

October 1995

ANIMAL DAMAGE CONTROL PROGRAM

Efforts to Protect Livestock From Predators



**Resources, Community, and
Economic Development Division**

B-261796

October 30, 1995

Congressional Requesters

Under the Animal Damage Control Act of March 2, 1931, as amended, the U.S. Department of Agriculture is authorized to control damage to agricultural interests, including livestock, caused by animals. Efforts to protect livestock from predators, primarily coyotes,¹ constitute the major activity of Agriculture's Animal Damage Control (ADC) program. In 1994, as a result of the program, over 100,000 predators were killed by the program's field personnel. Concerned about the number of predators being killed, you asked us to determine the extent to which the program's field personnel use nonlethal methods in controlling livestock predators. This report provides the results of our review of the program's activities to control livestock predators in four western states.

Results in Brief

Agriculture field personnel in California, Nevada, Texas, and Wyoming used lethal methods in essentially all instances to control livestock predators. Agriculture's written program policies and procedures for carrying out animal damage control activities call for field personnel to give preference to the use of nonlethal methods when practical and effective. However, according to program officials, this aspect of the written program guidance does not apply to the control of livestock predators. These officials stated that in controlling livestock predators, nonlethal methods, such as fencing and the use of herders and guard dogs, are more appropriately used by livestock operators, have limited effectiveness, and are not practical for field personnel to use.

Background

According to Agriculture's National Agricultural Statistics Service (NASS), the value of the sheep, lambs, and goats lost to predators in calendar year 1994 totaled \$23.2 million. NASS valued the cattle and calves lost to predators during calendar year 1991 (the year of NASS' latest estimate for these animals) at \$41.5 million. Under the Animal Damage Control Act,² the Secretary of Agriculture is authorized and directed to eradicate, suppress, or bring under control predatory and other wild animals that harm agriculture, horticulture, forestry, animal husbandry, wild game, and other interests. Agriculture is to provide assistance in such efforts when

¹Other livestock predators include bears, bobcats, feral dogs, feral hogs, foxes, mountain lions, and wolves.

²7 U.S.C. 426-426c.

requested by state governments, private individuals, and other federal agencies.

Agriculture's Animal and Plant Health Inspection Service is responsible for carrying out the ADC program. The Service enters into state cooperative agreements,³ which define the operating procedures for controlling animal damage and specify that actions taken by program personnel are to comply with state laws on game management and other federal requirements. The program within each state is run by a state director, who is a federal employee responsible for overseeing animal damage control activities. These activities include efforts to reduce the damage done by wildlife to livestock, agricultural crops, commercial forests and forest products, aquaculture, natural resources, urban and industrial property, public health and safety, and threatened and endangered species.

During fiscal year 1994, federal funding for the ADC program totaled almost \$36 million. The ADC program allocated about \$9 million for research and \$26.8 million for program operations—about \$7.4 million of which was used for program administration and for headquarters and regional office operations and about \$19.4 million of which was used for animal damage control activities in the cooperating states. Of the \$19.4 million provided for animal damage control, a little over \$10 million, or about 51 percent, was used to protect livestock from predators. Nonfederal sources—including state governments and livestock operators—also contributed about \$10 million to protect livestock from predators during 1994.

³The ADC program also enters into cooperative agreements with federal land management agencies, county governments, livestock associations, Native American tribes, universities, and individual ranchers. The federal land agencies include the Department of the Interior's Bureau of Land Management, National Park Service, and U.S. Fish and Wildlife Service, as well as Agriculture's Forest Service. The parties to these agreements contribute funds to carry out the program's field activities.

Written Program Guidance and Actual Field Implementation Differ on the Role of Nonlethal Methods in Controlling Livestock Predators

The ADC program's written policy manual and related procedures state that in carrying out animal damage control activities, field personnel are to give preference to nonlethal methods when practical and effective. The procedures identify both nonlethal methods, such as using guard dogs, and lethal methods, such as aerial hunting, that can be used to control livestock predators. (App. I provides information on both kinds of methods used to control livestock predators.)

In discussing the applicability of the written guidance to the control of livestock predators, ADC's Deputy Administrator and other program officials told us that, in practice, the role of nonlethal methods in the program's efforts to control livestock predators differs from that indicated by the guidance. According to these officials, field personnel rarely use nonlethal methods when controlling livestock predators. These officials stated that nonlethal methods, which consist primarily of fencing and animal husbandry techniques (such as using herders and guard dogs), are used more appropriately by livestock operators than by field personnel. The officials also stated that (1) the effectiveness of nonlethal methods in controlling livestock predators is limited and (2) some nonlethal techniques, such as installing fencing, would not be economically feasible or practical for field personnel to undertake. Program officials noted, too, that an operator's use of nonlethal control methods is not a prerequisite for receiving program assistance.

Field personnel in California, Nevada, Texas, and Wyoming told us that they used lethal methods in essentially all instances to control livestock predators because livestock operators were already using nonlethal control methods but were still losing livestock.⁴ According to these personnel, they provided control assistance when livestock operators with written agreements⁵ notified them that livestock losses had occurred or were anticipated. They told us that when losses had occurred, they conducted on-site inspections to confirm that the losses had been caused by predators and, if so, implemented what they determined to be appropriate lethal control measures. When field personnel were notified that losses were expected—operators anticipated losses before the start of the lambing and calving seasons or when they were relocating livestock to an area where previous losses had occurred—field personnel told us that

⁴At the locations we visited in the four states, we observed that operators either had fencing in place or had herders and/or dogs located with their livestock.

⁵Written agreements are completed when an operator first expresses interest in receiving program assistance and authorizes the ADC program to conduct control activities. The agreements identify the predators that are to be controlled and list various lethal methods field personnel can use.

they initiated appropriate lethal methods to control predators as a preventive action. Detailed data on the number of predators killed during fiscal years 1991-94 nationwide and in the four states we visited are included in appendix II.

Conclusions

Although written program policies call for field personnel to give preference to nonlethal control methods when practical and effective, field personnel use lethal methods to control livestock predators. ADC program officials told us that nonlethal methods are more appropriately used by livestock operators, have limited effectiveness, and are not practical for field personnel to use. Because the control of livestock predators is the program's major activity, we believe that the written policies and procedures should be clarified to specify the role and use of nonlethal methods in controlling livestock predators.

Recommendation

We recommend that the Administrator of the Animal and Plant Health Inspection Service revise the Animal Damage Control program's written guidance to specify the role and use of nonlethal methods in controlling livestock predators.

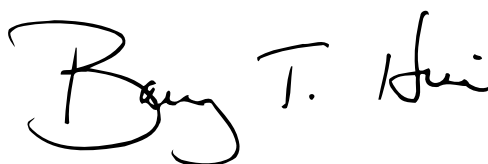
Agency Comments and Our Evaluation

In written comments on a draft of this report, the Administrator of the Animal and Plant Health Inspection Service said that efforts would be made to provide program personnel with further guidance clarifying the role and use of nonlethal methods in protecting livestock. Appendix III contains a more complete discussion of the agency's comments and our evaluation of them.

We conducted our review in accordance with generally accepted government auditing standards. Our objectives, scope, and methodology are discussed in appendix IV.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days after the date of this letter. At that time, we will send copies to the Secretary of Agriculture and the Administrator of the Animal and Plant Health Inspection Service. We also will make copies available to others on request.

Please contact me at (202) 512-8021 if you or your staff have any questions. Major contributors to this report are listed in appendix V.

A handwritten signature in black ink, reading "Barry T. Hill". The signature is written in a cursive style with a large, stylized "B" and "H".

Barry T. Hill
Associate Director, Natural Resources
Management Issues

List of Requesters

The Honorable George E. Brown, Jr.
The Honorable Peter A. DeFazio
The Honorable Sam Farr
The Honorable Maurice D. Hinchey
The Honorable Tom Lantos
The Honorable John Lewis
The Honorable Carolyn B. Maloney
The Honorable George Miller
The Honorable Charlie Rose
The Honorable Bruce F. Vento
House of Representatives

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Abbreviations

ADC	Animal Damage Control
NASS	National Agricultural Statistics Service

Techniques for Controlling Predators

	A variety of methods—both lethal and nonlethal—can be used to control livestock predators.
Aerial Hunting	Hunting target animals by shooting them from helicopters or fixed-wing aircraft is used primarily in rural areas of the western states to control livestock losses caused by coyotes.
Calling and Shooting	A device that imitates either a coyote’s howl or a rabbit’s cry of distress is used to lure coyotes to open land. As the coyotes come out into the open, they are shot.
Denning	The dens of coyotes or red foxes are sought out; the adults are killed and the young are either removed from the den and shot or are destroyed by throwing a fumigant cartridge into the den.
Fencing	Barrier wire or electrical fences are used in some areas to keep coyotes out of sheep pastures. Portable fencing is used on the open range.
Guard Dogs	Guard dogs, such as the Great Pyrenees, Akbash, and Komondor, have been selectively bred for use in protecting livestock. The dogs’ large size is itself intimidating to predators. The dogs are trained to stay with sheep and bark at any predators that may approach.
Herders	Human custodians can protect livestock. The presence of herders accompanying bands of sheep on the open range may ward off predators.
Hunting Dogs	Dogs are sometimes used to lure coyotes into the open, where they can be shot. Dogs are also used to track mountain lions and black bears.
Leg-Hold Traps	Steel leg-hold and padded-jaw traps baited with a scent attractive to the predator are used to trap the animals, which are generally killed.

M-44	A device made up of a metal stake, an ejector, and a capsule containing a poisonous sodium cyanide mixture (called an M-44) is used to poison coyotes, foxes, and wild dogs. When an animal bites and pulls the device, which is baited with scent, the poison is ejected into the animal's mouth. Death occurs within seconds.
Scare Devices	Various scare devices can be used to frighten predators away from livestock. These devices include electric lights, portable radios, sirens, and propane cannons. Scare devices are effective only for limited periods of time, however, because predators become used to the light or noise and are no longer frightened away.
Snares	Snares made of wire or cable can be used to either capture or kill the animals. The devices are most frequently used for coyotes. These snares can be used wherever a predator moves through a restricted lane of travel, such as through or under fences, on trails through vegetation, or at den entrances. As the predator passes through the loop in the cable, the cable encircles its neck or leg. A simple locking device holds the loop closed.
Spotlighting	Spotlights are used at night when shooting predators.
Toxic Collars	Sheep can be fitted with collars containing a toxic solution. Because coyotes most commonly kill sheep by biting their throats, the collar is designed to rupture when bitten, thereby releasing the poison and killing the coyote.

Livestock Predators Killed Nationwide and in Four Selected States, Fiscal Years 1991-94

Although a small number of predators caught under the Animal Damage Control (ADC) program are freed or relocated, ADC field personnel generally kill predators in their efforts to protect livestock in the four states we visited. ADC officials told us that bears, bobcats, coyotes, feral dogs, feral hogs, foxes, mountain lions, and wolves are the predators responsible for most livestock predation. According to data provided by ADC on the results of its efforts to control livestock predators, over 185,000 predators, mostly coyotes, were killed during fiscal years 1991-94 in the four states we reviewed. Although a variety of lethal methods were used, aerial hunting was most often used to kill predators in two of the four states during this 4-year period. Specifically, during this period, ADC personnel killed an average of

- 7,069 livestock predators in California, mainly by shooting (23.2 percent) or using poison capsules (21.2 percent);
- 5,659 livestock predators in Nevada, mainly by aerial hunting (62.3 percent) or leg-hold traps (17.3 percent);
- 25,676 livestock predators in Texas, mainly by using poison capsules (33.8 percent) or neck snares (29.3 percent); and
- 7,853 livestock predators in Wyoming, mainly by aerial hunting (50.1 percent) or shooting (16.7 percent).

Table II.1 shows the number of these livestock predators killed and the technique used by field personnel during fiscal years 1991-94 nationwide and in the four states we visited.⁶

⁶ADC officials told us that most of these predators were killed as a result of the program's activities to protect livestock. A very small number were killed as a result of the program's other activities.

Appendix II
Livestock Predators Killed Nationwide and
in Four Selected States, Fiscal Years 1991-94

Table II.1: Number of Livestock Predators Killed by ADC Personnel Nationwide and in Four Selected States, Fiscal Years 1991-94

	Technique used						Total
	Aerial hunting	Neck snares	M-44s (poison capsules)	Shooting ^a	Leg-hold traps	Other ^b	
Nationwide							
1991	29,555	13,135	27,962	13,580	19,322	6,891	110,445
1992	33,844	13,261	28,713	11,881	16,785	8,524	113,008
1993	38,383	13,916	25,904	11,634	12,631	7,385	109,853
1994	30,043	14,721	25,692	11,286	12,250	7,847	101,839
California							
1991	100	639	1,926	1,977	2,036	1,179	7,857
1992	76	526	1,323	1,617	1,782	1,058	6,382
1993	231	568	1,090	1,629	867	1,776	6,161
1994	1,392	484	1,665	1,342	577	2,415	7,875
Nevada							
1991	3,209	179	5 ^c	975	1,149	368	5,885
1992	3,706	79	0	932	1,076	390	6,183
1993	4,922	48	0	703	871	97	6,641
1994	2,275	26	0	657	822	147	3,927
Texas							
1991	3,517	6,282	8,200	1,486	3,062	648	23,195
1992	4,480	6,769	8,486	1,486	2,589	547	24,357
1993	3,717	7,932	9,166	1,665	2,980	635	26,095
1994	5,002	9,110	8,816	2,320	2,850	958	29,056
Wyoming							
1991	2,999	153	969	1,263	1,030	290	6,704
1992	4,552	596	891	1,458	1,420	328	9,245
1993	5,367	342	803	1,513	885	249	9,159
1994	2,820	474	973	1,026	542	470	6,305

^aIncludes shooting, calling and shooting, and spotlighting.

^bIncludes the use of techniques such as leg/foot snares and denning.

^cNevada law prohibits the use of M-44s within 15 miles of any town.

Comments From the U.S. Department of Agriculture

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



United States
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Animal and Plant
Health Inspection
Service

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September 13, 1995

■ Mr. James Duffus, III
Director, Natural Resources Management Issues
Resources, Community, and Economic
Development Division
General Accounting Office
Washington, DC 20548

Dear Mr. Duffus:

Thank you for the draft of the General Accounting Office report entitled, **Animal Damage Control Program: Efforts to Protect Livestock from Predators**. We appreciate the opportunity to clarify and expand upon some of the issues discussed in the document. The suggested revisions described below include comments by the Animal Damage Control (ADC) program, Animal and Plant Health Inspection Service (APHIS).

Page 1 - Congressional Requesters

Paragraph 1, second sentence: "Apart from research, Agriculture's Animal Damage Control (ADC) program mainly funds the protection of livestock from predators, primarily coyotes." While livestock protection continues to be a major activity, ADC conducts program activities in other areas, including the protection of other agricultural resources, human health and safety, property, and natural resources. Combined Federal funding for these program areas is over \$9 million or 49 percent of the Federal funds allocated to the State programs.

Paragraph 1, fourth sentence: "Concerned about the number of predators being killed you asked us to determine the extent to which program field personnel use nonlethal methods in controlling livestock predators." Since the congressional requesters have indicated this concern, the GAO should make reference to the analysis that was conducted in 1990 entitled, Wildlife Management-Effects of Animal Damage Control on Predators (GAO/RCED-90-149) which concluded that ADC control efforts do not unduly threaten any predator population.

Page 1 - Results in Brief

Paragraph 1, second and third sentences: "Agriculture's written program policies and procedures for carrying out animal damage control activities call for field personnel to give preference to the use of nonlethal methods, when practical and effective. However, according to program officials, this aspect of the written program guidance is not applicable to the control of livestock predators." The word "as" should be inserted before applicable. The use of nonlethal control measures differs from one ADC program activity to another based on the nature of the problem, the wildlife species involved, and the nonlethal control methods that are available for that particular species. For example, during FY 1994, ADC



APHIS—Protecting American Agriculture

See comment 1.

See comment 2.

Now on p. 1.
See comment 3.

Mr. James Duffus, III

moved or dispersed over 20 million birds using nonlethal methods. The use of nonlethal methods in livestock protection does have applicability and can be effective under the right conditions. However, their use is limited and is more appropriately implemented by livestock producers.

Page 3 - Background

Paragraph 2, third sentence: "Of the \$19.4 million provided for wildlife damage control, a little over \$10 million, or about 51 percent, was used to protect livestock from predators." Included in the \$10 million figure is approximately \$1 million which was spent on administrative and clerical functions in support of livestock protection. In contrast, the \$10 million spent on livestock protection constitutes about 28 percent of all federally allocated ADC funds.

Page 4 - Written Program and Actual Field Implementation Differ On The Role of Nonlethal Methods In Controlling Livestock Predators

Paragraph 2, first sentence: The report states that, "In discussing the written applicability of the written program guidance to the control of livestock predators, ADC's Deputy Administrator and other program officials told us that, in practice, the role of nonlethal methods in ADC efforts to control livestock predators differs from that indicated in the guidance." This is not true. ADC's written guidance on the use of nonlethal control methods was written to cover a broad spectrum of program activities. Besides livestock protection activities, ADC also helps protect other agricultural resources such as crops and aquaculture, in addition to human health and safety, and natural resources. Because of the diversity of wildlife damage problems and wildlife species involved, the use of nonlethal methods differs with each situation.

As stated in the GAO draft report, the ADC program's written policies call for field personnel to give preference to nonlethal control methods when practical and effective. ADC strongly believes that it is fully complying with these written policies in regard to its livestock predator control activities.

As discussed in the draft report, the ADC program's written policies give a preference for nonlethal control methods only to the extent that they are practical and effective. ADC substantially relies upon lethal methods for controlling livestock predators. This is due to the fact that nonlethal methods are more appropriately applied by the livestock producer. Fencing, guarding dogs, habitat management, and livestock management are livestock producers' management tools. ADC conducts lethal predator control because control limited to nonlethal methods has generally proven ineffective.

3

Mr. James Duffus, III

Many factors are considered by the field personnel before engaging in livestock predator control activities. (1) What methods, lethal and nonlethal, are already employed by the livestock operator? (2) What practical and effective methods are available for the cooperator to use? (3) What is the timing of the method deployment and the expected length of time damage can be expected? (4) What is the pattern of the damage?

Page 6 - Recommendation

First paragraph: "We recommend that the Administrator, Animal and Plant Health Inspection Service revise animal damage control program guidelines to clarify the extent to which field personnel should consider nonlethal methods in controlling livestock predators." Even though guidance was provided on the role of nonlethal methods in the recently signed Record of Decision for the ADC Final Environmental Impact Statement (EIS), efforts will be made to provide ADC program personnel with further written guidance to assist in clarifying the role and the use of nonlethal methods.

Again, thank you for the opportunity to review and comment on the draft report. We look forward to receiving a copy of the final version as soon as it is available from your office.

Sincerely,



Lonnie J. King
Administrator

See comment 5.

Recommendation can now
be found on p. 4.

The following are GAO's comments on the Department of Agriculture's letter dated September 13, 1995.

GAO's Comments

1. We clarified our final report to recognize this comment.
2. Our prior report (GAO/RCED-90-149) focused on the Animal Damage Control (ADC) program's overall management of predator species and on whether such management threatened predator populations. In contrast, this report focuses on the role and use of nonlethal methods in controlling livestock predators.
3. Although the Administrator of the Animal and Plant Health Inspection Service states that the use of nonlethal methods in livestock protection does have applicability and can be effective under the right conditions, our work indicated—and ADC's comments confirm—that ADC substantially relies on lethal methods to control livestock predators. We recommended that the Administrator revise the ADC program's guidance to specify the role and use of nonlethal methods in livestock protection because the current guidance calls for the program's field personnel to give preference to nonlethal techniques and does not reflect ADC's beliefs that the use of nonlethal methods is limited and that such methods are more appropriately implemented by livestock operators.
4. The Administrator disagrees that the role of nonlethal methods in ADC's efforts to control livestock predators differs from that indicated in the program's written guidance. However, the Administrator states that nonlethal methods are more appropriately used by livestock operators and that field personnel substantially rely upon lethal methods to control livestock predators. In contrast, the program's written guidance calls for field personnel to give preference to using nonlethal methods when practical and effective and makes no reference to the role of livestock operators in using nonlethal methods to control livestock predators.
5. We could not independently determine whether field personnel are considering the factors that the Administrator says they consider before engaging in livestock predator control activities because field personnel are not required to document their consideration of such factors and the field personnel we talked to did not prepare such documentation.

Objectives, Scope, and Methodology

To determine the extent to which ADC field personnel use nonlethal methods to control livestock predators, we reviewed the written policies and procedures for the ADC program that guide and direct actions to control livestock predators, particularly those that deal with the use of nonlethal control methods. We also determined how activities to control livestock predators were being carried out in four western states. We interviewed and obtained documents from ADC officials at the program's headquarters in Washington, D.C., and Riverdale, Maryland, and the program's Western Regional Office in Denver, Colorado. In documenting the program's operations specifically in controlling livestock predators, we reviewed and analyzed information from the program's computerized management information system. This information included the number of predators killed and the techniques used as well as the amount of federal and nonfederal funds expended in the program. We did not verify the accuracy of the data from the program's management information system.

We selected four states—California, Nevada, Texas, and Wyoming—in which to review the ADC program's efforts to control livestock predators. These states are among the top nine states in overall expenditures for livestock protection, federal funds expended for this activity, and the number of livestock predators killed. In each of these states, we interviewed and obtained documents from the state's ADC program director and judgmentally selected district supervisors and field specialists and other field staff. We visited one district within each of the four states and accompanied and observed ADC field personnel using lethal methods to control livestock predators in these districts. We used a judgmental sampling technique to select written agreements with livestock operators in each of these districts to determine, among other things, the length of time the agreements had been in place, the predators to be controlled, and the techniques allowed.

In each of the four states, we visited and interviewed several cattle and sheep ranchers/operators to obtain an understanding of their operations and working relationships with ADC program personnel.

We conducted our review between September 1994 and September 1995 in accordance with generally accepted government auditing standards.

Major Contributors to This Report

Natural Resources
Management Issues
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