants on Federal lands for the purpose of killing predatory animals; or (2) make field use of any chemical toxicant on such lands which would cause any secondary poisoning effect for the purpose of killing other mammals, birds, or reptiles." Subsection (c) then provides for a maximum penalty of \$10,000 or imprisonment of one year, or both, for any violation of this section.

Mr. Chairman, we would propose that the Subcommittee consider adopting an amendment which would also provide for the revocation of any Federal license or permit when the licensee or permittee violates provisions of Section 5. We find it difficult to appreciate why the annual grazing permit of Bolton Ranch, Inc., was not revoked or cancelled by the Interior Department after the owner (Herman Werner) sponsored the mass killing of eagles from aircraft over Federal lands. We believe this new law must contain this added provision as a deterrent against permittees on Federal lands who may wish to take poisoning of predators into their own hands.

To conclude, Mr. Chairman, we stand for scientific management of wildlife, including predatory species, and believe this best will be accomplished under a continuing Federal-state effort similar to the Federal-aid programs which have functioned so effectively. We believe H.R. 13152, as passed by the House, will accomplish this basic objective.

Thank you again for the opportunity of making these observations.

#### RESOLUTION No. 2

#### NATIONAL WILDLIFE FEDERATION

#### MANAGEMENT OF PREDATORS

Whereas, the National Wildlife Federation recognizes the intricate relationships between species of wildlife and their environments; and

Whereas, it is recognized that predators serve a valuable function in the total ecological balance between species of wildlife and their habitats; and

Whereas, many natural conflicts occur between wild predator animals, game species and domestic animals, including livestock; and

Whereas, in specific instances it is desirable to manage those individual animals which consistently prey upon domestic livestock and which may be doing excessive damage to game species; Now, therefore, be it

*Resolved*, That the National Wildlife Federation, in annual convention assembled March 4, 1971, in Portland, Oreg., hereby continues its opposition to the widespread application of dangerous chemicals and devices and expresses the opinion that any control of specific predators should be performed by trained governmental professionals, either Federal or State, utilizing methods determined by suitable research and based upon proved need for management in each instance, when dangerous chemicals or devices are involved because of the potential hazards which they present to humans, domestic livestock, and to beneficial forms of wildlife; and be it further

*Resolved*, That this organization expresses its strong conviction that, to be effective with the least possible damage to beneficial creatures, adequate funds must be appropriated to allow employment of suitable numbers of properly trained technicians.

STATEMENT OF CLIFFORD G. MCINTIRE, LEGISLATIVE DIRECTOR, THE AMERICAN FARM BUREAU FEDERATION

Mr. Chairman and members of the subcommittee, the hearings being conducted by this Subcommittee relative to predator control are important to farmers and ranchers engaged in livestock operations in many states. The members of the Subcommittee are to be commended for their careful consideration of this issue. Many farmers and ranchers are involved in the business of raising cattle and sheep on private and public land. They have an interest in wildlife management, and they are currently providing a major portion of the game and wildfowl habitat of this country. They manage and own important family business enterprises which involve substantial personal investments. The end product of their year-round endeavors is a product for the market—cows, calves, sheep, lambs, or wool.

Production of these farm commodities begins when a lamb or calf is "dropped" on the range or pasture. Each animal is vital to the success of the enterprise. It logically follows that protection of that young animal from disease and predators is essential.

The legislation before this Subcommittee is important because it could affect many of the decisions to be made in the field of predator control by federal and state governments and by the livestock producers to whom animal predation is a serious management problem.

The American Farm Bureau Federation is a nationwide general farm organization representing 2,057,665 member families in 49 states and Puerto Rico.

At the most recent annual meeting of the American Farm Bureau Federation, held in Chicago in December, 1971, the elected voting delegates of the member State Farm Bureaus adopted the following policy on Predator Control:

"Some measure of predatory animal control is necessary in order to achieve proper livestock, wildlife, and land management. It is also necessary to control predators that are carriers of infectious diseases such as rabies.

"We therefore pledge our support and cooperation with livestock producers, sportsmen, and other interested persons to seek new means of predator control. We urge the continuation of all present predator control practices and urge Congress to take immediate steps to provide adequate funds for effective predator control and research. We also endorse research through the American Farm Bureau Federation Research Foundation in developing new predator control devices and documenting the losses of livestock and game animals and the resultant economic losses."

Included in Farm Bureau are many thousands of farmers and ranchers engaged in livestock operations including many in areas where animal predators are a serious management problem. Many use the renewable grazing resources of the federal public lands under permits granted by the Forest Service and the Bureau of Land Management. The Executive Order of the President dated February 8, 1972, and the proposed regulations published in the Federal Register of March 1 and March 24 by the Bureau of Land Management and the Forest Service, respectively, have a direct relationship to the use of the federal lands and predator control.

The action of the Environmental Protection Agency under date of March 10, involving the suspension and cancellation of federal registration of 18 products used in controlling predatory animals plus one product registered for use in rodent control, adversely affects control methods commonly and effectively used on both public and private lands.

On March 15, 1972, the American Farm Bureau Federation, in a letter to President Nixon, expressed concern with respect to the Executive Order and the action taken by EPA. A copy of this letter is attached. We respectfully request it be considered as a part of this statement.

In line with policy previously stated we strongly support the objectives set forth in Sec. 3 of H.R. 13152, relative to an expanded program of research.

It is our recommendation that any state cooperating with the Secretary under the terms of this bill be allowed to designate the state agency that shall administer a program for control of predatory and depredating animals. Sec. 4(a) should be amended to allow the state this latitude by striking from this section the requirement that the state agency be that dealing with wildlife management. The state legislature should have the authority to make this designation.

Provision is made in Sec. 4(b) for annual payments to the states not to exceed 75 percent of the cost of approved programs for the first two years and not to exceed 50 percent in each succeeding year.

Sec. 4(b) states that no federal funds shall be available to a state whose share in whole or part is to be paid from funds not appropriated or otherwise authorized by its legislature, and that not more than 10 percent of the required state funds may be derived from the sale of hunting, fishing and trapping licenses or permits. It is not clear to us if the word "authorized" includes or excludes the use of funds that may be contributed by farmers or ranchers; or funds derived from assessments made by entities other than the state such as counties, municipalities, or districts. We recommend latitude be provided in the language of the bill that would allow flexibility as to the source of funds used in a cooperative program with federal funds.

We object to the repeal of the Act of March 2, 1931, pertaining to the eradication and control of predatory and other wild animals.

We feel that the federal government, as the sovereign owner of one-third of the nation's land, has a management responsibility for the use of these land resources that cannot be avoided. Management of predator animals is a part of that responsibility. National policy relating to the management of these lands recognizes grazing as one of the important uses in the national interest.

About 36 percent of all federal land is grazed by livestock, and about 73 percent of the federal land that is grazed is located in the eleven Western states. In 1966, eight percent of the 66 million grazing beef cattle in the United States and 42 percent of the 21 million sheep grazed on federal lands.

In addition, the federal government has long shared in direct and cooperative research and control programs relating to many diseases, pests, and predators in the federal, nonfederal, and private sectors of our economy.

We strongly believe that the federal government, both as landlord of federal land and as a cooperator in programs on public and private land use, should continue in a position of responsibility and cooperation in both research and control programs to keep losses to predators to a reasonable minimum.

We have very serious reservations relative to the provision of Sec. 4(d) wherein the head of a Federal department, agency, or establishment may authorize, on land subject to his jurisdiction, the conduct by a state of an operational program for the control of predatory and depredating animals. It is the responsibility of the Federal agency that manages land owned by the Federal government to protect users of the land from predators and depredating animals consistent with the uses being made of the land under the agency's program of management. We seriously question if a Federal agency and a state agency can in reality develop a workable program of predator control on Federal lands, with the program to be administered by the state agency.

Wildlife values are important and must be recognized in our efforts to provide a sense of balance of values in management programs. But productive capability is also essential. The bill as passed by the House of Representatives strengthens existing programs of research in predator control in cooperation with all interested states. We suggest the bill be revised to allow financial resources to be drawn from federal, state, and private sources in a cooperative program of predator control; and also continue the federal government's direct responsibility in the management of predatory animals on all federal lands, consistent with the multiple uses provided for in the land management program of the federal agencies. We appreciate the opportunity to present these views. If we can be of further assistance to the Subcommittee we shall be happy to respond within our ability to any request.

STATEMENT OF JOHN W. GRADY IV, PH.D., ADMINISTRATIVE ASSISTANT,  
NATIONAL PARKS AND CONSERVATION ASSOCIATION

My name is John W. Grady IV, Ph.D. I am Administrative Assistant for Wildlife at the National Parks and Conservation Association, 1701 18th Street, N.W., Washington, D.C. 20009. I appreciate the invitation of the Committee to testify in these hearings.

The National Parks and Conservation Association is the leading national conservation organization concerned primarily with the protection of the National Park System. We are also concerned with other major environmental subjects such as wildlife and forestry.

The NPCA is an independent, private, non-profit membership institution, educational and scientific in character, with over 50,000 members throughout the

United States and abroad, all of whom receive the monthly *National Parks and Conservation Magazine: The Environmental Journal*.

Mr. Chairman, the National Parks and Conservation Association is pleased with the positive changes which were made in this bill in the House of Representatives. However, we find serious problems still evident in the bill, as enumerated below:

(1) NPCA is pleased that the bill prohibits the use of chemical toxicants for predatory animal control except in emergency situations. However, we are distressed that killing of predatory birds with poison will apparently be allowed. It was our understanding that President Nixon's Executive Order demanded a halt to the use of toxic substances for predatory animal control. Simply because there are other statutes dealing with birds, there is no reason that birds should be exempted from coverage under this law. The definition of predatory animals should be revised to eliminate this weakness.

(2) The National Parks and Conservation Association believes the Bill should clearly state that killing of predators as a method of control, except in emergency situations, should be avoided as a policy of the United States government. This is certainly desired by the great majority of the U.S. public. Instead, the Bill seems to endorse the concept of predator killings as long as poisons are not used. This represents, in our opinion, a startling misconception of public desires. Certainly, the National Parks and Conservation Association endorses the elimination of predator poisons, but we also strongly urge curtailed predator killing in all but emergency situations. We believe that H.R. 13152 should be reworded to make that clear. I should emphasize, however, that we recommend continued Federal-State cooperation when predator killing is necessary.

(3) There is an apparent contradiction in this legislation. The bill seems to be a statement endorsing increased Federal-State cooperation, but \$5 million is allotted to the Department of the Interior for an *operational* predator control program (Section 4(c) and 4(3)(2)). The sections should be changed so that the \$5 million will be spent on research on non-lethal methods of predator control. Funds should not be allotted for the Department of the Interior to conduct an *independent* predator control program except on Federal lands. Even on Federal lands, every effort should be made to encourage Federal-State cooperation regarding the use of non-lethal controls.

(4) Perhaps the most distressing portion of this legislation is that it effectively sanctions continuation of predator killing on public lands. Animals in general, and predators in particular, have a high public value. Thus, those who would use public lands for raising sheep, cattle, or other animals, should normally be required to bear the cost of losses to predatory animals, particularly since such users are normally receiving a subsidy in the form of reduced grazing fees. Predator killing should be outlawed on public lands except in extreme emergencies. The bill should make this quite clear, as public lands should continue to serve *all* public values.

The question of possible indemnities follows logically from (4) above, although such are not specifically considered in H.R. 13152 as reported. The National Parks and Conservation Association strongly urges that indemnities not be paid to those using public lands or to those using private lands (except as detailed below). If it can be clearly shown that the losses were directly caused by animals which could have been controlled if it were not for a Federal Statute protecting such animals, and such losses would not have occurred in absence of Federal Statutes, and if it can be shown that such losses in one year have caused a significant reduction in herd size, then the provision concerning private lands could be waived. Normal losses to predatory animals must be considered a legitimate business expense.

Again, thank you for this opportunity to submit our statement. I hope our comments are helpful to you.

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STATEMENT OF DANIEL A. POOLE, PRESIDENT, WILDLIFE MANAGEMENT INSTITUTE

Mr. Chairman, I am Daniel A. Poole, president of the Wildlife Management Institute. The Institute is one of the older national conservation organizations, and its program has been devoted to the restoration and improved management of renewable natural resources in the public interest for more than sixty years.

The Institute is pleased to have an opportunity to comment on this proposal, the goal of which ostensibly is to control an activity that needlessly has wasted countless numbers of some of this country's most unique wildlife. It should be mentioned here that the Institute acknowledges that there are times when animal control will be necessary and conditions under which the use of toxicants may be the best means of achieving the desired result.

Dr. Ira N. Gabrielson, my predecessor, was a member of the Secretary of the Interior's 1964 Special Advisory Board on Wildlife Management that studied and reported on the federal predator and rodent control program. Some of that Board's conclusions are evident in the proposals before the committee, particularly the recommendations dealing with expanded research and better control over the use of poisons.

Aside from our interest in and support of efforts to place animal control, when and where justified, on a scientific and selective basis, our concern is that the Congress devise an approach that holds some certainty of facilitating this worthwhile goal under field conditions. H.R. 13152 goes much further toward this end than does S. 3334.

S. 3334 would divest the Department of the Interior of predator control and shift the burden to the states within three years. Virtually all the states lack the resources to discharge this responsibility. Without federal support, we question if many will accept it. Those that accept may do so by diverting scarce funds from wildlife protection and management programs. Wildlife resources would suffer to finance programs mainly conducted to protect a commercial interest, livestock.

Under the provisions of H.R. 13152, on the other hand, the federal government would retain a continuing role in predator control activity. We believe it should have such a role. H.R. 13152 provides for cooperative federal-state programs of research to develop and implement the best methods of control. It calls for assistance to the states to carry out control programs in the mutual interest of both wildlife and domestic livestock. We would like to point out, however, two apparent inconsistencies.

Section 4(a) and section 5(a) of H.R. 13152, permits the emergency use of chemical toxicants for various reasons, including "the preservation of one or more wildlife species threatened with extinction or likely within the foreseeable future to become so threatened," and to prevent "substantial irretrievable damage to nationally significant natural resources." We urge that the committee also include "for wildlife management" as an acceptable emergency use.

There are many conceivable situations where the use of chemical toxicants for predator control may be necessary for the protection of animal populations that are not endangered species. This is particularly true in areas where animals are being reintroduced. The state of Oregon, for example, has found it beneficial to reduce dense predator populations for a limited time in areas where pronghorn antelope are being reintroduced. Pronghorn fawn survival is enhanced and the herds become established more rapidly. Once the population is entrenched, the use of toxicants can be eliminated if good habitat conditions are maintained. The reintroduction of the bighorn sheep into some of its historic range in the West is another example of this type of limited predator control as a wildlife management tool. We urge that such authority be included in the committee's bill.

Section 4(c) directs the Secretary to conduct "operational programs for control of predatory and depredating animals." We recognize the need for continued efforts by the federal government to control depredating animals. We question, however, why blanket authority for predator control is continued in addition to cooperative federal-state programs.

These blanket programs are authorized to receive \$5 million each year. This is more than the total budget of the Division of Wildlife Services for this current fiscal year. We do not understand why this increase in funding is necessary in view of the cooperative programs that are authorized in the same section of the bill and for which funds otherwise are authorized.

If the states are going to do the bulk of predator control work with funding assistance from the federal government, the operational predator control programs of the Interior Department certainly should not be expanded as the increased funding implies. These authorizations should be redirected to the federal-state cooperative efforts to refine these programs and make them more responsive to specific needs.

STATEMENT OF WESTERN ASSOCIATION OF STATE GAME AND  
FISH COMMISSIONERS

Mr. Chairman, I am John W. McKean, Director of the Oregon State Game Commission testifying in support of H.R. 13152 on behalf of the Western Association of State Game and Fish Commissioners. The Western Association is a regional forum including the fish and wildlife agencies of 13 western states and 2 Canadian provinces.

Our support of this legislation is based on the following:

1. Recognizes that management of resident wildlife is a state function and that there is a national interest in state wildlife management programs.

2. Provides modest federal assistance to the states for performance of services formerly provided through the Federal Animal Damage Control Act of 1931.

3. Stipulates that matching state funds for animal damage control programs will not create a substantial diversion of dedicated wildlife funds by imposing a 10 percent maximum of revenue derived from sale of hunting, fishing and trapping licences.

4. Provides that federal assistance will be contingent upon designation of a state wildlife agency as the organization responsible for program administration.

5. Provides for close cooperation between state and federal agencies in research, planning and implementation of animal damage control programs.

The western states have an abundance and variety of wildlife including many species that frequently conflict with other resources or land uses. The wildlife management problems and programs are substantially different than this in other states because of the large amount of relatively wild land and the fact that approximately 45 percent of land in 11 contiguous western states is in federal ownership. Timber and livestock production are important enterprises in western states, including the federal lands, and some control of resource losses to predators and rodents is essential to achieve production goals.

Most of the western states are content with the level and nature of the Federal Animal Damage Control Service provided by the Bureau of Sport Fisheries and Wildlife under the term of the "Federal Animal Damage Control Act of 1931." Cooperative agreements between the Bureau and the responsible state agencies have provided a good vehicle for planning, financing needed service programs and there is little documentation that the practices employed by the Bureau have jeopardized other wildlife or domestic resources as many people would have you believe.

Following the President's Executive Order 11643 of February 8, 1972, the implementation order of the Secretary of Interior dated February 10, the decision by the Environmental Protection Agency to stop shipment of certain pesticides, and the announced intent of the Secretary of Interior to seek repeal of the Federal Animal Damage Control Act of 1931, the states began formulation of alternate programs for consideration by the respective state legislatures. A draft of Oregon's preliminary plan is enclosed for reference by the subcommittee. State plans cannot be completed until the intentions of Congress are made known through H.R. 13152 or some similar legislation. It is therefore urgent that Congress act upon the matter this session so that state legislatures that meet on a biennial basis can make necessary adjustments of state laws and budgets during the 1973 session.

H.R. 13152 provides for federal assistance to the states and stipulates that state matching funds may contain not to exceed 10 percent of revenue obtained from sales of hunting, fishing and trapping licenses. This is an important stipulation. Control of predators and depredating animals is primarily an agricultural service program and it is not proper to place the financial burden selectively upon licensed hunters, anglers and trappers. The proposed 5 years of federal assistance and the provision for evaluation and extension thereafter are desirable features of H.R. 13152. Although ready and willing to act, many states by statutes depend heavily upon the federal service program. Repeal of the Federal Animal Damage Control Act of 1931 will require a major adjustment of state laws relating to animal damage control and many states will not have authority to initiate substitute programs until their legislatures have acted.

The requirement that states place responsibility for animal damage control in the wildlife agency is an important provision. At present the states are in the process of broadening the missions of their wildlife agencies to assure

maintenance of all indigenous species of fish, mammals, birds, amphibians and reptiles, including rare and endangered species. This movement is encouraged by the International Association and Regional Associations of Game, Fish and Conservation Commissioners. They have collectively developed a "Model State Law" as an aid to the states in making needed adjustments of state wildlife laws. Coyotes, bobcats, foxes, and rodents and other species, which are often in conflict with other land uses, are a part of the natural fauna and should be managed as our integral part of the wildlife resource. Because wildlife damage control has been primarily an agricultural service program 12 states now place primary responsibility with the Department of Agriculture, Live-stock Commission or other agricultural service agencies. This fragmentation of state wildlife programs does not provide an efficient vehicle for coordinated wildlife management.

Section 4(d) provides for the conduct of state animal damage control programs on federal lands, but allows the administrator of the public lands to impose the terms and conditions of such programs. The Western Association realizes that this provision is consistent with the rights of all landowners. However, the negative language in Section 4(d) is not in keeping with the tenor of federal-state cooperation expressed in other portions of the bill such as establishment of research objectives, inventory of predatory animals, dissemination of research findings, demonstration of control methods, emergency use of toxicants and implementation of programs. It is suggested that Section 4(d) be amended as follows:

"The head of a Federal department, agency, or establishment shall cooperate with a state in the conduct of a mutually acceptable program for the control of predatory and depredating animals on lands subject to his jurisdiction."

Mr. Chairman, I appreciate the opportunity to present the views of the Western Association on this important legislation. At their annual meeting, July 19, 1972, member states of the Association endorsed H.R. 13152 and strongly urged its passage during the current Congressional session. We urge your prompt and favorable action upon this measure.

#### *Program Cost*

On the initial year an investment of about \$50,000 in traps, scare devices, radios and other equipment will be required. Maintenance of these items will require only a small expenditure of subsequent years. The program cost is estimated at approximately \$410,000 the first year and \$360,000 on subsequent years.

#### *Estimated program cost*

Salaries:	
22 Wildlife Conservation Technicians (\$7,128 per year)-----	\$156, 800
5 Game Biologist 2 (\$11,604 per year)-----	58, 000
1 Game Biologist 3 (\$13,452 per year)-----	13, 450
Total salaries-----	<u>228, 250</u>
Supplies and Services:	
Mileage (550,000 miles)-----	55, 000
Aircraft rental-----	45, 000
Traps, steel (300 dozen)-----	<sup>1</sup> 21, 600
Traps, live (300 small animal, 10 culvert-type)-----	<sup>1</sup> 10, 000
Repellents and scare devices-----	8, 000
Radios (\$750 per unit)-----	<sup>1</sup> 20, 500
Radio maintenance-----	1, 500
Travel and meals-----	7, 000
Office and supplies-----	5, 000
Other supplies-----	8, 150
Total supplies and services-----	<u>181, 750</u>
Total program-----	<u>410, 000</u>

<sup>1</sup> First year purchase only.

#### *Sources of Revenue*

H.R. 13152 would authorize declining federal assistance during the first three years as follows:

- First year, up to \$300,000 with the state matching @ 25%.
- Second year, up to \$200,000 with the state matching @ 50%.
- Third year, up to \$100,000 with the state matching @ 75%.

With this formula the state's share of the cost would be :

First year, \$110,000.

Second year, \$160,000.

Third year, \$260,000.

The state's wildlife departments are collectively seeking continuancy federal aid for performance of predator and rodent control services and at this point it appears probably that some concession may be granted by Congress—particularly in the western public land states.

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STATEMENT OF INTERNATIONAL ASSOCIATION OF GAME, FISH AND CONSERVATION COMMISSIONERS

Mr. Chairman, I am John McKean, Director of the Oregon Game Commission and Vice-Chairman of the Predator Policy Committee of the International Association of Game, Fish and Conservation Commissioners. I appreciate this opportunity to testify in connection with H.R. 13152 and S. 3334 on behalf of the Association which numbers among its government members the wildlife agencies of all fifty States, the Commonwealth of Puerto Rico, and five Canadian provinces. It is the Association's purpose to coordinate efforts of public agencies responsible for protection and management of the wildlife of North America.

We support H.R. 13152 as approved by the House on July 17, 1972. The decision of the federal government to ban the use of chemical toxicants on public lands except in emergency situations and to in large measure transfer animal damage control programs to the states will have its greatest impact in the western states. State wildlife agencies are willing to shoulder this responsibility.

Because many of the traditional predators and rodents are resident species, we concur with the approach taken in H.R. 13152 that management should be in the hands of state wildlife agencies. There are two areas where we believe the House-passed measure could be improved. Both are in the nature of clarification. Section 4(a) and section 5(b) refer to emergency situations relating to use of chemical toxicants in state programs. One such instance where emergency use would be possible is in the case of prevention of substantial irretrievable damage to nationally significant natural resources. We would urge that the Committee Report make clear that falling within the ambit of this provision are instances where use of chemical toxicants may provide the only effective means to permit survival of other resident wildlife populations. In the case of antelope populations, for example, control of higher predator populations is often required to improve antelope fawn production. In addition, attempts by state agencies to reintroduce wildlife species in areas of suitable or historic range where high predator populations are present could be frustrated unless provision is made for emergency use of chemical toxicants. Where other methods of control are ineffective, use of chemical toxicants should be available to reduce temporarily the number of predators to a point where transplanted animals would be able to reach a survival threshold.

In addition, section 4(d) of H.R. 13152 provides that where states undertake control programs on federally-owned lands the federal land administering agency may subject such programs to any such terms and conditions as it may impose. This provision may make it difficult for states to organize and conduct operational programs on some federal lands. We would urge that the provision in section 4(d) be amended so as to restrict the imposition of conditions to those deemed necessary to avoid interference with other uses of the land.

Mr. Chairman, with the above clarifications we support H.R. 13152. I would be willing to attempt to respond to any questions Members may have.

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AMERICAN FARM BUREAU FEDERATION,  
Washington, D.C., March 15, 1972.

Hon. RICHARD M. NIXON  
The White House, Washington, D.C.

DEAR MR. PRESIDENT: Developments of recent weeks relative to the continuing ability of farmers and ranchers to use effective chemical controls against livestock and crop predators are cause for very deep concern on our part.

The elected voting delegates of the member State Farm Bureaus to the 53rd annual meeting of the American Farm Bureau Federation in December, 1971, adopted policies on wildlife pests and predator control as follows :

## WILDLIFE PESTS

"Blackbirds, starlings, and similar pests are causing serious damage to crops and property in many areas. They are a hazard to aviation and a carrier of diseases to humans as well as livestock and crops.

"This problem is increasing over a wide geographic area. Intensive research efforts at state and federal levels and prompt use of all practical recommendations and methods to eradicate these pests are fully justified.

"We continue our strong support of this program, as supervised by authorized personnel, and recommend that adequate funds be made available to the Department of the Interior for this purpose. However, since a solution has not yet been found, we strongly urge that Congress provide the needed money to construct a blackbird and starling research facility and increase further the amount of money allocated for both research and control work."

## PREDATOR CONTROL

"Some measure of predatory animal control is necessary in order to achieve proper livestock, wildlife, and land management. It is also necessary to control predators that are carriers of infectious diseases such as rabies.

"We therefore pledge our support and cooperation with livestock producers, sportsmen, and other interested persons to seek new means of predator control. We urge the continuation of all present predator control practices and urge Congress to take immediate steps to provide adequate funds for effective predator control and research. We also endorse research through the American Farm Bureau Federation Research Foundation in developing new predator control devices and documenting losses of livestock and game animals and the resultant economic losses.

The American Farm Bureau Federation Board of Directors, in session on March 7-9, 1972, decided that:

"The American Farm Bureau Federation and member State Farm Bureaus take immediate and all appropriate steps toward the implementation of the 1971 AFBF delegate body action on this vital issue, with emphasis on:

"a. Some measure of predator control is necessary for livestock and wildlife production, land management and infectious disease control.

"b. Urge continuation of all present programs with adequate funding by Congress until improved methods are developed.

"c. Research through the American Farm Bureau Research Foundation.

"We pledge full cooperation with all groups who seek to improve the existing predator control programs. We believe the approach in the Presidential executive order will create serious irreversible problems for both wildlife and livestock management unless corrective modifications are initiated."

It is most serious and unfortunate that your Executive Order of February 8, 1972, entitled "Environmental Safeguards on Activities for Animal Damage Control on Federal Lands," in Section 1, item (3), strikes very heavily against the longtime efforts of federal-state cooperative programs in the control of damage caused by animal and bird predators and other wildlife pests. That these pests are causing serious losses in certain crop and livestock operations—totalling millions of dollars—is a fact seemingly ignored by the Executive Order.

The effect of the Executive Order governing the use of chemical toxicants for predator control on federal lands has been recently broadened by the suspension-cancellation by the Environmental Protection Agency of pesticides registered for use in controlling predators as announced in a press release dated March 10. These executive and administrative decisions will force redirection of management in the range livestock industry, some field crops operations, and other land uses that are serious beyond accurate calculation at this time. To revert to predator control methods proven inadequate thirty years ago hardly seems the proper solution to problems in the context of the improved production methods of today's agriculture.

The Environmental Protection Agency's release of March 10 seems to say that it is the policy of that agency to differentiate between rural and urban areas in decisions relative to the cancellation and/or suspension of registration of chemicals for rodent control. We appreciate that many wildlife species and some rodents are not common to both rural and urban areas; however, protection of humans is important in rural as well as urban areas and denial of use of a material should be equally applicable.

While we appreciate that these decisions have been taken in what has been concluded to be in the best interest of the public at large, we believe them to be unwise. Adequate consideration has not been given to alternative transitional methods that would avoid economic losses to the livestock industry.

These actions place on the federal agencies and the executive department a heavy responsibility to effectuate a workable program of predator control that will preserve the economic capability of farmers and ranchers to produce quality food and fibre. Effective management of wildlife can also be threatened by excessive numbers of predators.

It is vitally important that rural areas be treated equitably in decisions relative to pest control and other environmental matters.

Sincerely,

WILLIAM J. KUHFUSS,  
*President.*

TUSCARORA, NEV., July 27, 1972.

HON. ALAN BIBLE,  
*U.S. Senate, Senate Office Building,  
Washington, D.C.*

DEAR SENATOR BIBLE: We are advised that the Administrations' predator control bill, H.R. 13152 and the companion bill S. 3334, are tentatively set for hearing on August 7 and 8 before the Environment Subcommittee of the Senate Commerce Committee.

While H.R. 13152 was amended substantially before House passage, its main thrust is still to write into law the Presidential Order issued in February banning the use of chemical toxicants on Federal lands for predator control. Since the toxicants are already banned, why the big rush to pass a bill which will write into law the President Order? Until research develops a satisfactory alternative, toxic chemicals offer the only really effective means of controlling predators and preventing very substantial damage to livestock.

We feel it would be much more logical to defer legislation for a year and assess the effects of the Presidential Order. If within the next 12 months damage by predators increases substantially as a result of the President's ban on toxicants, then some needed modifications might be made in this Order. But that would no doubt be impossible if Congress enacts into law the Presidential Order.

Between the broken promise of the Administration that we would have full opportunity for hearing and review of the Cain report on Predator control, and the banning of toxic chemicals by the President, followed within a month by the cancellation of registration of manufacturers of toxic chemicals for predator control, we have suffered more than enough this year and we would urge and greatly appreciate your help in stopping the final blow by deferring action in this session on H.R. 13152 and S. 3334.

Thank you very much for your assistance.

Sincerely,

DELOYD SATTERTHWAITE,  
*Acting Secretary, Nevada Wool Growers Association.*

NEW MEXICO WOOL GROWERS, INC.,  
*Roswell, N. Mex., July 31, 1972.*

HON. JOSEPH M. MONTOYA,  
*U.S. Senator,  
Washington, D.C.*

DEAR SENATOR MONTOYA: We are advised that the Administration's Predator Control Bill, H.R. 13152 and the Companion Bill S. 3334, are tentatively set for hearing on August 7 and 8 before the Environmental Subcommittee of the Senate Commerce Committee.

The Executive Committee of the New Mexico Wool Grower's Association feels it would be more logical to defer legislation for a year then summarize the effects of the Presidential Order. Some needed modification of the Order will be necessary if predator damage increases as expected. We are of the opinion that modification would be impossible after Congress enacts it into law.

I am of the opinion H.R. 13152 deprives the domestic livestock producer of the right to protect his property. I have not had the opportunity to review S 3338, however, would assume the wording to be similar.

There is little hope for the survival of this country if man is deprived of the right to protect his property, by whatever means necessary.

Very truly yours,

IVAN WATSON, *President.*

WYOMING DEPARTMENT OF AGRICULTURE,  
*Cheyenne, Wyo., August 3, 1972.*

Hon. FRANK E. MOSS,  
*U.S. Senator from Utah, New Senate Office Building,  
Washington, D.C.*

DEAR SENATOR MOSS: We urge indefinite postponement in reporting Senate Bill 3334—Federal Animal Damage Control Act of 1972—out of the Environmental Subcommittee and the Senate Commerce Committee for the following reasons:

We find the amendments to the Federal Aviation Act, relative to the "shooting of animals from aircraft" bill allows the states to designate the state agency responsible for issuing permits to shoot animals from aircraft.

In 1953, the Wyoming Legislature gave the authority to the Wyoming Department of Agriculture, to cooperate with the United States Department of Interior and the Fish and Wildlife Service, in the control of various predators and rodents. The Legislature gave further authorization for the Wyoming Department of Agriculture, in cooperation with the Fish and Wildlife Service, to enter into cooperative agreements with other governmental agencies, counties, associations, corporations or individuals to carry out the purpose of the Act.

In 1943, the Wyoming Legislature gave the authority to create a Predatory Animal District in each county in Wyoming. The county predatory animal boards have the authority to levy taxes on sheep, budget and expend monies for predatory animal control and "exercise general supervision of the eradication and extermination of such predatory animals as are in the habit of preying upon and destroying livestock, pigs, poultry and other domestic animals, including wild game, and by such local representation and authority to devise and put in operation methods as will best secure eradication of such predatory animals, and to provide funds in addition to general taxes and such funds as may be created by other agencies within the State of Wyoming for the said purpose. Said district boards in their discretion shall decide how funds coming into their control and derived from the assessment of a special mill tax on sheep in their districts shall be disbursed."

The Act of March 2, 1931 which authorizes federal participation and directs conduct of such investigations, experiments, and tests as may be deemed necessary to determine, demonstrate and promulgate the best methods of eradication, suppression or control on federal, state and private lands of mountain lions, wolves, coyotes, bobcats, prairie dogs, gophers, ground squirrels, jack rabbits and other animals injurious to agriculture, horticultural, forestry, animal husbandry, wild game animals, fur-bearing animals and birds, for suppression of rabies and tularemia and for the destruction or control of such animals. The Act also authorized cooperation with States, individuals, public and private agencies, organizations and institutions. The Advisory Committee on Predator Control did not recommend repeal of this Act.

The functions of the Secretary of Agriculture were transferred to the Secretary of Interior in 1939 under Reorganization Plan No. II § 4(f), effective July 1, 1939 under Section 133(t) of Title 5, Executive Departments and Government Officers and Employees.

To the best of our knowledge, no federal, state or local program has acted in an illegal or irresponsible manner in conducting predatory animal damage control.

The Act of March 2, 1931, also authorizes expenditures for equipment, supplies, and materials, including employment of persons and means to execute the functions imposed by the Act.

The USDI, USDA and other federal agencies are authorized or responsible for animal damage control programs on lands administered by their agencies. These agencies, in most cases, may authorize the states to conduct programs on federal lands. We quote from the Draft Environmental Statement on the proposed Animal Damage Control Act of 1972 prepared by the USDI, "All land managing Federal Agencies have sufficient authority to permit control of predatory and depredating animals which they deem is necessary for the accomplishment of their objectives."

Present laws also include the Migratory Bird Act; amendments to the Fish and Wildlife Act of 1956 and the Federal Aviation Act of 1958 relative to shooting animals from aircraft; the federal Insecticide, Fungicide and Rodenticide Act; the Endangered Species List and the Intergovernmental Personnel Act of 1970.

So much for present laws—as we now begin to review pending legislation. H.R. 10729, an Act to amend the Federal Insecticide, Fungicide, and Rodenticide Act, and for other purposes. This may now be law, but in any event, this Act, or regulations promulgated under this Act, or the present Act, have enabled E.P.A. to restrict the interstate shipment of chemical toxicants. This actually withdraws their use on private and public lands. Supplies have been voluntarily returned or confiscated. Essentially, this Act totally controls the use of chemical toxicants.

H.R. 14731—Amendments to the Fish and Wildlife Act referring to authority for the Secretary of Interior to enforce the laws pertaining to shooting animals from aircraft. This may now be law.

S. 3334—This bill is as it was written, to the best of our knowledge, but H. 13152 was amended by the House nearly as the Department of Interior proposed amendments suggested. These amendments were not, as we understand the situation, forwarded to your subcommittee from the Department of Interior, but were sent to the House Subcommittee where they were incorporated and have now been passed along to your Subcommittee in H.R. 13152. Those amendments proposed by the Department of Interior, in effect, create a situation whereby the Congress designates the agency in the state(s) that the Department of Interior has selected and has been incorporated into H.R. 13152. We also note that Section 4, Subsection 2 authorizes up to \$5,000,000 for the Secretary of Interior for an operational control program. This was not in the U.S.D.I. recommended amendments.

H.R. 13152 and S. 3334 call for the repeal of the Act of March 2, 1931; and provides for federal funds to the states if they conduct an animal damage control program as approved by the Secretary of Interior and further, on the fact that states derive funds from legislative appropriations. The bills provide for restriction of chemical toxicants; research into control methods; a wildlife inventory and providing for extension services.

At one time we felt the proposed legislation phased out the federal government and that the states would assume responsibility. The Draft Environmental Statement on the Federal Animal Damage Control Act of 1972 compares several alternatives as follows:

Alternative I—Continue or Increase Current Program

Alternative II—Continue Current Program Except Use of Poisons Prohibited

Alternative III—Federal Agency Assigned Total Jurisdiction

Alternative IV—Federal Program Totally Terminated

Alternative V—Federal, State or Federal/State Insurance

In re-reading the Draft Environmental Statement we feel that the present House Bill 13152 has rendered that Draft Environmental Statement invalid and respectfully request that another environmental study be written prior to further action on S. 3334 or H.R. 13152. We also respectfully request that an Economic Impact Statement be written in conjunction with the Environmental Statement and that inputs and outputs be measured as they relate to livestock owners, wildlife enhancement, benefactors and those who may suffer rather than benefit.

H.R. 15163 and H.R. 14158 which referred to the indemnity payments was rejected by the representative who apparently felt that the public should not or would not pay for predator losses. This would have been a very difficult program to administer. Apparently the public desires the cost of control which is lower than the cost of indemnity for losses.

The concern of the United States Department of Interior about wildlife in Wyoming is understandable, but that concern is unjustified and their proposed amendments, which are now incorporated into H.R. 13152, designating the state's wildlife agency is not necessary. The farmers and ranchers of Wyoming are well aware of sound habitat and wildlife management practices. These farmers and ranchers are also aware of, and largely responsible, for the increased numbers of wildlife in this state. We feel this is sufficient justification for leaving the predator control program in the hands of agricultural interests.

In reality, no new laws, federal or state, need be enacted, changed or repealed. The Act of March 2, 1931 is adequate and contains every detail needed to conduct research, control, etc., spelled out in S. 3334 and H.R. 13152.

In summary, we feel that the present provisions for conducting an effective Wyoming animal damage control program are adequate, provided the federal government participates financially in proportion to their responsibility and offers technical assistance. We see no need for new legislation, federal or state, and/or opposed to any effort that would allow USDI to determine the state agency responsible for Predator Control. We believe the responsibility for Predator Control in Wyoming should be in the Wyoming Department of Agriculture, cooperating with County Predator Boards. Any effort to make a state decision at the federal level as to the state agency responsible for animal damage control will create chaos. We believe that predator control directly affects agriculture, more than any other segment of our western economy and further research needs to be accomplished concerning predators and predator control programs prior to any further action by Congress.

We suggest Congress not act on S. 3334 and H.R. 13152. If Congress wishes to act we suggest the following: Federal involvement be totally terminated except for research, technical assistance, and financial grants to states in proportion to the federal governments geographic, land-ownership and predator loss responsibility in each of the states; allow the states to determine the responsible agency for animal damage control in their state.

Sincerely,

JACK HERTZLER,  
*Commissioner.*

STATE OF WYOMING,  
DEPARTMENT OF AGRICULTURE,  
*Cheyenne, Wyo., August 7, 1972.*

Hon. FRANK E. MOSS,  
*U.S. Senator, New Office Building,  
Washington, D.C.*

DEAR SENATOR MOSS: Please find enclosed two resolutions adopted by the Western Association of State Departments of Agriculture, July 24-25, 1972, at Saratoga, Wyoming.

These resolutions unanimously adopted convey the feeling of the Western States Departments of Agriculture concerning the controversial predator control programs.

We are pleased to furnish them to you for your use.

Sincerely,

JACK HERTZLER,  
*Commissioner of Agriculture.*

Enclosures.

RESOLUTION NO. II

PREDATOR CONTROL

Whereas, the predator problem affects the economic and social well being of the livestock owners, specifically, and local economies generally; and

Whereas, the states recognize their own problems and the problems of their citizens to a finer degree and the Federal Government; and

Whereas, the use of chemical toxicants for predator control are a true necessity in some cases and areas; and

Whereas, the states have protected the natural resources within their boundaries, such as wildlife, through secondary benefits of predator control; and

Whereas, rabies is a health problem with serious ramifications; Be it, therefore,

*Resolved*, That the state agency responsible for predator control be determined by states; that approval be given for the use of toxicants in areas where terrain and other conditions preclude the effective use of aerial hunting, ground hunting, trapping or denning; that Congress refrain from repealing or amending the Act of March 2, 1931; and be it further

*Resolved*, That members of the Western Association of State Departments of Agriculture be urged to contact their respective Congressional delegation to apprise them of these areas of concern and that the National Association of State Departments of Agriculture assist with liaison between Federal agencies and Congressional committees.

## RESOLUTION No. VIII

## PREDATOR ANIMAL CONTROL PROGRAMS

Whereas, the responsibility for predatory animal control programs now rests with the Secretary of the Interior; and

Whereas, the Department of the Interior is natural resources oriented and thus may not be fully cognizant of Agricultural needs relating to predatory animal damage; and

Whereas, predatory animal damage research and control programs have never been adequately funded to provide the needs of Agriculture; and

Whereas, predatory animals are primarily a threat to a major sector of Agriculture rather than to natural resources; and

Whereas, the Secretary of Agriculture is responsible for the production and promotion of Agriculture in the United States; and

Whereas, the Secretary of Agriculture is aware of the needs of Agriculture including the programs necessary to effectively and efficiently fulfill his responsibility; be it, therefore,

*Resolved*, That the Western Association of State Departments of Agriculture in session July 24-25, 1972, strongly urges that the responsibility for predatory animal damage research and control programs be assigned to the Secretary of Agriculture to insure more effective programs that will preserve the economic capability of Agriculture to adequately feed and clothe the nation; and be it further

*Resolved*, That this Resolution be forwarded to the National Association of State Departments of Agriculture for further study, consideration and support.

WESTERN ASSOCIATION OF STATE GAME AND FISH COMMISSIONERS,  
*Boise, Idaho, August 7, 1972.*

HON. FRANK E. MOSS,  
*Member, Committee on Interior and Insular Affairs,  
New Senate Building, Washington, D.C.*

DEAR SENATOR MOSS: I would like to call your attention to the attached copy of Resolution No. 28, Support for Federal Legislation on Animal Damage Control, which was adopted by the Western Association of State Game and Fish Commissioners at its recent conference held in Portland, Oregon on July 19, 1972.

Sincerely,

ROBERT L. SALTER,  
*Secretary.*

Attachment.

## RESOLUTION No. 28

## SUPPORT FOR FEDERAL LEGISLATION ON ANIMAL DAMAGE CONTROL

Whereas, proposed legislation contained in H.R. 13152, entitled "Federal Animal Damage Control Act of 1972," outlines procedures for conduct of an animal damage control program through cooperative state and federal efforts, reaffirms authority for management of resident wildlife by the states, provides for continuous federal funding assistance, stipulates that state cost-sharing funds contain a maximum of 10 percent of hunting, fishing and trapping license revenues and provides that federal funding assistance be contingent upon designation of the State Wildlife Agency as the organization responsible for program administration.

Now, therefore, be it

*Resolved*, That the Western Association of State Game and Fish Commissioners hereby endorses and supports H.R. 13152, as passed by the House of Representatives, with the exception of Section 4(d) which it feels should be deleted or amended to provide for full cooperation of federal administrators in the conduct of an operational program within a state, and be it further

*Resolved*, That this resolution be sent to the Chairman of the Senate Committee on Interior and Insular Affairs and to the Secretary of the Interior.

AMERICAN NATIONAL CATTLEMEN'S ASSOCIATION,  
*Denver, Colo., August 9, 1972.*

Hon. FRANK E. MOSS,  
*Senate Commerce Committee, New Senate Office Building,  
 Washington, D.C.*

DEAR SENATOR MOSS: In lieu of presenting oral testimony, during hearings on the Federal Animal Damage Control Act of 1972, H.R. 13152 and S. 3334, the American National Cattlemen's Association (ANCA) respectfully requests that this letter be entered into the hearing record on this legislation.

The ANCA speaks for beef cattlemen throughout the United States. Affiliated with our group are forty-four state cattlemen and cattle feeder associations, all of the principal national beef cattle breed associations, and thousands of individual cattlemen. Our individual members are in each of the fifty states.

It is our feeling that the predator legislation being considered in your subcommittee is unnecessary. It seems academic that such legislation would be considered in light of the action taken earlier this year by Executive Order banning the use of toxic chemicals on Federal lands for predator control and the subsequent action of the Environmental Protection Agency suspending the registered use of toxic chemicals for predator control.

Although a supposedly scientific document, the Caine report was considered the basis of the Administration action. We feel that the report is inadequate and strongly biased against the domestic livestock industry.

Although there is merit in the language of H.R. 13152 and S. 3334 which indicates that additional research needs to be connected in order to find alternative methods of predator control, we feel that this can be done through appropriate action of Congress without following the procedures as outlined in the legislation. The Department of Interior has all of the authority necessary to control predators under the Act of March 2, 1931, which would be repealed should the legislation pending before your Subcommittee be enacted.

In addition to the objectionable features of repealing the 1931 Act, at least two other portions of the legislation are objectionable. In Section 4(a), the state agency dealing with wildlife management would be designated as a cooperative group to cooperate with the Interior Department. This may be desirable in the case of some states, but in the case of others there is a strong sentiment that the State Department of Agriculture should receive the designation. It seems appropriate that the respective states be left the decision as to which agency is the most appropriate to carry out the program within the state.

The language in Section 4 leaves too much discretion in the hands of the Secretary of Interior as to whether or not money would be allocated to the states. We recommend that this be changed so as to make it mandatory that the Secretary must cooperate with the states on any predator control program.

The Federal Government is the sovereign owner of all of the Federal lands within a state. This means that even though a state agency might have jurisdiction in a predator control program the Federal Government could say that the predator control program may move forward except for those lands under Federal jurisdiction. This could create an untenable situation with regard to any predator control program which a state might wish to undertake.

If it is the wisdom of Congress to enact the pending legislation, we ask that these amendments please be incorporated. However, we reiterate again it is our feeling that the legislation is unnecessary in light of action having been taken by the Federal Government earlier this year.

Respectfully submitted.

C. W. McMILLAN.

TEXAS SHEEP AND GOAT RAISERS ASSOCIATION,  
*San Angelo, Tex., August 10, 1972.*

HEARING CLERK, ENVIRONMENTAL SUBCOMMITTEE,  
*Senate Commerce Committee,  
 U.S. Senate, Washington, D.C.*

DEAR SIR: We are enclosing a copy of a resolution passed by the Texas and Southwestern Cattle Raisers' Association on March 15, 1972. We would appreciate it if you would include this resolution in the record of the testimony of

John S. Cargile, president of the Texas Sheep and Goat Raisers' Association. Mr. Cargile testified before the Environmental Subcommittee on August 8, 1972.

Thanking you, I am  
Sincerely,

BILL SIMS,  
*Executive Secretary.*

Enclosure.

RESOLUTION

Whereas, private lands in Texas are the habitat for the great majority of all our game resources, and

Whereas, efficient and economic cattle production is essential in supplying protein to the consuming public at competitive prices, and

Whereas, the abrupt elimination of traditional control methods for predators will result in both critical damages to the state's game resources and will jeopardize the efficient production of livestock.

Now, therefore, the Texas and Southwestern Cattle Raisers Association opposes these sudden changes in the use of previously accepted predator control methods and asks the Environmental Protection Agency to modify the recent withdrawal rulings.

Adopted at the 95th Annual Membership Meeting of Texas and Southwestern Cattle Raisers Association, March 15, 1972, Houston, Texas.

FRIENDS OF THE EARTH,  
*Washington, D.C., August 11, 1972.*

Hon. FRANK MOSS,  
*New Senate Office Building,  
Washington, D.C.*

DEAR SENATOR MOSS: I am mailing under separate cover a copy of my testimony which was to have been given on August 7 at your hearing. A death in our family in Wyoming prevented my delivering this testimony as scheduled. I am sorry that I could not do so, because it seems critically important that the plight of several rare species, menaced by DWS activities, be fully aired.

I have enclosed separately the section dealing with the red wolf, along with a brief article written by scientists in the field.

My testimony perhaps failed to emphasize properly the concern we feel for those sheep raisers who are being injured by depradating coyotes and dogs. We definitely feel that the bill should include some type of insurance or compensation. I also feel that a program for training, placing and subsidizing the wages of sheepherders might be valuable. We are working on language which might be helpful here.

It seems to me that a problem of increasing seriousness to livestock raisers who attempt to operate near areas of suburban sprawl involves packs of dogs. It strikes me that owners of such dogs might be far more inclined to confine the animals properly if it were possible to make them liable for damage inflicted by their dogs on public land! It ought in fact to be illegal to have an unaccompanied dog on public land.

The population explosion of pets in this country is a minor disaster in itself. We are working on birth control legislation for pets in this office at present.

I really feel, incidentally, that the use of birth control drugs and other sterilization procedures is also the best eventual answer to managing coyotes. It is obvious, however, that an approach based on this method must be very responsibly and carefully conducted.

Enclosure.

Respectfully,

THOMAS GARRETT,  
*Wildlife Director.*

Mr. Chairman, I am Tom Garrett. Thank you for this opportunity to testify. I am appearing today on behalf of the 27,000 US members of Friends of The Earth, and the 38,000 members of Defenders of Wildlife.

Friends of The Earth is an international organization, with branches in over 20 countries, committed to the preservation and rational use of the environment. Our Washington, D.C. office is at 620 C St., S.E.

Defenders of Wildlife is a national organization, dedicated to the defense of wildlife and wildlife habitat, with headquarters at 2000 N St. NW., Washington, D.C. Defenders has spearheaded the fight to abolish federal poisoning of livestock. I should like to cite, among those leading the struggle: Mary Hazel Harris, executive director and editor of Defenders of Wildlife News, Dr. Walter Boardman, and Dr. E. Raymond Hall, the distinguished Kansas mammologist who was for years the vice president of Defenders.

I would like to emphasize at the beginning that FOE and Defenders are not hostile to livestock raisers, nor insensitive to the problems of livestock raisers. We are on record as supporting subsidy of livestock owners against predator losses, and we are prepared to endorse any reasonable compensation proposal.

Private, non absentee ownership of land is infinitely preferable in most cases not only to corporate ownership, but to weakly or corruptly administered public ownership. The individual who has established territorial roots, and who will defend the integrity of his or her local environment, is a primary bulwark against destructive misuse of the land, ranging from strip mining to the kind of "recreational use" inflicted on public land in California and elsewhere where large tracts have been gutted by motorcycles, dune buggies, and four wheel drive vehicles.

The cause of the environment is badly served when family operated sheep ranches are driven to the wall economically, and absorbed by large ranches and agribusiness corporations. We are concerned that this is happening. We wish that it were not.

But it should be apparent that predation is only a minor factor in the decline of sheep raising. The decrease in farm flock numbers has been even more precipitous than the decline on western and southwestern ranges. This has occurred during a time when farm land was being shifted from cultivated crops to pasture, and when cattle and hog raising was marginally profitable.

Bad prices, resulting from competition from synthetics and from foreign imports, combined with rising costs, a scarcity of skilled herders, drought, and bad range management are the underlying factors in the decline of the sheep industry. During the years 1939-1945 when coyote numbers were extremely high throughout the west, sheep raising was highly profitable. It became unprofitable during the mid fifties before coyote numbers had rebounded significantly following the drastic decline which initially resulted from the use of cyanide guns and 1080.

It should be apparent that the coyote has not destroyed the sheep industry. But in any case, it is absolutely clear that poisoning and other DWS activities have not saved it.

The predator control program has been a disaster; randomly destructive, without ethic, without even an acknowledgement of the fact that all living systems are interrelated, and that an act against one group of animals may amplify destructively. The activities of the DWS and its predecessor agencies have nudged two species, the red wolf and the black footed ferret, almost to the irrevocable abyss of biological extinction, and gravely jeopardized a number of others, including the kit fox and the burrowing owl. At the same time, the coyote, the main target of the campaign, has increased its range dramatically, and is coming back strongly in many areas of the west. I suspect that there are now more coyotes living than ever before in the history of the species.

In previous testimony before Senator McGee's subcommittee, I speculated on the basis of my own experience on some of the factors which have brought about the resurgence of the coyote in the west in the face of a killing campaign replete with body counts and shooting from aircraft. I should like to insert those comments in the record at this point.

In 1946, with the advent of the cyanide gun, the so-called "coyote getter", coyote numbers suffered a dramatic decline. Many persons began to predict that the coyote would go the way of the wolf, and I can remember numerous arguments during the late 40's concerning whether or not "they would get the last coyote." For over five years, from 1946 to perhaps 1952, to see or hear a coyote in many parts of Wyoming was unusual, and an occasion for comment.

However, by the mid-1950's, it was apparent that the coyote was coming back, that the relict populations which had survived the initial onslaught were increasing despite the best, or worst, efforts of the government trappers, and that the impact of the cyanide gun on these coyotes was becoming negligible.

This led to an increasing reliance on poison, particularly sodium monofluoroacetate, with well publicized tragic results. Yet even this did not have

the effect of extirpating the coyote. The species has continued to extend its range, and appears to be demonstrating some immunity to poisoning in the areas of most intensive application. There has been, in fact, a continuing increase in coyote numbers in at least some parts of the West over the past several years. The primary cause of mortality among coyotes in southeastern Wyoming during the past several winters has, in my opinion, not been poisoning but rather pursuit by four wheel drive vehicles and snowmobiles, conducted by local ranchers or by so-called "sportmen".

The adaptations which have permitted the coyote to survive in the face of the onslaught, all aside from their cogency, are extremely interesting. They illustrate the fallaciousness of any simplistic approach to population dynamics of any animal, particularly mammals high on the food chain.

It is obvious, I think, that the relative immunity to cyanide guns which many populations of coyotes have demonstrated resides in transmission of experience. Coyotes who have observed other coyotes killed by cyanide guns, or who have become fearful of these installations, can transmit this fear to other coyotes. Bitch coyotes who are immune to cyanide guns, which most coyotes of any age in some areas of the West practically must be, will conduct their pups on "chow and tell" tours around the "getter" installations, scratching dirt on the guns, and urinating defecating on them while the pups watch. Most trappers know this, and understand that if they are to avoid developing populations of coyotes which are completely unsusceptible to these devices, they must pull up the guns during the summer and early fall when the females are together with their pups, and only put them out again later in autumn when the pups have left the den and are likely to be wandering alone. By denying the females an opportunity to hold classes at the installations, trappers are able to obtain a modest harvest of young coyotes early each winter.

The same transmission of experience factor may enter into the ineffectiveness of poison baits. However, this situation would appear considerably more complex, and I should like to use it to illustrate other factors which must be present.

We all are familiar with the development of resistant strains of bacteria to antibiotics, or insects to insecticides, in which new populations are formed around organisms which possessed incidental genetic anomalies conferring resistance to the particular poison. The inclusion of a genotypic characteristic which may have previously been selectively neutral becomes the sole passport to survival.

In the case of the beleagued coyote, genetic traits affecting behavior are evidently being subjected to an implacable selective judgement. Our limited knowledge of the genetic basis of behavior, of coyote behavior, or of behavior generally, makes assessment in other than vague and general terms impossible, but we can be sure that such effects are operating. We need not take too seriously the assertion that the predator program is "breeding a race of super smart coyotes," it is obvious that a strong selection has been set up favoring whatever characteristics utterly caution and adaptability. I consider probable indeed that the poisoning program has set up a selection which favors active predacity, as opposed to scavenging and it is very possible that this may already have had a significant effect on the behavior of many populations of coyotes.

One is tempted to at least speculate that a selection favoring a rather timid scavenger, with a tendency toward nomadism (which must have been in effect when the easiest way to make a living was to follow the wolves and the buffalo) would have been reversed in favor of an actively predacious animal with strengthened territorial and social bonds when the wolves and buffalo disappeared, even without the poisoning program.

Territoriality, and what I call "food cultures" are very germane considerations in discussing the coyote. I have long noticed that coyotes in certain localities tended to specialize in as far as diet is concerned. Coyotes in one locality may kill deer, coyotes in another locality apparently ignore them entirely. This adaptability—which most mammals and avians possess, in my view, in much greater degree than is normally realized—permits a close selective adaptation, or equalibrations between local stocks and a local environment. It is obvious survival value, and maybe important in speciation.

Since coyotes tend toward territoriality, and since all coyotes do not eat the same prey, and since many do not eat sheep or other domestic animals, it is not unreasonable to suggest that a predator control program based on favoring territorial incumbants who will co-exist with domestic animals is, ideally at least, possible.

I really believe that if the predator control program had been aimed at achieving stable coyote societies comprising coyotes which were not habituated to preying on domestic animals, to deliberately set up a selection in favor of animals which tended toward non-domestic food sources, rather than to randomly kill everything in sight, the situation would be much more favorable from a standpoint both of livestock raisers and conservationists.

In addition to the behavioral adaptations, and the possible genetic feedback effects noted here, it may well be that recruitment is higher, and litters are larger when there is a heavy morality. There is some evidence that this may be the case.

If so, this could well be due to a breakdown of the territorial system due to constant winnowing and interference. If the territorial system relaxes, and becomes unstable, there will evidently be far less social stress and hostility among coyotes; breeding among young and "unestablished" animals becomes possible when it would otherwise be braked by the hostility of territorial incumbents, and a dominance system based on "property."

The correlation between social stress and recruitment has been rather well established in some mammalian species. In elephant seals, females under stress resulting from competition for space in crowded rookeries, begin to breed two or three years later than in small, uncrowded populations. Something of the sort also happens among purely pelagic mammals with recruitment increasing by as much as 50% as populations drop below the natural level. This is perhaps one of the few valuable pieces of information to have been garnered from the grisly abomination of whaling.

A very important factor in the burgeoning of the coyote has been the disappearance of competing predators, especially other canids. The grey wolf, which was once the dominant plains carnivore, undoubtedly had a restrictive effect on coyote numbers. The extirpation of the red wolf, which I shall discuss shortly, led to its rapid replacement by coyotes. We can be quite sure that an incumbent undisturbed population of red wolves would not permit coyotes to proliferate, though the scattered, relict red wolf populations miscegenate readily and are being swamped.

There is also the very basic factor of food supply. I was impressed at the House hearings with the testimony of a rancher from Montana named Harkness. Mr. Harkness's observations of what has happened in Montana paralleled my own impressions of what has occurred in Wyoming. His correlations, based on personal observations, span almost 50 years. I am inclined to place far more credence in such observations than in "scientific" extrapolations and analogies made on the basis of occurrences limited in time and area, in which human interference is often too pervasive to be really defined.

Mr. Harkness feels that a peak population of coyotes was unusually susceptible to poisoning because of the low populations of wild herbivores and the unavailability of unguarded sheep, at a time when their own numbers were peaking. He suggests that coyote numbers rebounded on the heels of an increase in wild herbivores, as well as untended sheep, following the "crash" in the coyote population in the late 1940's. He appears to feel that coyote numbers are again peaking, and implies that the present population may drop naturally as game species are reduced to a low level through combined human and animal predation, and as sheep raisers begin to guard their lands carefully as they did prior to the advent of 1080 and cyanide guns.

In Wyoming, deer were extremely scarce during the 1920's and 30's. During the early 1940's they were on the increase, due to an enforcement of game laws, despite high numbers of coyotes. With the disappearance of coyotes, the deer increased rapidly. By the early 1950's their numbers had become so great that Malthusian checks became operative, and epidemics occurred. There were massive die offs during several hard winters which followed dry summers. Subsequently hard winters, during which great numbers of deer perished despite copious ground browse, combined with heavy hunting pressure, and the return of the coyote, have brought deer numbers in much of Wyoming to the level of the 1930's. The State Game and Fish, under pressure to generate maximum revenue through the sale of licenses, has failed to cut back on the hunting quota. A rather bitter joke has gone the rounds in Wyoming over the past several years, suggesting that the state will continue to do a booming business selling licenses to hoards of eager out of state hunters long after the last deer has gone.

I mention this not only to echo Mr. Harkness's prediction of a natural leveling off of coyote densities, especially in the presence of large numbers of compelling

predators in the form of golden eagles, but to predict that coyotes will soon be blamed for the decline in deer numbers. I have a strong suspicion that members of this committee will begin hearing complaints from hunting groups and state bureaucrats that coyotes are cleaning out the deer, and leaving fewer to hunt. Moderate coyote predation of deer does occur. But we will do well to keep in mind that coyotes and deer have coexisted for tens of thousands of years.

I would like now, Mr. Chairman, to turn briefly to the legislation at hand. We will submit detailed amendatory proposals to the committee, and my comments here will be brief and general.

We are concerned over the loophole in the House bill which establishes various emergency situations under which secondary poisons can be used. We simply cannot agree to the use of thallium, 1080, or strychnine for any use at all, unless it can be demonstrated that an epidemic of serious proportions can be forestalled in no other manner. We have petitioned the EPA, without success, to suspend the registration of 1080 and strychnine as rodenticides. We would like to see 1080 and thallium absolutely outlawed. We see no reason at all why these appalling substances should ever again be manufactured and distributed.

We are pleased that the subsidy to the states has been continued indefinitely in the House bill. This provides the federal government with continued leverage over the action of the states.

We have mixed feelings over the inclusion of a five million dollar annual appropriation for DWS to conduct operational predator control, either for application to state programs, or in conduct of its own. We hope, if retained, that this money will be used to set up the kind of pragmatic program of selective predator abatement that has worked well in Missouri and Kansas, and in certain cases used to ameliorate the harm DWS activities have inflicted in the past. We hope that it will not be used to perpetuate the present DWS program.

We consider it extremely important that mass killing methods, so called prophylactic tactics, not be subsidized nor budgeted within the DWS. We are strongly opposed to indiscriminate mass killing from aircraft. The Missouri and Kansas plans are the only predator control models which have proven successful, and they should serve as guidelines for state operations, deserving subsidies.

I should now like to draw the attention of the committee to the extent in which predator control has menaced rare species.

The red wolf is a true canine, intermediate in size between the coyote and the grey wolf. There has been some effort to depict *Canis rufus* as a subspecies. Taxonomists, notably Dr. Atkins of George Washington University and John Paradiso of the Smithsonian have pointed to primitive features of the skull and brain, leading to the conclusion that the red wolf was probably coeval with the dire wolf, and occupied the new world long before the coyote and grey wolf. He may have been driven gradually back into a restricted range when the more advanced canines crossed the land bridge.

The red wolf, in this century, has been extirpated from ten states, and probably twelve. He now exists in relict pockets in the extreme southeast Texas and southwest Louisiana. There is a scant possibility that a few may be left in Arkansas or Mississippi. Shaw and Russell report in Texas Parks, and Wildlife, after conducting a careful survey in the marshes and coastal grasslands where the wolf still hangs on, that no more than 100 now remain in Texas, confined to pockets in Liberty, Chambers, and Jefferson counties. They note that the wolf "appears to have a very low reproductive rate, along with heavy hunting mortality and heavy parasitic burdens. . . . Red wolves are in critical danger because of habitat loss, hunting and trapping pressure, and possible hybridization. The animal is totally unprotected and its endangered status is not generally known to most Texans, even to those living within its remaining range."

The wolf clings to existence even more tenuously in Louisiana than in Texas. A small pocket of wolves is thought to remain in Camaron parish, with occasional unconfirmed reports of wolves elsewhere. Ron Nowak, who has carefully studied the history of the red wolf in Louisiana, has put the total red wolf production in both Texas and Louisiana at between 100 and 200. Nowak stresses the continuing hybridization with coyotes and dogs, which he feels will submerge the wolf, even if effective protection against human molestation is established. John Paradiso has analyzed hundreds of skulls from the hybrid swarm occupying former red wolf ranges. He has prepared trays in which every graduation is present between the heavy flattened skull of the true red wolf, with its prominent post orbital ridge and sagittal crest, to the small, light, large brained, slightly domed skull of *Canis latrans*.

Mr. Chairman, the red wolf would not be in the dire, almost hopeless, situation it is in today if it were not for the "control" activities of the Department of the Interior. The Biological Services undertook a campaign of extermination beginning in 1915. By 1938 DWS trapping and poisoning had largely eliminated the wolf from the Ozarks. By the mid 1950's, *Canis rufus* had been largely eliminated from Louisiana, where it had been quite common. By breaking down the social and territorial system of the wolf, this killing opened the way for an invasion by coyotes, and accelerated the hybridization process. Needless to say, the coyotes and coyote hybrids are more adaptable and destructive than the wolf ever was, and livestock owners in the regions affected are among the losers. As late as 1965, with the wolf in desperate straits, the "management experts" of the DWS were still "controlling" them. In 1963 the DWS reported 2771 red wolves killed, mostly misidentified, but some doubtlessly pure specimens. Since that time, at least 60 pure red wolves are known to have been killed from the Texas population by DWS trappers.

I would like to suggest that the DWS, having all but destroyed the red wolf, should now be obliged by Congress to engage in every possible effort to save it. We are told that the DWS is capable of better things than making war on American wildlife with every weapon it can lay its hands on, and that "management" means something other than mass killing with a context of bureaucratic self serving. Let the Service now prove to us that they are capable of management, and avoid the odium of having driven a unique canid species into extinction.

Conservationists close to the red wolf's situation have suggested that a "dingo proof" fence, such as has been used in Australia to keep out dingoes, be built around the remaining viable pure wolf populations, particularly those in Chambers county Texas. Such a fence would keep out coyotes, thus preventing miscegenation, and would delineate an area where intensive protection of the wolf could be practiced.

Mr. Chairman, with stern congressional instructions to save the wolf and the funding to implement them, the DWS can absolve itself of its senseless spree of killing. Mr. Reed has told me his agency will act vigorously if given such a mandate. The recent shake up in the Texas Game and Fish, in which political cronies and pensioners have been retrenched, enhances the probability of cooperation from the state.

What happens in this committee may well determine the fate of the oldest, the most primitive, and the least destructive of the true canines. We urge you to set aside funds specifically in the appropriation accompanying this bill for the preservation, through careful protective management, of this species. We shall be glad to provide documentation for what we have said, and concrete proposals based on the recommendations of those who have studied the animals. A number of the chief experts on the species live, in fact, in the Washington area, and we can easily arrange for these men to meet with, or appear before, members of the committee if this should be desired. The present time, with legislation being formed around improved concepts, is a perfect chance to move on behalf of this critically endangered animal. It is also, very probably, the last chance.

I would also like to strongly urge this committee to include in the legislation a specific stipulation that no further funds be applied toward the poisoning of the prairie dog for an indefinite period. The poisoning of the prairie dog has brought about the probable extinction of the black footed ferret. Secondary poisoning effects have probably jeopardized other endangered species, especially kit foxes. The scarcity of dog holes threatens the burrowing owl.

All apart from this, the prairie dog itself is becoming rare. It once existed in vast numbers, but it has now been extirpated over most of its natural range. The prairie dog does not have the reproductive potential of certain other rodents, and is extremely slow to extend its range. I can see no reason to expect that it can return as a significant competitor to domestic livestock for a very long time, even if left entirely alone.

Mr. Chairman, the coyote has withstood an appalling onslaught. We have done everything except to declare free bombing zones, and call in the B-52s. Animals of lesser intelligence and adaptability have been decimated as incidental victims of the campaign. But the coyote lives on in the face of it all. He was on this continent before humans; he may, even yet, remain when we are gone.

We are fortunate, I think, that we have not destroyed him. In his tenacious insistence upon living and being, he has perhaps braked our tendency to put square pegs in round holes. The animal on whose behalf the attack has been launched is the sheep. I have been around sheep all my life. Each spring I used to lamb a band of sheep on open range at the foot of Laramie peak in southern

Wyoming. My early observations of animal behavior were largely with sheep. I have had numerous pet sheep, toward whom I felt a real friendship. I understand sheep better than most men, and like them more. Toward this species, rendered virtually helpless by selective breeding for wool and tyrannized by man, I have often felt a great sense of pity. But I well understand that overgrazing by sheep turned grassland to desert throughout eastern and central Asia, while the entire Mediterranean area has been made barren by sheep and goats. Bourleirre has rightly said that the mid east nomad, with his flocks, was less the "son of the desert" than its father. Much of our western, and southwestern lands, are subject to similar degradation.

If coyote, as accused, is indeed tipping the scales again marginal sheep operations in arid and semi arid regions, we should probably thank him for it. He is perhaps acting as a control system against the consumption of another human folly.

I hope that I shall always see coyotes. I have come to regard these indomitable little canines, living on in a time of overweening human tyranny and oppression against all things alive, as a kind of embodiment of what remains natural and free. I hope that I shall always, in my life, be able to ride up a sage slope in Wyoming, and see a coyote looking at me across the draw, and say again: "Well, little dog, you're a hard neighbor at times, but so am I. Go your way, and I'll go mine." And then ride on, under a blue, clean sky, with the scent of sage in the springtime.

#### RED WOLVES

The red wolf is a true canine, intermediate in size between the coyote and the grey wolf. There has been some effort to depict *Canis rufus* as a subspecies. Taxonomists, notably Dr. Atkins of George Washington University and John Paradiso of the Smithsonian, have pointed to primitive features of the skull and brain, leading to the conclusion that the red wolf was probably coeval with the dire wolf, and occupied the new world long before the coyote and grey wolf. He may have been driven gradually back into a restricted range when the more advanced canines crossed the land bridge.

The red wolf, in this century, has been extirpated from ten states, and probably twelve. He now exists in relict pockets in the extreme southeast Texas and southwest Louisiana. There is a scant possibility that a few may be left in Arkansas or Mississippi. Shaw and Russell report in Texas Parks and Wildlife, after conducting a careful survey in the marshes and coastal grasslands where the wolf still hangs on, that no more than 100 now remain in Texas, confined to pockets in Liberty, Chambers, and Jefferson counties. They note that the wolf "appears to have a very low reproductive rate, along with heavy hunting mortality and heavy parasitic burdens. . . . Red wolves are in critical danger because of habitat loss, hunting and trapping pressure, and possible hybridization. The animal is totally unprotected and its endangered status is not generally known to most Texans, even to those living within its remaining range."

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Mr. Chairman, I am Tom Garrett. Thank you for this opportunity to testify.

I am testifying today on behalf of the 26,000 members of Friends of the Earth, and the 38,000 members of Defenders of Wildlife.

Friends of the Earth is an international organization, with branches in approximately 20 countries, dedicated to the preservation and rational use of the environment. Defenders of Wildlife is a national organization active in the defense of wildlife and wildlife habitat. Mary Hazel is executive director, and editor of *Defenders of Wildlife News*.

Defenders of Wildlife and Friends of the Earth strongly endorse the basic features of S. 3818 and S. 3199. These bills remedy a salient defect of the Endangered Species Act of 1969, which contained no provisions for protecting domestic endangered species. They have also eschewed the egregious concept of "world wide extinction," which further crippled the 1969 Act.

Of the two major bills now under consideration, the Spong bill is clearly superior. It embodies many of the suggestions made by conservationists before the House committee. We commend and thank Senator Spong for his initiative in developing this improved bill. With the exception of Section 6 and particularly (c) to which we are unalterably opposed, and urge this committee to delete. We endorse the changes written into Mr. Spong's version.

We are particular pleased at the inclusion of plants within this protection. Arise from the intrinsic worth of given plants, the survival of animal species is frequently contingent upon their availability. For example, the saguaro cactus is now threatened in the United States. If the saguaro disappears, the survival of the elf owl becomes problematical. Other living forms directly or indirectly dependent upon the saguaro will disappear.

We are also delighted with Section 6(e) guaranteeing the States the privilege of enacting and enforcing stronger legislation, and with the much needed section placing rather onerous recordkeeping burdens on importers.

We welcome the emphasis on land acquisition in the bills before this committee. We especially wish to thank Senator Cranston for his appreciation of the need to acquire and preserve habitat, and to commend him for his laudable and valuable contribution to the hearings.

It should be obvious to any of us that if we do not preserve the habitat of species, and the integrity of biotic communities, whether or not plants or animals are protected from deliberate molestation becomes eventually, academic. If the Congress is genuinely serious in its determination to protect hard-pressed species, it must not only provide authority to purchase lands, but provide ample appropriations. The agencies involved in purchasing must move promptly to insure the habitat now, before vested commercial interests, or competing State or Federal agencies staked a claim.

Mr. Chairman, while we find a great deal to praise in the bills before you, we find some common deficiencies.

1. The definition of "take" is inadequate. An animal, or plant, is just as dead if it is killed by some concomitant of "progress" such as industrial poisoning, suburban or recreational development, inundation or desiccation, as though it were deliberately shot. In a sense it is perhaps "deader," since associated living components of its local habitat will also have been affected, and the opportunity for its kind to re-establish itself in the place may be irrevocably lost. This legislation will be immeasurably strengthened by explicitly broadening the definition of take to include all forms of molestation, whether deliberate or incidental to commercial, recreational or other activities.

2. A citizens suit provision should be added. This will stimulate proper enforcement, and strengthen the Act.

3. We are pleased with Sec. 7(d), permitting the listing of non-endangered species indistinguishable from endangered species. However, we wonder if Sec. 4 provides enough protection to certain isolated population stocks of major species, which may be gravely endangered although the species generally is not in severe difficulty. It seems to us, that unless and until an appropriately enforced international agreement is in effect which meets the problem of trans-shipment smuggling, evidence that a major population stock has become depleted should result in the listing of the species.

Under the 1969 Act, efforts to achieve listing of an animal have often been frustrated by assertions that the status of an animal was "unknown." If the status of an animal is unknown, this may be taken as *prima facie* evidence of its rarity. The safe course is to list the animal, with the burden of proof regarding its status thereafter resting with those who may wish to molest the animal, or remove it from the list. We hope that language to this effect will be specifically included in the legislation. We feel that "rare" animals, regardless of previous or current exploitation, should qualify for listing.

We have reservations over Sec. 8 of S. 3818. We would be much more comfortable if language were included making it clear that no endangered species would be used in medical research, or in any other research which was not expressly designed to benefit the species itself. The only possible justification for killing an endangered species for "scientific" purposes, would be to examine it for disease, or to secure controls in the monitoring of pollutant concentrations. We must guard against sanctioning of the sort of "special scientific permits" issued by the International Whaling Commission for the killing, and of course, commercial processing, of ostensibly protected species.

We are adamantly opposed to the automatic granting of one year hardship permits, as occurred under the Act of 1969. We request language in Sec. 8(b) which makes the issuance of such a hardship permit contingent upon the findings of a public hearing, and which permits the Secretary discretion to set a "phase out" quota only if it can be demonstrated that such a quota will not have a deleterious effect on the species or stocks being listed.

A commercial operation based on products taken from endangered species is obviously quite deliberately self-effacing. The willingness of such people to take short term profit through trafficking in such endangered and vanishing species is a major factor in their disappearance. Why is it necessary to defer to such irresponsible behavior?

We oppose the granting of jurisdiction over endangered species to the Department of Commerce. The Bureau of Sport Fisheries and Wildlife has shown an increased sensitivity to the need to protect and conserve wildlife, and appears comparatively insensitive to commercial pressures. We have no extremely strong objections for the transferral of responsibility of commercially exploitable fish to NOAA, but we feel very strongly that marine mammals should remain under Interior jurisdiction. The Commerce Department's proposed amendments to the Marine Mammal Bill would have virtually destroyed the legislation. We are encouraged, but by no means sufficiently reassured by recent indications that NOAA—under the leadership of Dr. White, Mr. Wallace and others—may be developing a more acceptable philosophy.

While we understand that state policies are often more enlightened than Federal policies, we fear that (a) and (b) of Sec. 6 might jeopardize, rather than enhance, the setting aside of sanctuaries. Many states are dominated by hunting oriented commercial bureaucracies, which are far more interested in selling hunting licenses than in perpetuating endangered species, and would be loath to remove habitat areas from their jurisdiction. An example which immediately comes to mind is the hostility of the California Game and Fish Commission to the Owens Valley elk sanctuary. Paragraph (c) is an invitation to major abuse and we wish to repeat our resolute opposition.

In closing, Mr. Chairman, I would like to emphasize again that it is ultimately quite immaterial whether a species is deliberately molested or not, if its habitat is not preserved.

We appear caught up today in a metastacizing biological disaster. The precipitous decline of our fellow living creatures throughout the planet mirrors our own chance of avoiding a prodigious calamity. If we cannot contain the proliferation of our own kind, if we will not restrain our nihilistic and randomly destructive technology, the animals which we are here striving to save will not survive, and our own "harvest" will surely be at hand.

Thank you again for this opportunity to testify. We shall submit specific proposals for amendments, and in support of points which we have raised.

OREGON ENVIRONMENTAL COUNCIL,  
*Portland, Oreg., August 14, 1972.*

Re H.R. 13152, S. 3334.

Hon. FRANK E. MOSS,  
*Chairman, Senate Subcommittee on the Environment, Senate Committee on  
Commerce, Senate Office Building, Washington, D.C.*

DEAR MR. MOSS: The Oregon Environmental Council is a coalition of 80 conservation, planning and sportsman organizations and has an individual membership of 2,000 conservation-minded Oregonians. Members of the Wildlife Committee of the Oregon Environmental Council have identified the problem of predator control as one of our primary concerns. We have devoted the major portion of our time to a careful examination of this issue, and have established as one of our goals the implementation of a predator control program that would allow the rancher to protect his property against depreeding animals while conserving our valuable wildlife resources. We support President Nixon's restrictions on the use of toxic chemicals for animal damage control, as well as the action taken by Mr. Ruckelshaus of the Environmental Protection Agency to cancel and suspend the registration of certain toxicants.

While we also are in general agreement with the provisions of H.R. 13152 as passed by the House of Representatives, there are several items of concern to the OEC Wildlife Committee, and we respectfully request the members of the Senate Subcommittee on the Environment to give them serious consideration.

First, our gravest concern is directed to the amendment, added at the request of the National Wool Growers Association, which would permit the use of chemical toxicants to prevent "major damage" to domestic livestock. We believe this seriously erodes the intent of President Nixon's restrictions on toxicants, and opens up an enormous loophole that will be quickly exploited by the livestock industry, particularly as the terms "major damage," "specific area" and "emergency" are not clearly defined. We strongly urge that this language (p. 11 lines 18-20; p. 14 lines 9-10) be deleted and that the term "natural resources" be defined to exclude domestic livestock.

Secondly, we object to the provision which allows state funds to come from sources "otherwise authorized by its legislature" (p. 12 lines 9-10). We fear that vested economic interests, such as livestock associations, will contribute to—and thus control the direction of—the predator control program. This is contrary to the recommendations of the Cain Committee, which stated that "general citizen review and input in decision making" can be accomplished only if state funds are appropriated by the legislature.

Thirdly, we question the necessity of appropriating \$5 million (p. 13 lines 3-6) to be used by the Secretary to conduct operational control programs. We are concerned that the availability of such a large sum will lead to practices of general population reduction, to which we strongly object and which have not significantly reduced depreedations in the past.

We request that this letter be entered in the hearing record.

Sincerely,

MRS. JUDITH K. FAICH,  
*Wildlife Committee of the Oregon Environmental Council.*

GAME COMMISSION,  
OFFICE OF THE DIRECTOR,  
Portland, Oreg., August 11, 1972.

HON. FRANK E. MOSS,  
Subcommittee on Environment, Senate Commerce Committee, New Senate  
Office Building, Washington, D.C.

DEAR SENATOR MOSS: Thanks for the courtesies extended by you and your staff at the August 7 hearing on HR 13152.

In my testimony I referred to the expansion of state wildlife programs to provide protection and management for all resident wildlife including predators, rodents and rare or endangered wildlife, and the model state law that has been developed by the International Association of Game, Fish and Conservation Commissioners and the Wildlife Society. Copies of that model law are enclosed for reference by the Committee.

With further reference to your question of the adequacy of the \$300,000 maximum assistance to states, I would like to suggest that in the absence of a formula for distribution of the available aid we question how the proposed 3,000,000 can be divided among the 50 states, Puerto Rico, Guam, the Virgin Islands, American Samoa, Pacific Islands, and the District of Columbia and allow any state the proposed \$300,000 aid.

It is my opinion that there is no need for a \$5,000,000 federal operation program if it is the intent of Congress to delegate responsibility for control of depredation by wildlife to the states and that in a large part of that money should be available for allocation to the states for execution of programs which conform to the restraints within the bill.

The Western Association of State Game and Fish Commissioners and the International Association endorse the objectives of HR 13152 and believe that with the few minor amendments suggested on August 7, the bill will provide a meaningful substitute for the services formerly provided through the Animal Damage Control Act of 1931.

I would like to again emphasize the importance of a decision on this matter prior to December 31 so that the legislatures of the many states will have an opportunity to authorize needed state programs during their 1973 sessions.

If the Subcommittee desires additional information from either the Western Association or the International Association, please don't hesitate to call upon us.

Sincerely yours,

JOHN W. MCKEAN, *President.*

Enclosure.

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# **A Law For Wildlife**

## **Model Legislation for a State Nongame Wildlife Conservation Program**

The Conservation Department  
Winchester-Western Division  
Olin  
East Alton, Illinois  
1972

(281)

## Foreword:

In the family of American wildlife, the game animal is the rich uncle. It is studied, managed, and greatly valued by professional conservationists and sportsmen. Millions are spent each year on the management and hunting of deer, waterfowl, pheasants, quail, rabbits, and other game species.

Then there are the poor relatives: the nongame species.

They are no less beautiful or unique than the game species, nor less worthy of our concern. But because they are not hunted, they are not the objects of intense, hunter-sponsored conservation programs. As Dr. Joe Linduska once wrote:

*"It is said that the bluebird is declining in numbers and is in trouble. That is a sad state of affairs, but it would probably not be so if the bluebird weighed three pounds and held well to a pointing dog..."*

If that bluebird, or any other nongame wildlife, is in trouble it's not for lack of protection. Nearly all songbirds are protected



by state and federal law. But while a bird may be protected from shooting, it's not protected from our technology. And to many wildlife species, the bulldozer, dragline and intensive farming are deadlier than bullets.

Protection is needed, of course. Even heavily hunted wildlife is protected—by closed seasons, bag limits, shooting hours, prescribed methods of take, and refuge areas. But protection alone won't do the job. By itself, it is generally a hands-off, do-nothing approach. The best protection for any wildlife species is positive management.

This has been proven with our major game species. We have learned a great deal about their biology, what makes them fail or flourish, and how to manage them as well as possible. There are gifted wildlife biologists who spend their entire careers studying a single game species and its environment.

Compared to pheasants and quail, we know practically nothing about orioles and bluebirds. And we debase ourselves and our world by saying: "So what? Bluebirds and orioles have no economic value..."

To anyone who loves nature in its completeness, it would be a dreary world with no wildlife but game species: no eagles, ospreys or hawks; no gulls or pelicans; no bobolinks, warblers, prairie dogs, kit foxes, coyotes, grebes, bitterns or flying squirrels, to say nothing of such desperately rare creatures as the lordly whooping crane, California condor, and peregrine falcon. And today, with man's heavy hand felt through all nature, it's time that we gave such creatures some of the priority attention that has been largely reserved for game animals and birds. We must broaden wildlife conservation to include all species of wildlife—not just the favored few.

Most Americans will never hunt, nor visit our great game ranges and see our most spectacular wildlife species. But that doesn't mean that they should be denied a chance to share in America's wildlife splendor. The chance to enjoy quality wildlife in quality natural surroundings is an American birthright—and a considerable part of the American dream.

Conservation of nongame wildlife has special meaning because it is everyday wildlife. It includes species that are adaptable to cities and suburbs if given half a chance: many songbirds, small hawks and owls, and such small game species as quail, cottontail rabbits, and tree squirrels. All are animals that can be enjoyed in the back yard, at the birdfeeder, or in local parks and public gardens.

Another thing: if there's one lesson learned from a half-century of game management, it's that quality wildlife is the truest indicator of quality natural environment. You won't see a Baltimore oriole or an indigo bunting in the slums of the Inner City; such habitat is occupied by house sparrows, rats and starlings. Orioles and indigo buntings are fussy about environment. They are originals, and they demand something of original quality where

they live. And as they are biological indicators of quality in their world, so they also indicate quality in ours. If there are fewer songbirds in our suburbs today, it's because the environment for birds has been degraded there—as well as the environment for children.



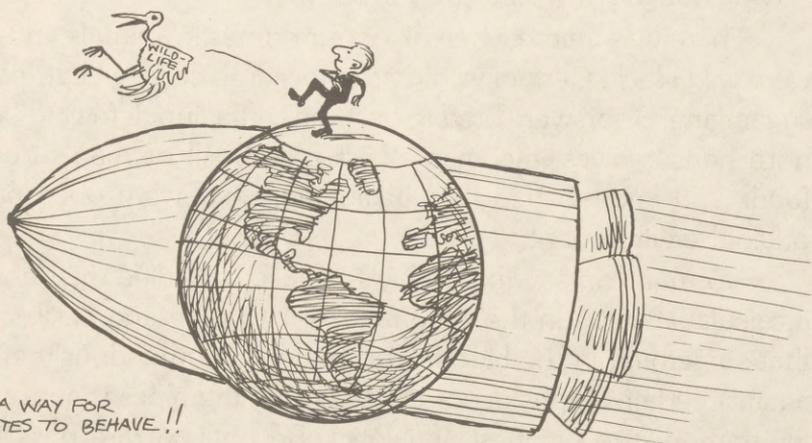
If we need more “practical” reasons than those for conserving nongame wildlife, there are some:

There was a time when all of our domestic animals and plants were wild stock. Certain wild grasses became corn, wheat, rice and sugar cane. Bison were bred to become cattle; junglefowl to be Leghorn hens; wolves into man’s best friend. All of man’s domestic foods and animals had wild beginnings, and were once parts of original environment.

No man can say that today’s “unused” wildlife may not have incalculable value in the years ahead. Not long ago, it was found that something in the blood of abalones is tremendously effective against certain staphylococcus bacteria of the types that are building immunity to our best antibiotics. Recently, a rare desert plant

in the Southwest was found to contain a strange wax with an extremely high melting point, useful in hardening certain lubes for heavy machinery. Until 1929, *Penicillium* mold was simply crud that formed on spoiled bread—and it has since become one of man's supreme blessings. The guinea pig has been a crucial ally in our war against disease, and the fruit fly *Drosophila* has shown us things about genetics that echo through our daily lives.

Every living thing on earth is unique. Once gone, it can never be replaced. It is part of what scientists call "the genetic pool"—the great reservoir of life on earth. Evolution, and unknown combinations and mutations of genes within that reservoir will certainly produce forms of life in ages to come that we cannot know about now. As passengers on this spaceship Earth, we'd be foolish to wipe out any of our shipmates. They will at least make our voyage less lonely as we drift through the endless, lifeless reaches of space—and they probably will make us wiser and better,



WHAT A WAY FOR  
SHIPMATES TO BEHAVE !!

as well. Many years ago, a naturalist named William Beebe wrote:

*“The beauty and genius of a work of art may be reconceived, though its first material expression be destroyed; a vanished harmony may yet again inspire the composer; but when the last individual of a race of living things breathes no more, another heaven and another earth must pass before such a one can be again.”*

Millions of Americans know this, and long to be part of a movement to prevent it. But they have always lacked ways and means to do so. They do not wish to buy hunting and fishing licenses that they will never use, and why should they? Besides, their main interest may be in nongame wildlife, not game species. Yet, there is no way for the average, nonhunting citizen to engage in general wildlife conservation programs.

This has concerned game managers and biologists for a long time—and that concern has now jelled. Through the International Association of Game, Fish and Conservation Commissioners, and The Wildlife Society, the following model law for nongame wildlife conservation has been developed. Carefully designed by conservation administrators and legal counsels in the field, it is a workable, practical blueprint for expanding a state’s game management efforts into nongame wildlife conservation.

The adoption of such a program could have repercussions all through the citizen environment—not only giving the average man a real piece of the conservation action, but providing a launching pad for a whole new system of environmental involvement.

No one method of funding this nongame wildlife and endangered species act will fit all states. However, it is widely agreed that funding must come from sources other than fish and game funds. Historically, this concept was part of the American Game

Policy of 1930, a landmark in American conservation that recognized the nonshooting protectionist and the scientist "as sharing with the sportsman and landowner the responsibility for wildlife conservation, with public funds from general taxation to better wildlife as a whole and the sportsman paying for all betterments serving game alone."

In what ways can those "public funds" be provided?

Four approaches to funding the management of nongame wildlife and endangered species have been proposed during the drafting of the model law:

1. *The state legislature to allocate, from the general fund, an appropriation related to a set percentage of the annual collection of fish and game funds.*

Such an allocation would emphasize the need for cooperation in wildlife conservation and help unite the hunting and nonhunting publics in a common venture.

2. *An annual appropriation from the general fund provided by a small per capita tax based on the number of residents within the state.*

Such an appropriation would escalate with the population increase and provide more monies as fish and game resources face the mounting pressures of a rising human population. As such population rises, so does the need for intensive management of all wildlife species. This appropriation would not be measured as a percentage of fishing and hunting license revenue—which may be expected to decrease with large increases in population.

3. *A special tax on specific luxuries.*

As an example, the State of Missouri is trying to obtain funds to expand its conservation program through a tax on soft drinks. This is one of the few luxuries in life not now taxed, and the con-

sumption of soft drinks would increase with the growing population and the number of tourists.

4. *Grants, gifts and bequests from private sources.*

This type of funding should be encouraged, and ways and means found to make it tax-deductible.

Once passed, an Act for Wildlife could be quickly put into gear. The basic, highly refined techniques of game management can be effectively applied to the problems of nongame wildlife conservation. Manning the program with premium talent is no problem: there is a corps of trained wildlife managers and biologists available—young, concerned, and desperately eager to help put such programs into action.

So all the elements for effective action exist: a critical public need, the techniques, knowledge, and trained men and women to meet that need, and equitable ways to provide the necessary funding.

John Madson

Ed Kozicky

Ozz Warbach, cartoons

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For their roles in developing this model law, special recognition should be given Mr. John McKean, Director of the Oregon State Game Commission, and President of the Western Association of State Game and Fish Commissioners; Mr. Paul Lenzini, Counsel for the International Association of Game, Fish and Conservation Commissioners; and Dr. C. R. "Pink" Gutermuth, President of the World Wildlife Fund.

## **Model State Legislation Relating to Funding and Authorization for Improved Nongame and Endangered Species Programs**

Recent years have witnessed growing public awareness of the need to conserve natural resources including wildlife. Wildlife is the common property of all, title to which is held by the State in trust for the benefit of all its people. Traditionally, wildlife management programs conducted by State agencies have been supported primarily by revenues derived from license holders—the hunter, fisherman and trapper. However, of hundreds of species of wild birds in a given State only a relative handful are classified as game birds and most wild mammals are also classified as nongame species. The same is true of reptiles, amphibia and fish. Due to lack of funds, many States are unable to provide adequate management programs for nongame wildlife. Yet nongame wildlife is valuable for human enjoyment, for scientific purposes, and as members of ecosystems, and its continued survival must be assured.

Programs involving nongame wildlife conducted by State agencies have to date been made possible largely by revenues derived from license sales and excise taxes on hunting and fishing equipment. The fact is that these funds are not adequate to finance necessary nongame research and management. Moreover, it is increasingly necessary for State wildlife agencies to determine impact of proposed federal and state construction programs on fish and wildlife resources, relating the effects of manipulation of a given environment to all wildlife. To accomplish

such appraisals on a sounder basis, additional funding is urgently needed to attain greater biological knowledge of nongame wildlife and all components of the biotic community.

In addition, the States must assume greater responsibility for preserving and protecting species of fish and wildlife which may be endangered since the fate of many such species rests ultimately with the States. Some peripheral species may be endangered in one State and abundant in an adjacent State.

The suggested act which follows is designed to accomplish the following purposes: (1) authorization of programs to develop greater information on nongame wildlife and to provide for management of nongame wildlife; (2) identification and management of species and subspecies of fish and wildlife indigenous to a State which are threatened with extinction within the State; and (3) authorization of general fund money for nongame and endangered species programs.

The model legislation which follows has been endorsed by the Executive Committee of the International Association of Game, Fish and Conservation Commissioners and the Council of The Wildlife Society.

## **Suggested Legislation**

Title should conform to individual State requirements. The following is suggested: An act to amend the Fish and Game Code to provide for the conservation, management, enhancement and protection of nongame fish and wildlife and species threatened with extinction, and to provide enforcement authority and penalties for violations of this chapter.

Section 1. *Short Title.* This chapter shall be known and may be cited as "The Nongame and Endangered Species Conservation Act."

Section 2. *Definitions.* For the purposes of this chapter, the term—

(a) "Department" means the primary agency within the State that has statutory authority to manage wildlife populations;

(b) "Director/Commission" means the Director (the Commission) of the state agency that has statutory authority to manage wildlife populations;

(c) "Ecosystem" means a system of living organisms and their environment, each influencing the existence of the other and both necessary for the maintenance of life;

(d) "Endangered species" means any species or subspecies of wildlife whose prospects of survival or recruitment within the State are in jeopardy or are likely within the foreseeable future to become so due to any of the following factors: (1) the destruction, drastic modification, or severe curtailment of its habitat, or (2) its overutilization of scientific, commercial or sporting purposes, or (3) the effect on it of disease, pollution, or predation, or (4) other natural or man-made factors affecting its prospects of survival or recruitment within the State, or (5) any combination of the foregoing factors. The term shall also be deemed to include any species or subspecies of fish or wildlife appearing on the United States list of Endangered Native Fish and Wildlife as it appears on the effective date of this chapter (Part 17 of Title 50 of the Code of Federal Regulations, Appendix D) as well as any species or sub-

species of fish and wildlife appearing on the United States List of Endangered Foreign Fish and Wildlife (Part 17 of Title 50 of the Code of Federal Regulations, Appendix A), as such List may be modified hereafter;

(e) "management" means the collection and application of biological information for the purposes of increasing the number of individuals within species and populations of wildlife up to the optimum carrying capacity of their habitat and maintaining such levels. The term includes the entire range of activities that constitute a modern scientific resource program including, but not limited to, research, census, law enforcement, habitat acquisition and improvement, and education. Also included within the term, when and where appropriate, is the periodic or total protection of species or populations as well as regulated taking;

(f) "nongame species" means any wild mammal, bird, amphibian, reptile, fish, mollusk, crustacean or other wild animal not otherwise legally classified by statute or regulation of this State;

(g) "optimum carrying capacity" means that point at which a given habitat can support healthy populations of wildlife species, having regard to the total ecosystem, without diminishing the ability of the habitat to continue that function;

(h) "person" means any individual, firm, corporation, association or partnership;

(i) "take" means to harass, hunt, capture, or kill or attempt to harass, hunt, capture, or kill, wildlife;

(j) "wildlife" means any wild mammal, bird, reptile, amphibian, fish, mollusk, crustacean or other wild animal or any part, product, egg or offspring or the dead body or parts thereof.

Section 3. *Findings and Declarations.* The Legislature finds and declares all of the following:

(a) That it is the policy of this State to manage certain non-game wildlife for human enjoyment, for scientific purposes, and to insure their perpetuation as members of ecosystems;

(b) That species or subspecies of wildlife indigenous to this State which may be found to be endangered within the State should be accorded protection in order to maintain and to the extent possible enhance their numbers;

(c) That the State should assist in the protection of species or subspecies of wildlife which are deemed to be endangered elsewhere by prohibiting the taking, possession, transportation, exportation, processing, sale or offer for sale or shipment within this State of species or subspecies of wildlife listed on the United States Lists of Endangered Fish and Wildlife as set forth herein unless such actions will assist in preserving or propagating the species or subspecies; and

(d) That adequate funding be made available to the Department annually by appropriations from the General Fund or from other sources separate and apart from the Game and Fish Fund for management of nongame and endangered species.

Section 4. *Nongame Species.* (a) The Director/Commission shall conduct investigations on nongame wildlife in order to develop information relating to population, distribution, habitat needs, limiting factors, and other biological and ecological data to determine management measures necessary for their continued ability to sustain themselves successfully. On the basis of such determinations the Director/Commission shall issue proposed regula-

tions not later than one year from the effective date of this chapter and develop management programs, designed to insure the continued ability of nongame wildlife to perpetuate themselves successfully. Such proposed regulations shall set forth species or subspecies of nongame wildlife which the Director/Commission deems in need of management pursuant to this section, giving their common and scientific names by species and subspecies. The Director/Commission shall conduct ongoing investigations of nongame wildlife and may from time to time amend such regulations by adding or deleting therefrom species or subspecies of nongame wildlife.

(b) The Director/Commission shall by such regulations establish proposed limitations relating to taking, possession, transportation, exportation, processing, sale or offer for sale, or shipment as may be deemed necessary to manage such nongame wildlife. Such regulation shall become effective sixty days after being proposed during which period public comment shall be solicited and received. The Director/Commission may hold a public hearing if deemed appropriate. On the basis of public comments received or the testimony at any such hearing the Director/Commission may make such changes in the proposed regulation as are consistent with effective management of nongame wildlife.

(c) Except as provided in regulations issued by the Director/Commission, it shall be unlawful for any person to take, possess, transport, export, process, sell or offer for sale or ship nongame wildlife deemed by the Director/Commission to be in need of management pursuant to this section. Subject to the same exception, it shall further be unlawful for any common or contract carrier knowingly to transport or receive for shipment nongame wildlife

deemed by the Director/Commission to be in need of management pursuant to this section.

Section 5. *Endangered Species*. (a) On the basis of investigations on nongame wildlife provided for in section 4 and other available scientific and commercial data, and after consultation with other State wildlife agencies, appropriate federal agencies, and other interested persons and organizations, but not later than one year after the effective date of this chapter, the Director/Commission shall by regulation propose a list of those species and subspecies of wildlife indigenous to the State which are determined to be endangered within this State, giving their common and scientific names by species and subspecies. Such regulation shall become effective sixty days after being proposed during which period public comment shall be solicited and received. The Director/Commission may hold a public hearing if deemed appropriate. On the basis of public comments received or the testimony at any such hearing, the Director/Commission may add to such proposed list additional species or subspecies which are determined to be endangered within the State or delete therefrom such species or subspecies which are determined not to be endangered within the State.

(b) The Director/Commission shall conduct a review of the State list of endangered species within not more than two years from its effective date and every two years thereafter and may amend the list by such additions or deletions as are deemed appropriate. The Director/Commission shall submit to the Governor a summary report of the data used in support of all amendments to the State list during the preceding biennium.

(c) Excepted as otherwise provided in this chapter, it shall be unlawful for any person to take, possess, transport, export, process, sell or offer for sale or ship, and for any common or contract carrier knowingly to transport or receive for shipment any species or subspecies of wildlife appearing on any of the following lists: (1) the list of wildlife indigenous to the State determined to be endangered within the State pursuant to subsection (a); (2) the United States' List of Endangered Native Fish and Wildlife as it appears on the effective date of this chapter (Part 17 of Title 50, Code of Federal Regulations, Appendix D); and (3) The United States' List of Endangered Foreign Fish and Wildlife (Part 17 of Title 50, Code of Federal Regulations, Appendix A), as such list may be modified hereafter; *Provided, that* any species or subspecies of wildlife appearing on any of the foregoing lists which enters the State from another State or from a point outside the territorial limits of the United States and which is transported across the State destined for a point beyond the State may be so entered and transported without restriction in accordance with the terms of any federal permit or permit issued under the laws or regulations of another State.

(d) In the event the United States' List of Endangered Native Fish and Wildlife is modified subsequent to the effective date of this chapter by additions or deletions, such modifications whether or not involving species or subspecies indigenous to the State may be accepted as binding under subsection (c) if, after the type of scientific determination described in subsection (a), the Director/Commission by regulation accepts such modification for the State. Any such regulation shall be effective upon promulgation.

Section 6. *Management Programs.* (a) The Director/Commission shall establish such programs, including acquisition of land or aquatic habitat, as are deemed necessary for management of non-game and endangered wildlife. The Director/Commission shall utilize all authority vested in the Department to carry out the purposes of this section.

(b) In carrying out programs authorized by this section, the Director/Commission may enter into agreements with federal agencies, political subdivisions of the State, or with private persons for administration and management of any area established under this section or utilized for management of nongame or endangered wildlife.

(c) The Governor shall review other programs administered by him and, to the extent practicable, utilize such programs in furtherance of the purposes of this section. The Governor shall also encourage other state and federal agencies to utilize their authorities in furtherance of the purposes of this section.

(d) The Director/Commission may permit, under such terms and conditions as may be prescribed by regulation, the taking, possession, transportation, exportation or shipment of species or subspecies of wildlife which appear on the State list of endangered species, on the United States' List of Endangered Native Fish and Wildlife, as amended and accepted in accordance with subsection (d) of section 5, or on the United States' List of Endangered Foreign Fish and Wildlife, as such list may be modified hereafter, for scientific, zoological, or educational purposes, for propagation in captivity of such wildlife, or for other special purposes.

(e) Upon good cause shown, and where necessary to alleviate damage to property or to protect human health, endangered species may be removed, captured or destroyed but only pursuant to permit issued by the Director/Commission and, where possible, by or under the supervision of an agent of the Department; *Provided, that* endangered species may be removed, captured or destroyed without permit by any person in emergency situations involving an immediate threat to human life. Provisions for removal, capture or destruction of nongame wildlife for the purposes set forth above shall be set forth in regulations issued by the Director/Commission pursuant to subsection (a) of section 4.

Section 7. *Regulations.* The Director/Commission shall issue such regulations as are necessary to carry out the purposes of this chapter.

Section 8. *Enforcement.* (a) Any person who violates the provisions of subsection (c) of section 4, or any regulations issued under section 4 or whoever fails to procure or violates the terms of any permit issued thereunder shall be fined not more than \$500 or be imprisoned not more than six months, or both.

(b) Any person who violates the provisions of subsection (c) of section 5, or any regulations issued pursuant thereto or whoever fails to procure or violates the terms of any permit issued under subsections (d) and (e) of section 6 shall be fined \$1,000 or be imprisoned not more than one year, or both.

(c) Any officer employed and authorized by the Director/Commission or any police officer of the State or of any municipality or county within the State shall have authority to conduct warrant-

less searches as provided by law, and to execute a warrant to search for and seize any equipment, business records, merchandise or wildlife taken, used, or possessed in connection with a violation of any section of this chapter. Any such officer or agent may, without a warrant, arrest any person who such officer or agent has probable cause to believe is violating, in his presence or view, any such section, or any regulation or permit provided for by this chapter. An officer or agent who has made an arrest of a person in connection with any such violation may search such person or business records at the time of arrest and seize any wildlife, records, or property taken, or used in connection with any such violation.

(d) Equipment, merchandise, wildlife, or records seized under the provisions of subsection (c) of this section shall be held by an officer or agent of the Department pending disposition of court proceedings, and thereafter be forfeited to the State for destruction or disposition as the Director/Commission may deem appropriate; *Provided that*, prior to forfeiture, the Director/Commission may direct the transfer of wildlife so seized to a qualified zoological, educational, or scientific institution for safekeeping, costs thereof to be assessable to the defendant. The Director/Commission is authorized to issue regulations to implement this subsection.

Section 9. *Miscellaneous.* (a) None of the provisions of this chapter shall be construed to apply retroactively or to prohibit importation into the State of wildlife which may be lawfully imported into the United States or lawfully taken or removed from another State or to prohibit entry into the State or possession, transportation, exportation, processing, sale or offer for sale or shipment of any wildlife whose species or subspecies is deemed

to be threatened with statewide extinction in this State but not in the State where originally taken if the person engaging therein demonstrates by substantial evidence that such wildlife was lawfully taken or removed from such State; *Provided, that* this subsection shall not be construed to permit the possession, transportation, exportation, processing, sale or offer for sale or shipment within this State of wildlife on the United States' List of Endangered Native Fish and Wildlife, as amended and accepted in accordance with subsection (d) of section 5, except as permitted in the proviso to subsection (c) of section 5 and subsection (d) of section 6.

(b) If any provision of this chapter or the application thereof to any person or circumstance is held invalid, the remainder of this chapter, and the application of such provision to other persons or circumstances, shall not be affected thereby.

Section 10. *Funding.* The cost of programs established under this chapter shall be borne by the General Fund or other sources separate and apart from the Game and Fish Fund to the extent of annual appropriations equal in amount of \_\_\_\_\_ per centum of the amount of revenues raised in the preceding fiscal period from the sale of hunting, fishing and trapping licenses, but not less than \$ \_\_\_\_\_.



SIERRA CLUB,  
NATIONAL WILDLIFE COMMITTEE,  
Trenton, N.J., August 13, 1972.

Hon. FRANK E. MOSS,  
Senate Commerce Committee, New Senate Office Building,  
Washington, D.C.

DEAR SENATOR MOSS: For the record of the predator control hearings, I am submitting this letter and enclosed newspaper clipping from the Trenton, N.J. Evening Times, August 10, 1972. I ask that this be inserted following my testimony.

This article is an excellent example of why we believe that ultimate authority for any predator control activities belongs with the Federal government.

If the figures given are correct, hunters in California killed in a two year period (1967-1968) more than twice the number of bobcats killed by Federal authorities nationwide during the same period. The hunters toll of coyotes was more than half of the number killed by Federal authorities. According to the House Report on S. 13152 the Federal kill of bobcats nationally during 1967-68 was 20,381. Hunters in California killed 49,500. The Federal kill of coyotes was 145,282 nationwide. The California hunter kill was 84,900.

Although hunting is a legitimate sport, I seriously doubt the ability of California to sustain a viable bobcat population with kills of the magnitude given. Even the coyote may not be able to withstand the pressure. The article states that the sport of predator calling is increasing. Actually, I question the true sportsmanship involved in this type of killing.

It must be kept in mind that this killing is in addition to organized predator control programs using other methods.

With authority in Federal hands, we would hope limitations could be established to reduce the kill. This overkill will certainly lead to the listing of the bobcat on the endangered list in a few years and perhaps the coyote not long afterwards.

Sincerely,

ROBERT C. HUGHES, *Chairman.*

[From the Trenton, N.J., Evening Times, Aug. 10, 1972]

#### COYOTES ON CALL: NEW SPORT

HELENA, MONT. (UPI).—A string of harsh squeals is heard, like a wounded cottontail rabbit.

It's a hunter, trying to lure a coyote into range.

Predator calling, and with it predator sport hunting, has increased in popularity in almost all Western states since federal predator control efforts began declining.

The Montana Fish and Game Department reports widespread predator hunting in 28 states. Reports show 84,900 coyotes and 49,500 bobcats were taken in California alone in 1967-68 by predator calling.

The sport is growing fastest in the West, where small predator calling associations have grown into sophisticated organizations. An example is the Big Country Varmint Callers Association of Abilene, Texas.

That group was formed to give reliable hunters new hunting opportunities and to assure ranchers the hunters would be responsible for their outdoor activities.

Most predator calling occurs on the lands of farmers and ranchers claiming losses from predators. Livestock owners are enthusiastic backers of predator hunting now that predator poisons are outlawed by the federal government.

Predator calling would appear to halt the introduction of poisons into the wildlife food chain. But it won't satisfy those who feel it's ecologically unsound to kill one species to protect another.

The sport requires some patience and a good voice for animal calls. Some electronic calls are available but these aids are disdained by most, according to the Montana Fish and Game Department.

Hunters have succeeded in drawing coyotes, foxes, bobcats and raccoons. But they're never sure just what they'll get.

One caller tells of his efforts to draw a fox from an abandoned farm house. What he got was a skunk, tearing straight at him with battleflag waving.

FRIENDS OF THE EARTH,  
Washington, D.C., August 14, 1972.

Senator FRANK E. MOSS,  
Senate Commerce Committee,  
Washington, D.C.

DEAR SENATOR: Enclosed is a recent FOE press release, alluding to the desperate plight of the Red wolf (*Canis rufus*), and the Black-footed ferret (*Mustela nigripes*). Both of these species have been brought perilously close to extinction, largely through the trapping and poisoning programs of the Division of Wildlife Services.

We consider it important that members of the U.S. Senate become aware of this situation. There is no chance at all that either species can last another decade if the present decline is not reversed.

The present juncture, during which reform bills on predator control and endangered species are pending before the Commerce Committee, is an ideal opportunity to fund management programs to save these animals. It is also, very probably, the last chance.

At present, FOE is striving to pressure the EPA to suspend the registration of 1080 and strychnine as rodenticides, and calling on the DWS to suspend all poisoning of prairie dogs indefinitely. The survival of the ferret, for even another two or three years, may hinge upon this being done.

We shall be pleased to provide interested offices with additional information. Sincerely,

TOM GARRETT,  
Wildlife Conservation Director.

Enclosure.

FOE PLEADS FOR SPECIES NEAR EXTINCTION THROUGH DIVISION OF WILDLIFE SERVICES POISONING

Friends of the Earth pled for action to save two species brought close to extinction by poisoning and trapping by the US Department of Interior.

In testimony for the Senate Commerce committee on Environment, Tom Garrett said that the red wolf, a unique species of wolf whose primitive characteristics have caused scientists to speculate that it inhabited North America long before more advanced wolves crossed the land bridge from Asia, was near "the abyss of biological extinction". He cited a recent study indicating that only 100 red wolves remain in their last strongholds on the Texas and Louisiana coast. These last survivors, according to the investigators, are subject to "heavy hunting and trapping pressure," and "totally unprotected".

The red wolf, a long legged animal midway in size between a grey wolf and a coyote once occurred throughout the southeastern United States. In this century it has been extirpated from 12 states. Garrett blamed the Interior Department for its final decline. He said a campaign of extermination had been begun by the Biological service in 1915, and continued by the Division of Wildlife Services. He charged these agencies had eliminated the wolf from the Ozarks by 1938, and destroyed the large Louisiana population by the mid 1950's. "As late as 1965, with the wolf in desperate straits", Garrett told the committee, "management experts of the DWS were still 'controlling' them. In 1963 the DWS reported 2771 wolves killed, mostly misidentified, but doubtless including pure specimens. At least sixty pure wolves are known to have been killed by DWS trappers since that time."

Garrett said that coyotes who invaded the red wolf's range as the latter were exterminated, hybridizing with and swamping the last surviving wolves, were far more destructive to livestock.

Then speaking for the prestigious Defenders of Wildlife organization as well as FOE, he said that the DWS, "having all but destroyed the red wolf, should be obliged by Congress to engage in every effort to save it. With firm Congressional instructions, and funding to implement them, the DWS can absolve itself of its senseless spree of killing . . ." He called for a "wolf proof" fence, modeled on the "dingo proof" fences in Australia, be built around the last remaining viable pure wolf populations, particularly that in Chambers county Texas, to prevent miscegenation, and delineate an area for intensive protection."

Garrett charged that another species, the black footed ferret was also close to extinction as the result of DWS activities. The ferrets, sleek two foot long members of the weasel family, formerly occurred in the vicinity of prairie dog

towns. Massive DWS poisoning campaigns, using grain treated with strychnine and compound 1080, both notorious secondary poisons, have extirpated the prairie dog over most of its natural range, and single families of ferrets are now known in only two places in the U.S.

Noting that "prairie dogs themselves are now scarce", and that burrowing owls, who also live near prairie dog towns are becoming rare, Garrett demanded an immediate moratorium on poisoning prairie dogs, and urged the committee to withhold funds for this purpose.

The former Wyoming rancher admitted coyotes take a comparatively heavy toll of sheep in the West, but said that the problem could far better be dealt with by a selective program of culling individual offending animals, as has been successfully used in Missouri and Kansas. "The DWS" he said, "should no longer be permitted to wage war on American wildlife with every weapon it can lay hands on".

The Senate Commerce committee is now considering reform legislation on predator control which will subsidize the states in conducting predator control programs and is designed to eventually phase out Federal participation. The house bill contained loopholes which may allow continued poisoning of predators, while poisoning of ground squirrels has continued without restriction.

PHOENIX, ARIZ.,  
August 14, 1972.

Senator FRANK E. MOSS,  
Senate Commerce Committee, New Senate Office Building,  
Washington, D.C.

DEAR SENATOR MOSS: On behalf of our group, we feel that H.R. 13152 is defeating its whole purpose, unless you omit Major Livestock Damages.

This is the key issue. Most of the livestock ranchers have caused the predator problems, due to their greed in allowing over-grazing.

A copy of a recent issue of the "Rancher" containing excerpts of letters to the editor, explains itself. I hope you have the time to read it.

We certainly feel that a subsidy, in form of an insurance plan should be used for ACTUAL losses. One can be surer the insurance agents will be quite thorough in their investigations.

Sincerely,

FRIENDS OF ANIMALS.

(50% of federal land in severe condition; 32% eroding fast; 18% slight to no erosion.)

Enclosure.

#### LETTERS TO THE EDITOR

DEAR Ms. SNIDER: We are writing regarding the picture of the tortured coyote on the cover of your latest issue of the Rancher, with the appallingly childish caption inside, which must have been written by a third grader who had just finished reading about the wolf just gobbling up Little Red Riding Hood's grandmother.

The picture with the simple-minded caption was an affront to the intellect of the modern rancher. We know many intelligent Central Oregon ranchers who oppose any killing of coyotes on *their* land because they value their rodent control.

Why not publish a picture of a snarling, hateful coyote-hater?

We are certain Van Wormer will be distressed when we show him how you used his picture.

Let's have a little sanity with our predator control. You are not helping your cause with such blind emotionalism.

Mr. and Mrs. GILBERT STAENDER.

P.S. We just read further coyote remarks inside your publication. Unbelievable! Straight out of the seventeenth century! At least now we know what we are up against.

For your further edification there is serious talk of a boycott of the Wool-growers' products, with a picket line at your next convention.

V. & G.S.

My father was a Woolgrower in coyote country! He took care of his sheep and didn't lose any to coyotes. He wouldn't even shoot one if he had the chance.

V. STAENDER.

DEAR MR. EDITOR: Saw the picture of a coyote caught in a trap, snarling, the idea being that he personified all the problems of the sheepman.

For a moment, let's look at your industry from a different view.

You livestock people are basically grass growers. You convert grass into cash via your livestock. So, in a way, the sheep and cattle are predators of the grass.

If the numbers of cattle and sheep (predators) are kept in check as you are so constantly telling the public the coyotes, eagles, bobcats, foxes should be, then the grass can survive.

However, in most cases the predators, cattle and sheep, are not kept down in numbers and kill the host, the grass.

Nature then retaliates to this greed and stupidity. The result, the livestock starve, the young die off, the top soil washes away, going into streams, killing the fish, the deer die because there is no browse. The mice and rabbits eat the fleshy roots of the exposed grass and soar in numbers. The coyotes increase because of the large number of these creatures.

You livestock people have brought this all on yourself, and to blame this on some coyotes and eagles is the final absurd note, and a very sad example of a once good range land reduced to a virtual disaster area.

From the desk of

WALLACE "WALLY" SHAFFER,  
Sales Representative, Automobile Club of Oregon, AAA.

OGDEN, UTAH, August 15, 1972.

Senator FRANK MOSS,  
U.S. Senate,  
Washington, D.C.

DEAR MR. MOSS: In recent months I have been reading about a lot of "expert's" opinions and their solutions to the predator problem. This encouraged me to run an experiment on our outfit. I have some facts and figures and I am sending them to you, with the thought that they may be used to help with our problem.

In sheepherder's language I'll briefly state what happened, and my comments.

Three shorn winter herds of sheep, numbering 6533 head, were distributed in fenced compartments over our lambing range. The sheep were distributed on the basis of equal feed and water, natural protection, etc. They were counted off according to number, or gate cut. Each compartment had sheep of equal age, flesh, grade, and they started to lamb the same day. The earliest lambers mixed with the later lambers, just as they would during the normal breeding of any number of sheep.

The herders were of equal ability, and their experience on this range was from three to seven successive years with our outfit. They had demonstrated what they could do over this length of time, and there was plenty of pride and competition between them. Their job was to see that the sheep were distributed properly, salted and to keep out any visitors who might disturb the sheep.

Starting May 15th to May 29th, eight bunches of lambs were docked and branded to make up four summer herds. The average lambing was 116 percent. The separate bunches varied only a fraction of a percent with the different herders. We knew that the predators were taking their toll and over \$100.00 worth of ammunition was used by the herders. The fifth herd was left on the lambing range until June 12th, at which time they docked 97.6 percent. Now there is a difference of 18.4 percent, and the signs told us that they were killed by predators, mainly coyotes. Of 1233 lambs left in the herd, this represents a loss of 227 lambs without figuring the percent from the original number. Out of this one herd I lost 227 lambs. I contracted my lambs for this year at 30½ cents per pound, and this loss amounts to over \$6,500.

Now, if 227 lambs were lost in a period of fifteen days, how many lambs were lost out of the other four herds, before they were reduced to 116 percent at docking time? My experience tells me that it will amount to more than \$30,000. At the present, the summer losses are still going on.

This lambing range was trapped, hunted and denned by men on horseback, and I personally piloted my plane for a kill of 18 coyotes last winter. Two of these coyotes had been eating Hereford calves. I don't think there is 20 percent of the pheasants, chuckers, Hungarian partridges or sage hens on this range that there was two years ago.

In refuting the criticism of the sheep men in exaggerating their losses, I find the opposite to be true. Most sheepmen are reluctant to admit their losses. This may be due to pride, competitiveness with neighbors, or the fact that his banker will find out. Anyway, they don't have their numbers of lambs at shipping time.

After working about forty years to put this outfit together, and with the predator problem as it stands today, I find myself getting pretty discouraged.

I don't know what you can do to help, but I hope you will try something. It is quite ironic that the public would complain about the price of meat, when we lose so much through predators. I don't think they can have both.

Yours truly,

LLOYD W. KELLER.

OGDEN, UTAH, August 15, 1972.

Senator WALLACE F. BENNETT,  
U.S. Senate,  
Washington, D.C.

DEAR MR. BENNETT: In recent months I have been reading about a lot of "expert's" opinions and their solutions to the predator problem. This encouraged me to run an experiment on our outfit. I have some facts and figures and I am sending them to you, with the thought that they may be used to help with our problem.

In sheepherder's language I'll briefly state what happened, and my comments.

Three shorn winter herds of sheep, numbering 6533 head, were distributed in fenced compartments over our lambing range. The sheep were distributed on the basis of equal feed and water, natural protection, etc. They were counted off according to number, or gate cut. Each compartment had sheep of equal age, flesh, grade, and they started to lamb the same day. The earliest lambers mixed with the later lambers, just as they would during the normal breeding of any number of sheep.

The herders were of equal ability, and their experience on this range was from three to seven successive years with our outfit. They had demonstrated what they could do over this length of time, and there was plenty of pride and competition between them. Their job was to see that the sheep were distributed properly, salted and to keep out any visitors who might disturb the sheep.

Starting May 15th to May 29th, eight bunches of lambs were docked and branded to make up four summer herds. The average lambing was 116 percent. The separate bunches varied only a fraction of a percent with the different herders. We knew that the predators were taking their toll and over \$100.00 worth of ammunition was used by the herders. The fifth herd was left on the lambing range until June 12th, at which time they docked 97.6 percent. Now there is a difference of 18.4 percent, and the signs told us that they were killed by predators, mainly coyotes. Of 1233 lambs left in the herd, this represents a loss of 227 lambs without figuring the percent from the original number. Out of this one herd I lost 227 lambs. During recent years, 95 pounds has been the average weight of my lambs. I contracted my lambs for this year at 30½ cents per pound, and this loss amounts to over \$6,500.

Now, if 227 lambs were lost in a period of fifteen days, how many lambs were lost out of the other four herds, before they were reduced to 116 percent at docking time? My experience tells me that it will amount to more than \$30,000. At the present, the summer losses are still going on.

This lambing range was trapped, hunted and denned by men on horseback, and I personally piloted my plane for a kill of 18 coyotes last winter. Two of these coyotes had been eating Hereford calves. I don't think there is 20 percent of the pheasants, chuckers, Hungarian partridges or sage hens on this range that there was two years ago.

In refuting the criticism of the sheep men in exaggerating their losses, I find the opposite to be true. Most sheepmen are reluctant to admit their losses. This may be due to pride, competitiveness with neighbors, or the fact that this banker will find out. Anyway, they don't have their numbers of lambs at shipping time.

After working about forty years to put this outfit together, and with the predator problem as it stands today, I find myself getting pretty discouraged.

I don't know what you can do to help, but I hope you will try something. It is quite ironic that the public would complain about the price of meat, when we lose so much through predators. I don't think they can have both.

Yours truly,

LLOYD W. KELLER.

COMMITTEE FOR THE PRESERVATION OF THE TULE ELK,  
Los Angeles, Calif., August 15, 1972.

HON. PHILIP A. HART,  
Chairman, Subcommittee on Environment,  
Senate Office Building,  
Washington, D.C.

MY DEAR SENATOR HART: The people of America hailed the end of the Department of the Interior's "predator control" program in the hope that it would end the cruel, wasteful, and ecologically unjustifiable war on the predatory animals; not to subsidize state programs to compound and proliferate the problem through their state agricultural departments.

Close on the heels of Congressional action to halt hunting from aircraft, comes the proposal for federal funds for massive state programs of extermination by shooting from aircraft, dog packs, and the continued use of traps and poison.

H.R. 13152 is a sorry response to the recognized worth of the predatory animals that perform the only on-going, nontoxic, unfunded rodent control service, that up-grade the herbivorous species by removing the less fit, and deserve protection and respect.

The people of America deserve relief from the unnecessary financial burden imposed by funding predator control.

The State of Nevada estimates the cost of remuneration for losses to predatory animals would be only about one-tenth the cost of predator control.

The Committee for the Preservation of the Tule Elk urges the enactment of a system of federal remuneration for losses rather than any funding of any program of predator control.

Sincerely,

BEULA EDMISTON, *Secretary.*

NEW YORK, August 16, 1972.

HON. FRANK E. MOSS,  
New Senate Office Building  
Washington, D.C.

DEAR SIR: I would appreciate having the following included in the record of the Senate Hearings of Aug. 7 and 8, 1972 on the subject of predator control, H.R. 13152, S 3334, S 2083, S 2821, S 273.

In reference to your question to Mrs. Stevens concerning the plausability of a frequent check on leg hold traps, I would like to make the following suggestion. Elsewhere in the hearings, the fact was brought out that the value of aircraft in the hunting of the coyote was limited and in many cases impossible. I suggest that this aircraft and manpower could perhaps be put to better use in checking trap lines, and either killing the trapped animals from the air, or notifying the rancher whose traps had been spotted. This method, of course, would depend on the willingness of the ranchers to submit maps of their trap lines. It would, however, save the ranchers a great deal of time, and be a demonstration in the right direction of their willingness to try to put predator control on a more humane basis.

Very truly yours,

JACQUE DEAN,  
*Member of the Sierra Club's National Wildlife Commission.*

THE NATIONAL ASSOCIATION OF  
STATE DEPARTMENTS OF AGRICULTURE,  
Washington, D.C., August 23, 1972.

HON. FRANK E. MOSS,  
Vice Chairman, Subcommittee on Environment, U.S. Senate, New Senate Office  
Building, Washington, D.C.

DEAR SENATOR MOSS: I have been requested by Commissioner Joseph H. Francis, Utah Department of Agriculture, to present the enclosed statement on behalf of the National Association of State Departments of Agriculture for the hearing record in reference to H.R. 13152. We are in hopes that these comments will be made a part of the official hearing record and that they have been submitted to you within the allotted filing time.

Sincerely,

WM. STANWOOD CATH,  
*Executive Secretary.*

Enclosure.

Mr. Chairman and members of the committee, the following statement sets forth the views and position of the National Association of State Departments of Agriculture in opposition to the passage of Congress of H.R. 13152 and sets forth their reasons thereof, together with our recommendations for your consideration.

REASONS FOR OPPOSITION TO PASSAGE OF H.R. 13152

*Restricted use of toxic chemicals*

One of the primary objectives of the bill is to place into law the Executive Order issued by the President February 8, 1972, providing for restricting use of toxic chemicals. The Order has accomplished what was intended as a phase out of toxic chemicals for predator control, and time is needed to determine what benefits, or harmful effect, will result before placing it into law.

*Establishment of research program*

There seems to be no controversy over the provisions of the Act that would provide Federal moneys and services to carry out research programs for development of new and more effective ways and means of controlling predators. However, it is suggested that State officials and other experienced field personnel be consulted and become involved in the research programs, rather than turn the moneys appropriated and supervision of the program over to novices who have had no actual experience in predator control programs.

*Phase out of Federal responsibility*

The Act strongly implies and the House Committee report states (No. 92-1218) the intent of the Federal Government to terminate at the earliest possible date their financial support and leave to the states the full burden for funding the operation of their programs. However, the Act still provides arbitrary authority and discretionary power be given to the Secretary of Interior to set policies and to determine how states should administer their programs. Also, the Act does not take into consideration, but ignores the Federal Government's responsibility for controlling of predators and deprecators on the large areas of Federal lands within the various states, notwithstanding the fact that it is on these large open tracts of land that are the main cause of the predatory and deprecating animal problems.

*Usurpation of State rights by Federal Government*

Section 4(a) of the Bill dictates to the states what agency of state government shall be designated to carry out the purposes of the Act and requires said agency to meet standards established by the Secretary.

It is a well-established fact that wildlife is a valid and inherent property of the states, with powers resting with the state legislatures to determine what agencies of state government should be designated to manage wildlife within the borders of their state.

It is recommended that this section be amended to read that "the secretary is authorized to provide financial assistance to any state through the agency designated by the state legislature for administration of predatory and deprecating animal control programs."

Section 4(b) of the Bill further dictates to the states how their appropriate shares of moneys to operate the program should be raised. We can see no jurisdiction for the federal government to prescribe how states should provide moneys for funding their share of the program.

States have in operation longstanding programs that are in opposition to many parts of the proposed legislation, which would require action to be taken by the state legislature to make the necessary revisions in state laws in order to comply with the Act.

*Repeal of act of March 2, 1931 (7 U.S.C. 426-426)*

Section 7 of the Bill would repeal in its entirety the Act of March 2, 1931. House Report No. 92-1218 states, "in repealing the 1931 Act, it is the intent that the program of controlling predatory and deprecating animals should be turned over to the states and administered by them as soon as circumstances will permit."

Such a policy is not in the best interest of the public wherein predators migrate between states and proper coordination in the administration of state programs can only be accomplished by a State-Federal cooperative program, wherein emphasis can be directed in areas most needed regardless of state boundaries.

## CONCLUSION

In addition to the above reasons for opposition to H.R. 13152, we feel that the entire concept of the Bill is too narrow as it is oriented, and limited to dealing with only a few predators which prey on wildlife and domestic livestock, and does not lend itself to treatment of property losses that annually occur from all sources of wildlife in all states.

It is evident from reading of the House Report (No. 92-1218) that the Bill has been hastily prepared without due consideration to existing state programs and is prejudiced towards environmental interests.

## RECOMMENDATION

We recommend that the Bill be tabled; that the Executive Order of the President remain in force, providing time for the Secretary of Interior, in cooperation with the various states, to explore further ways and means of dealing on a broader scale with the problem, and present to the next session of the Congress a unified Federal-State program.

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FRIENDS OF THE EARTH,  
Washington, D.C., August 28, 1972.

HON. WARREN G. MAGNUSON,  
Chairman, Commerce Committee,  
Senate Office Building,  
Washington, D.C.

DEAR SENATOR MAGNUSON: Thank you for your letter of August 14. I hope you will pardon my delay in answering.

I have enclosed under separate cover my predator control testimony scheduled for delivery August 7.

Enclosed herewith is a letter I am sending to Secretary Reed on the matter of the current poisoning program being conducted against prairie dogs by the DWS. We are very much afraid that this program will prove fatal to the remaining ferrets, and may result in the extermination of prairie dogs from virtually all of their natural range.

We strongly support S. 3334, and hope that the enclosed information will be helpful to you in establishing a need for a no-exemption ban on the distribution of secondary poisons on public land. We shall be glad to provide you with additional material on the matter if required.

Sincerely,

TOM GARRETT.

Enclosure.

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FRIENDS OF THE EARTH,  
Washington, D.C., September 1, 1972.

Secretary NATHANIEL REED,  
U.S. Department of the Interior,  
Washington, D.C.

DEAR SECRETARY REED: Despite the recent reforms in predator control stemming from the President's Executive Order of February 8, 1972, widespread poisoning of prairie dogs by the DWS continues.

Mr. Ruch and Mr. Jackson have advised our office that poisoning of these ground squirrels will continue at about the same rate as in the past several years. They indicate that the DWS expected to "treat" approximately 200,000 acres of "dogtown" with poisoned grain this year. The poisoning is being conducted by spreading grain treated with strychnine alkaloid ( $C_{21}H_{22}N_2O_2$ ) which is admittedly a secondary poison, and among poisons prohibited for predator control in the President's Order.

FOE strongly protests continuation of this poisoning campaign on the following grounds:

1. The population of prairie dogs in the United States, which may once have numbered in the billions, is probably under 1% of its original figure. The species has been extirpated from all but a small portion of its original range. During that past decade prairie dogs have become rare in most parts of the West. The poisoning campaign conducted by the DWS has been responsible for most of this startling decline.

Therefore, to continue to poison at a rate which has produced a rather rapid eclipse of the animal in a few years is sure to result in its complete disappearance

from all except those few points where it is protected, within a comparatively short time.

Due to their compelling and elaborately structured social bonds, prairie dogs cannot rapidly expand their range. The constraints this imposes on expansion of range has been especially noted by John King and other students. It would probably take this species . . . were it no longer molested . . . many hundreds of years to re-establish itself throughout its former habitat.

Prairie dogs are almost uniquely susceptible to poisoning. It is arithmetically demonstrable that the poisoning of prairie dogs on a current scale cannot be long sustained by the present population.

2. The elimination of the prairie dog will inevitably bring about the extinction of the rare black-footed ferret, and places the future of the burrowing owl in doubt, along with other forms dependent on dogtown habitat.

We have little faith in the assertion that careful surveys are conducted of dog towns for the presence of ferrets prior to poisoning. McNulty found poisoning being conducted in localities where ferrets had been actually observed. Moreover, the ferret is fossorial, nocturnal and elusive. Aside from distinctive trenches which he apparently may or may not dig, there are no reliable signs of his presence. There is virtually no chance of spotting a resident ferret during a cursory examination of a dog town.

Mr. Jackson, of the DWS, has recently advised us that the DWS knows of no ferrets in Oklahoma, where prairie dogs are now being poisoned. However, a careful study by four scientists led by James Lewis of the University of Oklahoma uncovered fifty-four highly probable sightings by reliable individuals, and several hundred more possible sightings. A debate raged earlier this year in the Oklahoma legislature concerning the ferrets. A bill, introduced in the legislature to restrict poisoning in order to save them was unhappily squelched.

Lewis and his fellow scientists believe that occasional families of ferrets may still occur in Oklahoma, Texas, Kansas, and Colorado, as well as in the three South Dakota counties where their presence has been confirmed. Considering the results of the Oklahoma survey, we are disposed to expect that this may be correct, despite the negative reports of these involved in poisoning.

If, however, the poisoners are allowed to continue their work, they will eventually be correct in their claim that there are no ferrets. Whether or not ferrets now occur in these states, they soon will be gone.

The case of the burrowing owl, which uses "dog holes" as habitat is less clear cut. But there is considerable agreement that these little raptors, which were formerly such a delightful feature of the prairies, are now rare in most of their range.

3. We consider the use of secondary poison against prairie dogs, or any other ground squirrel, to be a violation of the spirit of President Nixon's Executive Order. Animals especially adapted to the existence of prairie dogs will disappear along with them without regard to the manner in which they are destroyed. But the use of the secondary toxicants against any mammal in the field widens the swath of destruction to include numerous predators and scavengers. Poisoning of ground squirrels in this manner can easily result in loss of endangered animals, such as the kit fox, and other birds and mammals protected by U.S. law or through international agreement, including bald eagles and other raptors.

Conservationists have been unanimous in applauding President Nixon's courageous action in moving to curb certain excesses of the DWS. Yet some of the worst and most inexcusable programs undertaken by that service are continuing unabated. That this should be so seems incompatible with the philosophy embodied in the President's environmental message.

Secretary Reed, Friends of the Earth hereby respectfully requests that you act to establish an indefinite moratorium on the poisoning of prairie dogs on public lands.

Should our request be negatively considered, we shall, without diminution of our gratitude for previous and current initiatives on behalf of reform by officials serving in the Bureau of Sport Fisheries and Wildlife, act as effectively as possible. We shall attempt to alert the public and the Congress, as well as the conservation leaders throughout the country to this situation, and we shall certainly explore legal recourse which may be available.

For countless eons the plains of North America have been inhabited by burrowing rodents, of approximately prairie dog size. A well known example is

Epigalus, the little horned rodent of the Miocene, who apparently existed in vast numbers, and left evidence of a perfectly spiralling burrow. At the present time, social burrowing forms evolved from several families of rodents inhabit the temperate grasslands of Central Europe (Susliks) and South America (Viscachas), occupying the niche of the prairie dog in North America. It is correct to say that such forms are, and almost always have been an integral feature of this biome. Some students believe that the activities of these animals in dredging subsoil minerals to the topsoil are responsible for the high mineral content of grassland soils, and thus for the exceptional nutrient qualities of the grasses.

Mr. Secretary, the buffalo, by deliberate United States military and economic policies is gone from the plains, relegated to a few pastures and reservations, and to a subarctic forest in the Northwest territories. The grey wolf is gone; the plains sub-species that followed the buffalo apparently gone forever, through the work of the Biological Services. We are in this decade confronted with the real possibility that the prairie dog and its dependent species will be brought to an end, again as a deliberate policy of the U.S. Government.

The economic reason why this should happen is absent. The present prairie dog populations are having negligible economic impact. The poisoning program is continuing blindly, through internal inertia.

Friends of the Earth does not believe that civilized man should be permitted to destroy, for the flimsiest of reasons, species perfectly adapted to their environment, which preceded him in North America by, very possibly, millions of years. We shall strive to prevent such a crime from being consummated.

Respectively,

TOM GARRETT,  
*Wildlife Conservation Director.*

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STATE DEPARTMENT OF AGRICULTURE,  
*Salt Lake City, Utah, September 5, 1972.*

HON. FRANK E. MOSS,  
*U.S. Senator,  
New Senate Office Building,  
Washington, D.C.*

DEAR SENATOR MOSS: I am writing to you regarding H.R. 13152 a bill referred to as the "Federal Animal Damage Control Act of 1972" which is awaiting action to be taken by the Subcommittee on Environment, of the Senate Commerce Committee.

I am in full agreement with the position taken by the National Association of State Departments of Agriculture on this legislation, as contained in their statement which is part of the record of recent hearings held by your committee on this bill. I am definitely opposed to Section 4, subsection a, which eliminates the right of states to designate the most appropriate agency for administration of the act, and ask your consideration to have this section amended as follows:

On page 4, line 20, delete after the word designated "by the states for wildlife management" and insert in lieu thereof "by the State Legislature." Also on page 4, line 25, delete after the word designated "for wildlife management" and insert "by the State Legislature."

This amendment would provide the states with the opportunity of designating any existing agency or setting up a new agency consisting of representation from agriculture, wildlife, public and private lands, or other interested parties.

In some other states, moneys to carry out the predator control programs are received from other sources and it would seem proper that they be represented from agriculture, wildlife, public and private lands, or other interested parties.

In some other states, moneys to carry out the predator control programs are received from several sources and it would seem proper that they be represented in determining how their money should be used for carrying out the program.

Thanking you for giving this matter your attention, I remain

Sincerely yours,

JOSEPH H. FRANCIS, *Commissioner.*

U.S. SENATE,  
Washington, D.C., September 12, 1972.

HON. WARREN G. MAGNUSON,  
Chairman, Commerce Committee,  
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: As per a recent conversation between Max Gruenberg of my staff and Len Bickwit of yours, I am enclosing a copy of a letter we recently received from Mr. James W. Brooks, Commissioner of the Alaska Department of Fish and Game, on the several predator control bills.

I would like to request that this letter be put in the official hearing record for these bills if it has not already been inserted.

I would also like to request that Mr. Brooks' suggestions be considered by the subcommittee when these bills are taken up. We will be happy to discuss both of these provisions with your staff if you so desire.

With regard to the final point mentioned by Mr. Brooks (i.e. that legislative guidelines for such funds be established), should you desire specific language, I am sure that we can work something up for you. Please advise.

Many thanks.  
Cordially,

TED STEVENS,  
U.S. Senator.

AUGUST 15, 1972.

Enclosure.

HON. WARREN G. MAGNUSON,  
Chairman, U.S. Senate,  
Committee on Commerce, Washington, D.C.

DEAR SENATOR MAGNUSON: I have recently reviewed H.R. 13152, the house-passed Federal Animal Damage Control Act of 1972, and S. 3334, the administration's bill on this subject, and would appreciate the opportunity to comment on these bills. Because of recently imposed federal restrictions on shooting from aircraft and indications that certain marine mammals and predatory birds will fall under the jurisdiction of the federal government, these bills were, generally speaking, well received by me and my staff. We have always felt that control of predatory animals was best achieved by properly directed recreational hunting or trapping rather than through formalized predator control programs, but because of recent federal restrictions this form of control will not be available in some instances.

Comparing the two bills leaves me in a position of favoring portions of each and feeling that a compromise between the two would be the most favorable legislation. S. 3334 (Sec. 4.[b]) specifies only that the state share of funding federally assisted predator programs must be appropriated by its legislature. H.R. 13152 includes a provision specifying that no more than 10% of this state share may be from funds derived from license sales. The latter version is desirable, particularly to us in Alaska where our license revenues are barely sufficient to match federal monies available under the Federal Aid to Wildlife Restoration Act. Although both bills spell out a program of research on predatory animals (Sec. 3), it appears that H.R. 13152, by establishing that the Secretary of Interior in cooperation with the states shall develop this research (Sec. 3.[a]) and by authorizing monies for this research (Sec. 3.[d]) is the preferred legislation. Neither bill, however, specifies upon what basis available research monies will be disseminated (i.e. competitive based on proclaimed need, arbitrary, straight grant to state, available on matching basis, etc.). Establishment of legislative "ground rules" on such funds may be desirable.

With the exception of the forementioned "rather haves," I can do little but commend the U.S. Congress on its recognition of the burden placed upon States by recent protectionists oriented legislation.

Sincerely yours,

JAMES W. BROOKS,  
Administrator.

DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY,  
Washington, D.C., September 15, 1972.

HON. WILLIAM B. SPONG, JR.,  
U.S. Senate,  
Washington, D.C.

DEAR SENATOR SPONG: This is in response to your letter to G. H. Wise requesting answers to questions regarding endangered plant species.

The Department of Agriculture is vitally concerned over extinction of species within the flora of the United States and elsewhere.

A program for endangered species should provide for the following sequential steps: (1) Identification of species that are now endangered or may become endangered in the immediate future, (2) research and action leading to the protection of endangered species in their existing habitat, (3) propagation in botanical gardens for species that cannot be maintained in their existing habitats. We feel the steps are in a logical order and each is essential for a successful program.

In response to your numbered questions:

1. The Department of Agriculture does not have authority to buy land specifically for plant refuges. The Forest Service does have and uses authority to establish Research Natural Areas and other special areas on National Forests and National Grasslands to protect species we believe to be endangered. The Congress designates Wilderness Areas on the National Forests and these may provide habitat for rare or endangered plants and animals. To accomplish the purpose of the Endangered Species Act, the concept of plant refuges must be extended to habitats and floras that are not represented on the National Forests and National Grasslands.

The Department of Agriculture is willing and capable of administering a program for endangered plant species.

2. The Department will consider the development of endangered plant legislation in calendar year 1973.

3. While we have made no complete search, we are aware of no State authorities to purchase land for the specific purpose of protecting endangered species of plants. Some States; e.g., Indiana, do have authority to acquire Natural Areas which could contain endangered species.

Programs for protection of endangered plant species should include full Federal-State cooperation. They should also provide for full cooperation with private conservation agencies such as the International Union for Conservation of Nature and Natural Resources, the International Union of Forestry Research Organizations, the Nature Conservancy, Arboretums, and Botanical Gardens.

4. The Department is concerned with all kinds of plants. We have a spectrum of plant sciences represented on our staff that is unmatched in the United States. Our concern and capability extends from microorganisms to higher plants, from crop plants to the entire flora associated with forest, rangeland, and aquatic systems. Furthermore, we have the supporting disciplines such as entomology, soils, and pathology that are essential for a viable program. Finally, we have more than 100 years of experience in managing natural systems in all states, from the rigidly controlled cornfield to the untethered systems of Wilderness in our National Forests.

5. The Department of Agriculture would welcome a section in the Endangered Species Act requiring a study by the Department to determine the best methods of protecting endangered plants. But in the absence of such direction, we are moving promptly to establish a Task Force on the subject. Other Departments and agencies will be invited to participate.

The Task Force will review the total problem of endangered plants, including the cultivated forms. The Task Force Report, planned to be available October 1, 1973, will summarize the relevant State legislation, evaluate the need for additional Federal legislation, and provide any draft legislation that may be needed.

6. The Task Force will also study and recommend the most suitable administrative arrangements for protection of endangered marine plants. The Department of Agriculture will defer to the National Oceanic and Atmospheric Administration on this matter.

7. Because of the absence of any definitive list of endangered plant species, the total cost of S. 3818 is very difficult to estimate. Our best estimate is about \$500,000 annually for the first 5-year period.

Sincerely,

T. C. BYERLY,  
Assistant Director, Science and Education.

U.S. DEPARTMENT OF COMMERCE,  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,  
Rockville, Md., September 26, 1972.

Hon. WILLIAM B. SPONG, JR.,  
U.S. Senate,  
Washington, D.C.

DEAR SENATOR SPONG: This is in reply to your letter of August 7 requesting the Department of Commerce to respond to various questions concerning endangered species legislation.

A paper containing the question you raised and our responses thereto is enclosed.

We trust that you will find this information both useful and informative. If we can be of any further assistance in answering any additional questions which may arise, please contact us.

Sincerely,

HOWARD W. POLLOCK, Deputy Administrator.

Enclosure.

#### QUESTIONS AND ANSWERS CONCERNING ENDANGERED SPECIES LEGISLATION

1. *What criteria would you use to determine whether a marine animal is endangered or likely in the foreseeable future to become endangered? Would the fact that the species might be commercially valuable be a part of your judgment?*

Evidence available as to population trends would serve as a basis for determining endangerment. An animal may be determined to be endangered when its breeding population drops to levels so low as to suggest the possibility that the species may not be able to reproduce successfully. This would include consideration of the spatial distribution of the animals at breeding time. Absolute numbers of animals required for successful breeding and maintenance of the species will depend upon characteristics of the species and will vary for different animals from place to place and time to time.

A species might be judged to be likely in the foreseeable future to become endangered in those circumstances where continued exploitation or habitat destruction at a given rate would result in its becoming endangered in a period of up to 10 years, depending on the animals' breeding characteristics in relation to population size.

Commercial harvesting and recreational usage could be causes of endangerment. The fact that a species might be commercially valuable makes it all the more imperative that efforts be made to perpetuate the species at a level which is well above the point at which a species could be considered endangered within the terms of the bill.

2. *Which animals on the current endangered species list would come under your jurisdiction?*

*Some concern has been expressed that you might delist some species of whales. What are your plans regarding those species of whales presently on the endangered species list?*

The following eight species of whales on the current endangered species list would come under the Department of Commerce jurisdiction: blue, gray, humpback, bowhead, finback, sei, sperm, and the right whales. Whales currently on the endangered species list will continue to be listed in the first category ("threatened with extinction") if the Administration's bill passes. In this regard it should be noted that Dr. White, Administrator of NOAA, supported a 10-year moratorium on all whaling, with no qualification, at the Stockholm Conference on the Environment. Although the objective scientific data which support the endangered species listing of finback, sei, or sperm whales is limited,

we feel that full protection is needed at this time because of the inadequacy of the whale management programs.

3. *You said in your testimony that the interests of sport and commercial fishermen are best served by conservation methods such as those proposed here. Do you see your main responsibility in this area to be to the fishermen or to the animals? If there is a conflict how would you resolve it?*

Under the Fish and Wildlife Act of 1956, as amended, it is our legal responsibility to take such steps as may be required for the development, conservation and protection of our fishery resources for the nation's benefit. We also have an existing responsibility to assure maximum sustainable production of fish and fishery products. We see no conflict of responsibilities to the animals and to the fishermen. Where fishery stocks are maintained at or near a level of maximum sustainable yield, they can never be considered "endangered." On the other hand, a fishery resource would reach a level making it uneconomical to harvest long before it becomes threatened with extinction or likely to become so in the foreseeable future. Therefore, the ultimate objectives of the fishing industry and the conservationists converge since actions to protect and conserve the resource are in the interests of both. While there can be no conflict between the long-term interests of the fishermen or the animals, in the short-term NOAA might place restrictions or even a total ban on the harvesting of some species notwithstanding possible objections from both commercial and recreational fishermen. The aim of NOAA would be to restore the species. In the long run this would be to the advantage of the fishermen as well as the animal. At all times we would work toward the establishment of management plans which would restore and maintain the commercially or recreationally harvested species at levels well above endangerment.

4. *Do you have any objection to the inclusion of all animals under the protection of this bill? This would extend coverage to such animals as the sponges.*

We believe that all marine animals should be covered by the Endangered Species Bill.

5. *If the Congress decides that the Endangered Species Bill should include plants, do you think that Agriculture or NOAA would be better suited to administer marine aquatic plants?*

Agriculture has little expertise in dealing with marine aquatic plants. NOAA does have expertise in this area and already has some responsibility for marine plant life under the so-called "Bartlett Act," 16 U.S.C. 1081 *et seq.* NOAA should be given the full responsibility to administer management and protection of marine aquatic plants. The Smithsonian Institution should also be given responsibilities to provide scientific data and probably should be mentioned specifically in the Bill as a consultant. Since there has been inadequate opportunity for those parties interested in problems of protection of plants to thoroughly consider the kind of legislation which will best accomplish the objective, it might be preferable to have a separate bill covering the protection of endangered plants.

6. *Do you have any objection to the provision of S. 3818 which would allow the States to adopt stricter measures to protect endangered species?*

We would support a provision permitting the States to adopt stricter measures on taking within the State to protect any locally resident species regardless of whether such species is endangered. We do not see that permitting a patchwork system of inconsistent State laws governing the sale or transportation of species taken in accordance with the law of the State where taken and with the provisions of the Endangered Species Act (to the extent it may apply) is desirable.

7. *Will administrative costs increase if jurisdiction is divided between you and the Department of the Interior?*

We believe that if jurisdiction is divided between the Department of Commerce and the Department of the Interior, costs necessary to perform the requirements of the Endangered Species Conservation Act would not be increased. To the contrary, it is our view that costs may be significantly reduced by assigning administrative authority to the agency in which appropriate program responsibilities are vested. The reasons for this are cited below.

The Government's scientific, managerial, and international expertise in marine fisheries resides in the Department of Commerce by virtue of the creation of NOAA in Reorganization Plan No. 4 of 1970. This Department would be required to utilize this expertise in fisheries and other marine programs under existing laws regardless of whether an animal is listed as an endangered species. NOAA is presently charged with the responsibility for all commercial species of

fish and certain marine mammals. It also is responsible for all Federal research programs with respect to marine sport fisheries. As part of these various functions, NOAA already engages in numerous activities which seek to conserve and protect marine life. Its protective function in this regard is specifically recognized in the President's message accompanying Reorganization Plan No. 4 which reads in part:

"Drawing these activities together into a single agency would make possible a balanced Federal program to improve our understanding of the resources of the sea and permit their development and use while guarding against the sort of thoughtless exploitation that in the past laid waste to so many of our precious natural assets."

At the present time NOAA has 17 laboratories, 17 ships over 65 feet in length, and approximately 900 personnel engaged in research on fish and marine mammals. The laboratory network covers the east, west and Gulf coasts, as well as Alaska and Hawaii. The scientific work carried on spans an immense range of subjects from shellfish to mammals which are pertinent to both the identification and management of endangered species.

In addition to the many longstanding NOAA research programs which are applicable to endangered species, NOAA has recently initiated two new projects of fundamental importance in this area—MARMAP and MESA (Marine Resources Monitoring, Assessment, and Prediction) commenced in FY 1970 and, to our knowledge, is the only program of its kind and scope in existence anywhere. It provides for the phased development of a comprehensive continuing investigation of the distribution and abundance of all types of marine creatures, both commercial and noncommercial species, together with an analysis of the factors controlling such distribution and abundance. Thus, this program will both identify endangered species and seek to determine the agents causing their decline. It will also supply an indispensable data base for international negotiations aimed at conserving the species. Initially the program is being conducted over the continental shelf (both Pacific and Atlantic) of the North American Continent north of the southern boundary of Mexico. It is also being conducted across the breadth of the Atlantic through international collaboration, and will eventually seek to cover all of the world's oceans. Ichthyoplankton, groundfish and pelagic fish are included, as well as marine mammals.

The MESA program (Marine Ecosystem Analysis) is a more specialized program, designed specifically to gather ecological baseline data on the marine organisms of estuarine and nearshore waters and to determine the effects on such organisms of all forms of manmade and natural pollution. The program commenced in FY 1972. Initially it covers five coastal areas of great importance, namely, the New York Bight, and detailed plans to move into Puget Sound, Delaware Bay, the coast of southeast Florida, and Prince William Sound are underway. Eventually it will cover virtually all U.S. coastal waters. The obvious relevance of such a program to endangered nearshore species needs no comment.

In addition to other reasons for granting jurisdiction to both the Department of Commerce and the Department of the Interior, it should be pointed out that if the responsibility were placed only within the Department of the Interior, a formal mechanism for cooperation with the Department of Commerce would be required in order to allow Department of the Interior to utilize Commerce's expertise, facilities and personnel. This would add an unnecessary layer of administration and make the system of protection more complex and more costly to administer.

With the proposed revision of the existing Act, a seaborne capability with trained enforcement experts will become mandatory. For the Department of the Interior (which has no such capability for working in the marine environment) to create its own force for this purpose would be duplicative and wasteful. Placing the NOAA force at the disposal of Interior is equally inefficient, since the men must be available to carry out NOAA's other responsibilities under other laws as well as be in close contact with the NOAA scientific experts. Adding another layer of administrative direction from Interior can only lead to unnecessary complications, inefficiency and increased expenses.

In those instances where the particular endangered species has little or no relation to commercial varieties, NOAA is equally interested in its preservation. This is so because of NOAA's extensive involvement in basic marine research and all aspects of the marine ecosystem which, of necessity, requires that we seek to protect its continuing existence. Moreover, no other agency is more fully aware that NOAA of the complex interdependence of organisms in the marine ecosystem.

Finally, consideration should be given to the fact that NOAA would have similar responsibilities under the Marine Mammal Conservation Act should that bill become law. The same kind of scientific, managerial, and enforcement capabilities and expertise will be necessary to implement both pieces of legislation.

8. *Do you consider the International Union for the Conservation of Nature (IUCN) to be "the best scientific evidence available" on endangered species? If so, why?*

The Secretary makes determinations of endangerment based on the best scientific data available to him. We certainly have more scientific data available to use than IUCN in those areas of our special expertise.

IUCN has the most comprehensive general material available on endangered species. IUCN, however, does not necessarily have the most up-to-date information on a particular species and depends upon contributions by scientific experts to provide them with needed data. Of course, we will use whatever data is available from IUCN in arriving at decisions which, under the Act, must be based on "the best scientific evidence available."

9. *As I understand it, a species could be declared endangered over part of its range and not endangered in other parts. Is this correct? If so, how do you plan to enforce it? Specifically, how would you deal with a commercial species of fish which is endangered in part of its range and abundant elsewhere?*

Where a species is presently threatened with extinction over a significant part of its range, the Secretary will enact measures which, for example, would control the time of taking, the manner of taking, catch limitations, or areas where taking would be prohibited. Specifically with reference to a commercial species of fish which is threatened with extinction or is likely to become threatened with extinction only in a significant portion of its range, the Secretary could prohibit fishing activities in that part of its range and also prohibit importation of fish taken from areas where fishing had been prohibited. Such a system would require that where the taking is done in an area where the species is abundant, the person involved would have to establish to the satisfaction of the Secretary that the taking did not violate the prohibition. Restrictions of this type would permit the species to return to abundance in the affected part of its range. In cases where the action contemplated might result in increased pressure in other areas, appropriate restrictions would also be applied in those areas to assure that they did not become subject to undue fishing pressure. In addition, where the affected area is outside the jurisdiction of the United States, the Secretary could negotiate international arrangements to restrict the taking by citizens of all countries. In the event that he was successful in negotiating such an agreement, he would have authority under existing law to institute procedure looking toward banning of the importation of all fishery products from a nation which continues to fish in the area in violation of the international conservation scheme.

10. *How does this bill relate to the Marine Mammal legislation which has now been passed by both Houses of Congress and is almost certain to become law this year? Specifically, which Act would take precedence with regard to endangered species and with regard to those species which are likely in the foreseeable future to become endangered? Is there any conflict between the two Acts? If so, how would you recommend that we resolve it?*

The policies and programs of the proposed Marine Mammal Conservation Act and the proposed Endangered Species Act complement each other and there is no conflict between the two Acts. Clearly, whichever Act under the particular circumstances would impose the more severe restrictions on the taking of an animal will control. In any event, to take an "endangered" marine mammal, one would have to comply with the provisions of the Marine Mammal Conservation Act. This is another reason why efficient administration of the Endangered Species Act requires that the responsibility for administration track that of the marine mammal bill. The expertise and knowledge required to implement these Acts are identical, that is, almost the same type of scientists, enforcement agents, etc., will be needed under both Acts. When both Acts are in effect, they will provide a continuum of protection for marine mammals regardless of the condition of species or stock, and will provide greatly expanded protection for other types of endangered species. It should be emphasized that one of the objectives of the Marine Mammal Conservation Act is to assure that no more marine mammals suffer such declines as to become subject to the Endangered Species Act.

11. *Please provide a five year estimate of the cost to the Department of Commerce both of S. 3199 and S. 3818.*

Since the major difference between S. 3199 and 3818 is that S. 3818 includes flora, which, with the possible exception of aquatic marine flora, would be handled by the Department of Agriculture, we believe there would be no significant difference in costs to the Department of Commerce under the two bills. The estimated additional costs to this Department for NOAA's National Marine Fisheries Service programs would be the same under either S. 3199 or S. 3818 for the five year period.

The anticipated cost to the Department of Commerce for carrying out either S. 3199 or S. 3818 will fall into two categories: (1) management, including enforcement and surveillance; and (2) research. The estimated additional costs for enforcement and surveillance would range from 0 in the first fiscal year (1973) to approximately \$600,000 in the fifth year. The estimated personnel needs for enforcement and surveillance would range from 0 in the first year to approximately 17 people by the fifth year. The estimated costs for research would range from approximately \$30,000 in the first year to approximately \$1,400,000 in the fifth year. The estimated personnel needs for research would range from one person in the first year to approximately eight people by the fifth year.

The cost figures and personnel requirements for enforcement and surveillance represent increases over the existing budget for those activities which are presently related to domestic fisheries regulations and international agreements. These estimated figures have been based on the anticipated needs in relation to whales, the only species of marine animals under the jurisdiction of the Department of Commerce which are presently on the Endangered Species List, and the addition of a limited number of other species. These monies would be used to supplement personnel and to provide them with additional specialized scientific training necessary to cope with enforcement problems unique to endangered species. Staff and training would be added to the National Marine Fisheries Services enforcement organization located in its five Regional Offices to supplement their present enforcement capabilities. Obviously, these figures are subject to possible modification depending on the results of scientific investigations for other species and a determination that a substantial number of additional species should be added to the list of Endangered Species. It should be noted that no other agency possesses an experienced marine fisheries enforcement staff; therefore, the amount required would be considerably higher and enforcement would be significantly less effective.

The figures for research reflect increases over the present program level for marine mammals on the existing "endangered" list (and anticipate a greatly expanded information and research program on whales which NOAA already has under consideration). It also includes a projected increase over the next few years to develop needed information on other marine mammal species of concern. If the new bill were enacted, we would review these plans for further needed work.

NOAA presently has authority to obtain data for other living marine resources to ascertain abundance and population trends incident to determining their status as "threatened with extinction" or "likely to become threatened with extinction in the foreseeable future." It is already proceeding with a wide variety of ongoing marine resources surveys, biological investigation and ecological investigations which will provide the requisite baseline data for numerous species, whether or not endangered within the meaning of the bill. More intensive studies will be required in two areas should the bill become law: (1) special studies to determine actual status of stocks of fish and marine animals other than mammals presumed to be endangered; and (2) special studies to document data on life history and environmental factors critical to the survival of the species. It is not possible at this time to project costs for these more intensive additional studies which we would plan to undertake, and such costs are not included in the above figures.

If such research were to be conducted by an agency not presently responsible for management of marine resources (including endangered species) then the amounts required to undertake the required research would be considerably higher.

However, if land acquisition did become necessary to protect spawning areas for species which may become endangered at some future date, we would, of course, request specific funds for that purpose.

The foregoing budget estimates do not include funds for land acquisition or grants to states under cooperative agreements entered into pursuant to the bill. These amounts may far exceed amounts for administration and research.