U.S. Fish & Wildlife Service

Celebrating the Wildlife and Sport Fish Restoration Program

75 years of Conservation and Partnership Success


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SPORT FISH & WILDLIFE
RESTORATION

Foreword

Credit: DOI/Tami A. Heilman

Secretary of the Interior, Ken Salazar

In the middle of the Great Depression in 1937, America faced an unprecedented environmental crisis. The Dust Bowl afflicted much of the nation's heartland. Unwise development ravaged millions of acres of wetlands and other vital wildlife habitat, and many species were near extinction. In response to this crisis, the nation's sportsmen successfully lobbied Congress to pass what is arguably the most effective conservation law in history -- the Pittman-Robertson Wildlife Restoration Act.

In effect, sportsmen selflessly convinced Congress to tax them to fund conservation. The Act established an excise tax on firearms, ammunition and archery equipment that is apportioned to states to support the conservation mission of their fish and wildlife agencies. Along with the Dingell-Johnson Sport Fish Restoration Act passed in 1950 to establish a similar tax on fishing and boating equipment, the law ensures a permanent, dedicated source of conservation funding. It is widely recognized as having provided the foundation for professional wildlife management at both the state and federal level.

As we celebrate the 75th anniversary of this landmark law, President Obama and his administration are building on this great foundation through the America's Great Outdoors initiative. In partnership with communities across the country, we are seeking to establish a conservation ethic for the 21st century and to reconnect people, especially young people, to the natural world.

For three generations, Pittman-Robertson has served as a model of conservation partnership. Let us celebrate its success. Let us also seek to build new partnerships that will ensure the health of our land, our water and our wildlife and provide opportunities for future generations to enjoy them.

Ken Salazar

Message from the Director

Credit: USFWS/Lavonda Walton

Fish and Wildlife Service Director, Dan Ashe

In 1936, President Franklin Roosevelt convened the first ever North American Wildlife Conference bringing together representatives of the various state wildlife agencies, conservation organizations, and other wildlife interests. He opened the meeting charging those in attendance to work together, and said he hoped that "from it will come constructive proposals for concrete actions… and that through those proposals state and federal agencies and conservation groups can work together for the common good." Thus was forged a partnership among wildlife conservation interests that in the following year was to be formalized by enactment of the Federal Aid in Wildlife Restoration Act.

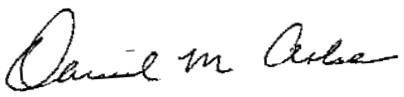
This year we pay tribute to 75 years of successful fish and wildlife management and habitat enhancement based on the revenues resulting from the Act and accompanying legislation enacted since 1937. We also salute the sporting arms, archery, and fishing equipment manufacturers who pay an excise tax on the equipment they produce as well as the millions of sportsmen and -women who effectively pay that tax through the purchase of equipment to hunt, fish, shoot and boat, or otherwise enjoy the great American outdoors and our wildlife heritage.

The funds collected provide the very foundation of wildlife management in this country. They are dispersed to the various state wildlife agencies, through the U.S. Fish and Wildlife Service, and complement the funding from the sale of hunting and fishing licenses. They also provide critical funding for vital habitat enhancement projects proposed by the states. This approach, born of the Dust Bowl days and echoing that first gathering of conservation visionaries, has resulted in what has become known worldwide as the North American Conservation Model -- which recognizes we all do our best work for wildlife when we work together. For their dream to indeed become a reality, there would be a continuing need to establish strong conservation partnerships at that time and in the future to face the serious challenges in wildlife and environmental conservation.

In 1987, as part of its commemoration of the 50th anniversary of the Federal Aid in Wildlife Restoration Act, commonly referred to as the Pittman-Robertson Act in honor of its Congressional sponsors, the Service produced a book entitled *Restoring America's Wildlife*, a retrospective volume documenting the outstanding wildlife conservation stories resulting from that landmark legislation. The intent of this report is to present the same for the past 25 years, and include the many successes realized in fishery conservation resulting from passage of the Dingell-Johnson Sport Fish Restoration Act in 1950. Later, the Wallop-Breaux Amendments effectively combined these programs and resulted in the conservation model we follow today.

That book concluded that the "Pittman-Robertson program is the single most productive wildlife undertaking on record…and that it has meant more for wildlife in more ways than any other effort." I believe this current volume heartily reaffirms that conclusion, and I hope you agree.

Finally, I would like to offer a big thanks to the numerous wildlife professionals, writers, photographers, artists and others who have graciously contributed their time and effort in order to make this outstanding publication possible. I certainly hope you find it a worthy salute to three-quarters of a century of outstanding American wildlife conservation.



Message from the Assistant Director for Wildlife and Sport Fish Restoration Program

Credit: DOI/Tami A. Heilman

Hannibal Bolton

Seventy-five years of successful wildlife management is the remarkable legacy of the Pittman-Robertson Wildlife Restoration Act, and the cause of our 75th celebration. Along with the Dingell-Johnson Sport Fish Restoration Act, it is the foundation of the U.S. Fish and Wildlife Service's (USFWS) Wildlife and Sport Fish Restoration Program (WSFR) and a cornerstone of the North American model of fish and wildlife management – a model venerated for its principles, celebrated for its performance, and embraced for its promise for the future. The two Acts mark the triumph of American conservation, founded on public ownership of wildlife, reliance on partnerships, and commitment to preserve our natural heritage.

America's history of wildlife management began in the chaos of the "commons"—the vast wild lands jointly held and used by all U.S. citizens as a collective asset. A seemingly unlimited resource was relentlessly hunted and fished by a growing population with an insatiable appetite for the food, clothing, trophies, and commercial products wildlife provided. In the jargon of economics, the marginal benefit of hunting one more animal accrued exclusively to the individual hunter, while the cumulative costs of unlimited hunting fell crushingly on the shoulders of society. The discrepancy in benefit and cost led to uncontrolled harvest and the rapid decline of wildlife nationwide.

State wildlife agencies stepped into the picture in the early 20th Century with the goal of affirming public ownership of wildlife – the Public Trust Doctrine – and regulating its harvest with licenses. Yet, apart from the revenue from license sales, the wildlife agencies operated on a financial shoe string. Pittman-Robertson and, later, Dingell Johnson came to their fiscal rescue. The excise taxes raised by those Acts – excise taxes paid for by hunters and anglers – along with license fees established the principle of user pays/public benefits, the fiscal foundation of game management in America.

The funding enabled by these Acts, however, is only part of the success story. The glue that secures the framework of modern wildlife management is partnership. Our celebration of WSFR's 75th Anniversary is really a celebration of the power of partnership, of the hunters and anglers who pay the cost of conservation with fees and taxes, the outdoor sporting industries that make the system of excise taxes possible, the State fish and wildlife agencies that provide the scientific know-how to manage game, the many citizen groups and nongovernmental organizations that expand the States' capacity to manage wildlife, and the USFWS that works hand-in-hand with the States to administer the WSFR Program.

We should take pride in the legacy of the WSFR Program over the past 75 years. It has helped empower our State agencies and citizen conservationists to achieve as a nation what no other nation in the world has achieved: unparalleled wildlife management success. Sadly, the full story of that success is still largely untold; but it will be told. The new Wildlife TRACS performance reporting system for the WSFR Program will make that story known and available to everyone who cares about wildlife conservation. Finally, to quote the great English bard, what's past is prologue. Just as the North American model calmed the tempest of the wildlife commons, that same model points the way to conserving the diversity and richness of all wildlife in America. It won't be easy, but through the synergy of federal, state, and private partnerships, the work that began 75 years ago in 1937 with the passage of Pittman Robertson will carry us to the next 75 years, into a future where our success will extend to all species.

Hannibal Bolton

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Mark Madison, Historian
U.S. Fish and Wildlife Service

Creating a New Conservation Constituency: The Pittman-Robertson Act of 1937 and the Dingell-Johnson Act of 1950

The America of colonial times teemed with wildlife and fish. However, the country's rapid westward expansion in the 19th century took an enormous toll on wildlife habitat which disappeared

Market hunters also known as "game hogs". Credit: USFWS

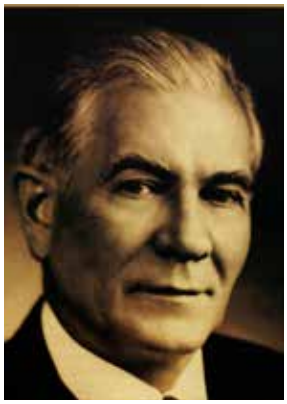
at an alarming rate. Moreover, by the 20th century, decades of poor enforcement of existing hunting laws, the unregulated growth of market hunting, and hunters who took more than their share (commonly referred to as "game hogs") added to the decline of once-abundant wildlife populations with many game species teetering on the brink of extinction. Although today it may be hard to believe, in 1937 there were relatively few white-tailed deer remaining in the country. In Indiana, for example, the last known specimen had been killed in 1893, and spotting one anywhere on the East Coast would have been a rare event. Out West, pronghorn antelope, elk, and bighorn sheep populations were fast declining. Beavers were practically nonexistent south of the Canadian border, and wild turkeys faced imminent extinction across the country. Many dedicated conservationists and sportsmen alike watched this trend with growing alarm and worked to get the country's first wildlife laws enacted to protect America's wildlife and the habitat upon which it depended.

In the 1930s, a combined economic depression and ecological disaster led the federal government to seek innovative ways to help impoverished Americans and conserve our nation's lands and wildlife. The Great Depression and the Great Plains Dust Bowl destroyed families and decimated wildlife habitat, leading President Franklin Roosevelt, wildlife conservation organizations, sportsmen, and several concerned Congressmen to work together to pass a series of laws that, today, are still the foundation of this country's natural resource conservation programs.

The creation of the Civilian Conservation Corps (1933-1942) introduced 2.5 million young men to outdoor work on national forests, parks, and wildlife refuges. In 1934 the Migratory Bird Hunting Stamp Act (popularly known as the Duck Stamp Act) raised money for wetland acquisition through the sale of special revenue stamps required for legal hunting of waterfowl. President Roosevelt, in 1936, convened the First North American Wildlife Conference, which brought together a variety of agencies and organizations to discuss the future of wildlife conservation in America.

Drought and wind took a toll on habitat. (Dallas, South Dakota 1936) Credit: U.S. Department of Agriculture

Senator Key Pittman of Nevada Credit: USFWS



Representative A. Willis Robertson of Virginia. Credit: USFWS

J.N. "Ding" Darling – cartoonist, hunter, and conservationist. Credit:USFWS

J.N. "Ding" Darling illustration. Credit: USFWS

The 1937 Federal Aid in Wildlife Restoration Act (popularly known as the Pittman-Robertson Act after its Congressional sponsors) was the next step in a quickly-evolving American conservation movement. It provided a much-needed, stable source of funding for wildlife conservation programs across the country and today is considered the single most productive wildlife undertaking on record.

Interestingly enough, the legislation's most vocal supporters were sportsmen and hunters – the very group that would be most affected by the tax. Many hunters made it clear they willingly would accept a permanent tax if it meant the government would use the funds to work with the states to ensure the sustainability of popular game animals.

Although these partners recognized the urgency of securing a permanent dedicated funding source, it still took a great deal of work to actually pass the Act. The idea behind Federal Aid goes back at least to 1935 when a proposal was first made to use an existing excise tax on sporting arms and ammunition for game restoration and habitat acquisition to be managed by the Biological Survey. Normally, this proposal would have garnered support from sportsmen; however in the midst of an economic depression it was a tough sell to transfer any excise tax revenue out of general government funds needed for the country's recovery.

During the 1930s, a group of gifted conservationists and new organizations kept the issue alive for the next several years. The recently-hired head of the Biological Survey, Jay N. "Ding" Darling was a noted prize-winning political cartoonist, conservationist, sportsman, and influential friend of President Franklin Roosevelt. A visionary, Darling lobbied ceaselessly for the funds to support wildlife restoration. Upon retiring from the Bilogical Survey in 1935 he went on to found the National Wildlife Federation (NWF) in 1936 which made wildlife restoration its mission. Darling, himself, relentlessly pressed all of his Washington contacts to move the act forward.

Carl Shoemaker, NWF's Secretary, was equally influential in securing the Act's passage. A Washington insider who knew Congress well, Shoemaker also served as the Secretary of the Senate Wildlife Committee at the time. He has been called the "father of the P-R program" because he drafted the original legislation that would not only be acceptable to both houses of Congress but also satisfy conservationists and sportsmen. Shoemaker asked Nevada Senator Key Pittman to sponsor the bill in the Senate and the Senator quickly concurred with the bill's original language. Shoemaker then asked Virginia Congressman A. Willis Robertson to co-sponsor the bill in the House.

Carl Shoemaker...author of the legislation. Credit: National Wildlife Federation

Robertson, a former chairman of the Virginia Department of Game and Inland Fisheries from 1926-1932, closely examined its language. As chairman, Robertson had seen game funds repeatedly raided for other state projects. Based on his own experience, he said he would support the bill if Shoemaker would insert the following sentence: ***"...and which shall include a prohibition against the diversion of license fees paid by hunters for any other purpose than the administration of said State fish and game department..."*** Shoemaker agreed, stating that the 29 words were the most important additions made by anyone. With this amendment, Congress passed the bill, shepherded by a constituency of Congressional sportsmen and -women.

Pittman-Robertson represented a milestone in North American conservation history. All hunters (not just waterfowl hunters) were actively investing in the future of wildlife and its habitat. The North American Model of Conservation was solidified; not only did the

American people own the nation's wildlife, but now they actively supported it financially. Finally, the P-R Act was the beginning of a series of acts which found innovative ways to support ongoing wildlife conservation needs.

Signed into law by President Franklin Roosevelt on September 2, 1937, the Pittman-Robertson Act specified a 10 percent tax on hunting-specific guns and ammunition and mandated the money be set aside to aid the states in funding wildlife restoration projects. To account for vast differences in land area and population size among the states, a formula was created to calculate how much money each state should receive, taking into consideration both the size of the state and the number of licensed hunters residing there. States were eligible to receive up to 75 percent of total project costs from the Pittman-Robertson fund, with the expectation they would provide the remaining 25 percent. This provision encouraged states to take greater responsibility for their own conservation programs, while also ensuring they could afford the resources necessary to implement them.

Waterfowl sportswoman with dog. Credit: USWS

During the first ten years following the passage of the Act, 38 states acquired roughly 900,000 acres of land for use as wildlife management areas. Early projects focused on habitat reclamation and wildlife relocation, transplanting deer and other endangered animals from states such as Wisconsin and Michigan (which had fewer people and more wildlife) into states with dwindling game populations. By 1948, wildlife experts across the country had moved thousands of deer, pronghorn antelope, and elk, as well as smaller numbers of mountain goats, wild sheep, and bears. The success of these efforts was quick and dramatic; given access to protected habitat with sufficient water and food, transplanted species thrived. Indiana quickly recovered from its deer shortage, recording about 5,000 specimens in 1951 and more than 50,000 by 1970. Other states, particularly those in the South, recorded similar upsurges in deer populations. The pronghorn antelope was brought back from near-extinction, and beavers were restored in nearly all areas that made up their original range. The rest of the targeted species saw marked success as well.

Since its initial passage, the Pittman-Robertson Act has been amended several times. Of the money provided by Wildlife Funds in the past 25 years, approximately 46 percent has gone toward acquiring (through purchase or lease), developing and maintaining lands for wildlife management, approximately 28 percent has been used for wildlife surveys, research, and technical assistance, and approximately 12 percent has been used for hunter education. A small portion is set aside yearly for coordination and administration. (See Accomplishments Pie Charts, Appendix). Hunter Education Funds are made up partly through the allocation of 50 percent of the tax on pistols, revolvers, and some archery materials.

The money collected by Pittman-Robertson has grown steadily in the 75 years since its enactment. In 1939, the year it went into effect, the amount of money apportioned by the federal government to the states totaled $890,000. In 2010, the program provided approximately $473 million, divided among all 50 states as well as Puerto Rico, Guam, American Samoa, the Northern Mariana Islands, and the U.S. Virgin Islands. Since 1937, more than $7.1 billion (almost $14 billion 2012 dollars see Apportionments, Appendix) has been dispensed for various conservation projects, matched by about $2.4 billion in state contributions. In 75 years, states have acquired millions of

U.S. Congressman John Dingell (center) sponsored bill leading to Sport Fish Restoration Act. Credit: USFWS

U.S. Senator Edwin Johnson of Colorado sponsored bill leading to Sport Fish Restoration Act. Credit: USFWS

acres of land for conservation purposes, and have worked with some 9.3 million landowners to help them manage their own lands for the benefit of native wildlife.

Today many species have been successfully restored, including wild turkeys, deer, pronghorn antelope, wood ducks, beavers, bears, Canada geese, elk, wild sheep, bobcats, and mountain lions. Many other species have benefitted indirectly from Pittman-Robertson conservation efforts such as songbirds, bald eagles, falcons, sea otters, and prairie dogs. Perhaps the Act's most important legacy is the development of a new conservation constituency of millions of sportsmen and -women who directly invest in the wildlife resources they so deeply cherish.

The success of Pittman-Robertson inspired anglers to undertake a similar effort to provide a source of funding for the nation's fisheries. In 1947, Michigan Congressman John Dingell introduced a bill patterned after Pittman-Robertson to impose a 10 percent manufacturers' excise tax on certain equipment for recreational fishing. The monies collected under the authority of the proposed legislation were to be returned to the states to help fund sport fish programs. Although vetoed by President Truman, the bill ignited increased support from the country's growing number of anglers. In 1950, Congressman Dingell and Colorado Senator Edwin Johnson introduced a revised version and, on August 9, 1950, President Truman signed the Federal Aid in Sport Fish Restoration Act into law.

The Sport Fish Restoration Act, commonly known today as Dingell-Johnson, applied a ten percent manufacturers' excise tax on fishing rods, reels, creels, and artificial baits, lures, and flies, with the revenue earmarked for the states and territories for projects that would enhance sport fish restoration. Since 1950, state projects have included the full array of the sport, from efforts to increase anglers' access, to fish stocking, removal of invasive species, improved fish ladders to fish disease studies. (See Accomplishments Pie Charts, Appendix) However, all share a commitment to the better management of state fisheries resources. The Dingell-Johnson Act provided the perfect complement to the earlier Pittman-Robertson legislation. Now, aquatic habitats and species would reap similar benefits as their terrestrial counterparts. Equally important, anglers joined hunters in investing in and supporting conservation programs aimed at saving this country's natural fish and wildlife heritage.

A History of Major Events in State and Federal Wildlife Conservation

1865 - Massachusetts establishes a Commission of Fisheries and Game, the first State game commission.

1875 - Pressed by sport hunters, Arkansas passes the first law banning all commercial hunting of waterfowl. Similar laws were quickly passed in Florida and other states.

1878 - New Hampshire and California create state game departments.

1879 - With populations of many major game species in severe decline, Michigan placed a ten-year moratorium on elk hunting.

Unregulated hunting sped the decline of wildlife populations. Credit: Missouri Department of Natural Resources

1885 - Division of Economic Ornithology and Mammalogy is established within the U.S. Department of Agriculture. With Clinton Hart Merriam as its first Chief, much of the Division's early work is focused on studying the positive effects of birds in controlling agricultural pests and defining the geographical distribution of animals and plants throughout the country. The Division later expands and is renamed the Bureau of Biological Survey; still later, it is renamed the U.S. Fish and Wildlife Service.

1887 - Efforts to ban or regulate commercial hunting accelerate when Theodore Roosevelt and George Bird Grinnell start the Boone and Crockett Club to promote and ensure the future of big game hunting in North America.

1890 - Wyoming places a moratorium on bison hunting.

1895 – Michigan and North Dakota pass the first laws requiring all hunters to purchase state hunting licenses.

1900 - The Lacey Act is passed prohibiting interstate shipping of wildlife taken in violation of any state game law. Managed by the Biological Survey, it puts market hunters out of business.

1903 - First National Wildlife Refuge is established on Pelican Island, Florida a habitat devastated by market hunting and plume traders.

1908 - On May 13, President Theodore Roosevelt hosts the White House Conference on the Conservation of Natural Resources. Attending are governors, members of his Cabinet and the Supreme Court, members of Congress, scientists, industrial leaders and conservationists - all called together to focus on the loss of wildlife, forests, and other natural resources caused by the exploitation of what had once been perceived as inexhaustible.

1930 – Aldo Leopold and a distinguished group of wildlife conservationists are asked by the American Game Institute (now the Wildlife Management Institute) to draft a policy to guide wildlife conservation. The 1930 American Game Policy lays out a broad vision, acknowledging that existing conservation programs are inadequate to stem the declines in wildlife. It calls for a program of restoration implemented by scientifically- trained professionals with a stable funding source and declares it is time for wildlife management to "be recognized as a distinct profession and developed accordingly." Carl Shoemaker is appointed special investigator for the newly created U.S. Senate Special Committee on Conservation of Wildlife Resources. He later becomes the author of the Pittman-Robertson Wildlife Restoration Act.

1934-1935 Federal Duck Stamp, designed by J.N. "Ding" Darling

1934 - The Migratory Bird Hunting Stamp Act, popularly known as the "Duck Stamp Act," is passed by Congress. The Act requires the purchase of a revenue stamp by waterfowl hunters 16 years old and over. Money generated by stamp sales is used to acquire or lease important wetlands. Since its inception, the program has resulted in the protection of approximately 5.3 million acres of waterfowl habitat.

Credit: Virginia Department of Game and Inland Fisheries

1937 - The Federal Aid in Wildlife Restoration Act (commonly referred to as the Pittman-Robertson Act) is passed by Congress to provide grant funds to the states', and insular areas' fish and wildlife agencies for projects to restore, conserve, manage, and enhance wild birds and mammals and their habitat. Through the purchases of firearms, ammunitions, and archery equipment, the Wildlife Restoration program remains a successful user pay, user benefit program.

1939 - The Bureaus of Fisheries and Biological Survey are moved to the Department of the Interior and the following year combined to create the Fish and Wildlife Service.

1950 - The Federal Aid in Sport Fish Restoration Act (commonly referred to as the Dingell-Johnson Act) is passed to create a program to support the restoration and improvement of America's fishery resources. It provides grant funds to the states', the District of Columbia's and insular areas' fish and wildlife agencies for fishery projects. It is modeled after the successful Wildlife Restoration program. The purchases of fishing equipment fund this program.

1954 - Funds from an 11 percent excise tax on sporting arms and ammunition [Internal Revenue Code of 1954, sec. 4161(b)] are appropriated to the Secretary of the Interior and apportioned to States on a formula basis for paying up to 75 percent of the cost of approved projects. Project activities include acquisition and improvement of wildlife habitat, introduction of wildlife into suitable habitat, research into wildlife problems, surveys and inventories of wildlife problems and acquisition and development of access facilities for public use.

1955 – Cossley, S-D Surveys Inc. of New York conducts the first National Survey of Fishing and Hunting under contract to the U.S. Fish and Wildlife Service.

1965 – Bird watching and wildlife photography are added to the *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.*

1970 - Public Law 91-503, approved October 23, 1970, (84 Stat. 1097) adds provisions for the deposit of the 10 percent tax on pistols and revolvers, half of which may be used by the States for hunter safety programs. This amendment also provides for development of comprehensive fish and wildlife management plans as an optional means for participating in the program, and changes the maximum limit from $10,000 to one-half of one percent for Puerto Rico and to one-sixth of one percent for the Virgin Islands and Guam.

1972 - On October 25, 1972, the Act is further amended by P.L. 92-558 (86 Stat. 1172) to add provisions for the deposit of the 11 percent excise tax on bows, arrows, their parts, and accessories for use in wildlife projects or hunter safety programs.

1973 - The 1930 American Game Policy is expanded into the North American Wildlife Policy to meet growing conservation challenges: the continued expansion of the human population, increased resource consumption, recreational use of fish and wildlife, endangered species, habitat management, and multiple-use policies. The updated Policy sets the stage for efforts to sustain our hunting heritage, focus on non-game and game species, establish international agreements to support wildlife conservation, provide incentives for private landowners for wildlife habitat management, enhance range management and wetland protection, and expand public outreach and conservation education.

11% excise tax on bows and arrows. Credit: Missouri Department of Natural Resources

1975 – Archery and shooting sports are added to the *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.*

1980 – Congress passes the Forsythe-Chafee Fish and Wildlife Conservation Act ("Nongame Act"), modeled after Pittman-Robertson and Dingell-Johnson, to expand federal support to restore and conserve nongame vertebrate species. Congress never authorized funding for the program.

1984 - Public Law 98-369, approved July 18, 1984 (26 U.S.C. 9504, 98 Stat. 1012) creates the Aquatic Resources Trust Fund comprised of the Sport Fish Restoration Account and the Boating Safety Account. This amendment expands the items of fishing tackle subject to the 10 percent excise tax and imposed a new 3 percent excise tax on fish finders and electric trolling motors. In addition, it provides for the deposit of receipts from these excise taxes and from the following sources into the Sport Fish Restoration Account: the motorboat fuels tax revenues less amounts deposited into the Boating Safety Account, and the import duties on fishing tackle, yachts and pleasure craft. This Act also directs that the additional funds be equitably allocated between marine and freshwater sport fish and directs States to use up to 10 percent of funds for boating access facilities and aquatic resources education programs.

1984 - Public Law 98-369 also amends the Sport Fish Restoration Act to require the States to equitably allocate these new funds between marine and fresh water projects and to allocate 10 percent of apportionments to boating facilities. Payments for multi-year projects are authorized; the administrative expense deduction is reduced from 8 percent to 6 percent; up to 10 percent is authorized for aquatic resources education; and the District of Columbia is qualified for one third of one percent. The effective date of these amendments is October 1, 1984, and they are commonly called the Wallop-Breaux amendments.

1988 - Public Law 100-448, approved September 28, 1988 (102 Stat. 1836) increases the amount authorized to be appropriated from the motor boat fuels tax receipts into the Boating Safety Account from $45 million to $60 million for Fiscal Years 1989 and 1990, then to $70 million for Fiscal Years 1991, 1992, and 1993. It also amends the Sport Fish Restoration Act to require States to equitably allocate all amounts apportioned between marine and freshwater projects, with no State to receive less than the amount apportioned in 1988.

1998 – Public Law 105-178 (112 Stat.482), June 9, 1998, entitled the *Transportation Equity Act for the 21st Century*, contains the *Sportfishing and Boating Safety Act.* These provisions create a national outreach program to promote boating and fishing and provide funds for fiscal years 1999 through 2003.

1991 – The Fish and Wildlife Diversity Initiative is launched by the Association of Fish and Wildlife Agencies (AFWA). Legislation titled the Fish and Wildlife Diversity Funding Act is drafted providing for excise taxes on outdoor products and conservation programs for all vertebrates and invertebrates. This effort would later be renamed the Teaming with Wildlife Initiative (TWW).

2000 - The Wildlife and Sport Fish Restoration Programs Improvement Act of 2000 authorizes the Secretary of the Interior to develop and implement a Multistate Conservation Grant Program, a Firearm and Bow Hunter Education and Safety Program, and provides funding for four fisheries commissions and the Sport Fishing and Boating Partnership Council.

2000 - Congress authorizes the State Wildlife Grants Program and passes the Wildlife Conservation and Restoration Act. Both programs are funded in part through the Land and Water Conservation Fund.

2005 - Public Law 109-59 (119 STAT. 1144) August 10, 2005, entitled *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users*, amends the Dingell-Johnson Sport Fish Restoration Act to make authorization of appropriations from the Sport Fish Restoration and Boating Trust Fund.

2005 - Public Law 109-74 (119 Stat. 2030), entitled the *Sportfishing and Recreational Boating Safety Amendments Act*, increases the authorization of appropriations from the Highway Trust Fund to the Secretary of Transportation for payment of expenses of the Coast Guard for the national recreational boating safety program

2011 - The first comprehensive revision of the regulations that govern the Wildlife Restoration, Sport Fish Restoration, and Hunter Education programs is published and located in Part 80 of Title 50 of the Code of Federal Regulations.

National Outlook

Congressional Viewpoints

August 14, 2012

As a conservationist, life-long avid outdoorsman and former Park Ranger, few issues are as important to me as the health and accessibility of our public lands and wildlife protection. Throughout my career, I have been a tireless advocate for the Wildlife and Sport Fish Restoration Program and other initiatives to conserve our natural resources and protect the environment, public lands, and wildlife. A large number of wildlife species, as well as people, benefit from healthy wetland systems, and these enjoyable experiences can instill a lasting appreciation for our great outdoors unlike any other. Wildlife-related recreation generates over $120 billion of economic output each year in our country and such wildlife wetlands and refuges are also proven to prevent flooding, reduce the severity of storm surges, and mitigate the damaging effects of soil erosion. As my father, who helped create this program, used to say, "we are borrowing the land from future generations." I am proud of his work to create this program and our efforts to sustain it, and I will continue to ensure that we leave the land in better condition than when we received it so our children and grandchildren can enjoy it as I have throughout my life with my father and my children.

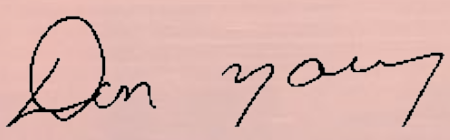
~U.S. House of Representatives,
John Dingell, Michigan

August 15, 2012

Throughout my career in Congress, I have amassed a reputation for being a fierce proponent of developing the resources of Alaska and our great nation. However, another priority that garners less attention is my work for the conservation of America's fish and wildlife. As a founding Member of the Congressional Sportsmen's Caucus, former Chairman of the House Resources Committee, and currently a senior Member of the House Natural Resources Committee, I have worked on many bipartisan legislative efforts to conserve fish and wildlife species, both at home and abroad, for future generations of Americans to experience and enjoy.

As Chairman, I sponsored one of these important initiatives - the Wildlife and Sport Fish Restoration Programs Improvement Act of 2000, which continued and modernized the Dingell-Johnson Sport Fish Restoration Act and the Pittman-Robertson Wildlife Restoration Act. This legislation, which passed both houses of Congress nearly unanimously, serves as an example of how Congress can work together, with a supportive Administration, industry, and sportsmen stakeholders towards an achievable goal to enact good legislation that makes a difference.

Through the Wildlife and Sport Fish Restoration Program, the Pittman-Robertson Wildlife Restoration Act along with the Federal Aid in Sport Fish Restoration Act (now the Dingell-Johnson Sport Fish Restoration Act) has contributed more than $14 billion to fish and wildlife conservation in the U.S. As we celebrate the 75th anniversary of the Federal Aid in Wildlife Restoration Act (now the Pittman-Robertson Wildlife Restoration Act) we should pause and take note of the successes realized, while also looking to the future and recognizing that there is much work left to be done.



~U.S. House of Representatives,
Don Young, Alaska

THE WILDLIFE AND SPORT FISH RESTORATION PROGRAM:

THE LIFEBLOOD OF STATE FISH & WILDLIFE AGENCIES

John Frampton, WSFR 75th Anniversary Director, AFWA
Carol Bambery, General Counsel, AFWA

The times were as bleak as a nation had ever known. Unemployment and economic stagnation were worsening in post-World War I America and the abundance of wildlife riches that once graced the landscape were dwindling or disappearing altogether.

By the 1930s, the United States had already seen the extinction of the Carolina Parakeet and the Passenger Pigeon due to indiscriminate killing, unenforceable laws and a lack of science on the two species' behavior and ecology. White-tailed deer populations were near all-time lows and in some places were completely eliminated. Other species such as the wood duck, wild turkey and bison were not far behind. Americans took the sustainability of the country's wildlife populations for granted, without considering the toll their actions were taking on many species and, therefore, on opportunities for hunting.

Fledgling fish and game agencies of the early 1900s had become the stewards of their state's natural resources, but they desperately struggled to find funding to carry out needed wildlife research and restoration efforts. Most of the activities within state wildlife agencies were directed toward ensuring the enforcement of inadequate game and fish laws, where, at least, they could acquire funds through the sale of hunting and fishing permits or licenses and fines collected from game and fish violations. In South Carolina, for example, a game warden's pay equaled one-half of the total monies he collected from fines.

But even with such meager funding sources, state agencies had to stay ever on guard against threats by cash-strapped state administrations. The agencies knew the need for action in wildlife restoration was urgent and the timing was right.

With Franklin D. Roosevelt in the White House, wildlife conservation became one of the two key components in his New Deal; the other, employment. Roosevelt believed that private enterprise would be stimulated, not threatened, by works in conservation. The state agency members of the International Association of Game, Fish and Conservation Commissioners (IAGFCC—the precursor to the Association of Fish and Wildlife Agencies) saw the potential for their own concerns in this new federal attitude. Furthermore, they were backed by conservation leaders including Aldo Leopold and Ding Darling, in addition to others from Theodore Roosevelt's era.

After much hard work from conservationists, sportsmen, and Congress, in 1937, President Roosevelt signed the Wildlife Restoration Act into law. Immediately, IAGFCC declared its support for new legislation to provide federal funding to states for fishing resources. With the creation of reservoirs across the country during the 20th century, state agencies recognized a need for information on the ecology of impounded fisheries and the state of America's hatcheries. These hatcheries were (and continue to be) essential for stocking reservoirs and rivers. Increased angling and commercial fishing pressures emphasized the demand for better management and facilities.

Conservationists proposed that the money to fund a Sport Fish Restoration companion bill to Pittman-Robertson could come from an excise tax on fishing equipment and lures. The bill was introduced in 1939; however, contrary to then IAGFCC General Counsel Talbott Denmead's, opinion that "In spite of wars, rumors of wars, sun spots, election and politics, the trend in fish and game legislation was upward," the bill failed. It was not until after World War II that Michigan Congressman John Dingell and Colorado Senator Edwin "Big Ed" Johnson would revive the bill. President Harry S. Truman signed the Sport Fish Restoration Act (also known as Dingell-Johnson) into law on August 9, 1950.

Credit: Arizona Game and Fish Department/George Andrejko

These vital legislative efforts provided national funding mechanisms for conservation that remain the lifeblood of every state fish and wildlife agency. Since 1937, more than $14 billion dollars have been entrusted to state agencies through the Wildlife and Sport Fish Restoration Program for managing and restoring fish and wildlife and their habitats. Coupled with more than $1.2 billion total in annual license revenues reserved for the administration of state game and fish agencies, these funds have yielded unprecedented conservation

Healthy bull elk in velvet; just one of many successful restoration efforts. Credit: Arizona Game and Fish Department/George Andrejko

success stories impacting not only fish and wildlife, but also untold generations of hunters, shooters, anglers, boaters and outdoor recreation enthusiasts.

When the Wildlife Restoration Act was passed, there were fewer than 500,000 white-tailed deer in this country. Today, through enhanced habitat management and restoration efforts, there are more than 30 million animals and are at record numbers in almost every state where they are found.

In the 1930s, there were approximately 30,000 wild turkeys. Through state restoration efforts

Wild turkeys now flourish in previously poor habitat. Credit: NEBRASKAland Magazine/Nebraska Game and Parks Commission

funded mainly through Wildlife Restoration Funds and license revenues, populations of various subspecies of wild turkey are thriving in the 48 contiguous states and Hawaii. Today, the Eastern Wild Turkey population numbers more than 5.1 million birds. Pronghorn antelope, elk, wood duck, black bears and many

White-tailed deer populations increased. Credit: USFWS/Lori Bennett

others share similar success stories.

Moreover, such increases in populations directly correlate to greater hunting opportunities. In 1937, deer hunting was prohibited in Kansas; New Jersey had only six deer hunting days available; and the deer population in Illinois was estimated at only 3,000 animals. Today, Kansas harvests roughly 100,000 deer each year; New Jersey has more than 160 deer hunting days available; and Illinois deer hunters harvest in excess of 188,000 animals each year.

North Carolina and Ohio have had similar success. In 1972, the North Carolina Wildlife Resources Commission finally was able to establish a fall turkey season; in the spring of 1977, only 144 turkeys were reported harvested, however, by 2008, more than 10,400 were reported harvested. Ohio's first turkey season took place in 1966 during which hunters harvested only 12 birds. In 2009, they took more than 20,700.

Since 1950, state agency hatchery programs have been heavily supported by Sport Fish Restoration funds. Over the past 20 years, approximately 25 percent of Sport Fish Restoration funds have supported hatchery production and stocking. Sport Fish Restoration funds have also been used to improve tens

By working with private landowners who voluntarily enroll their land into walk-in access agreements through Private Lands Open to Sportsmen (PLOTS), the state is securing the hunting tradition and heritage in North Dakota. (Grant # ND W91L) Credit: North Dakota Game and Fish Department/Corey Wentland

of thousands of acres of waters diminished by siltation and pollution, which, in turn, has led to the recovery of America's fishery resources.

Techniques developed with research funded through the Sport Fish Restoration Program have resulted in striped bass stocking in reservoirs in almost every state and in many other countries worldwide. In South Carolina, research on striped bass in the Santee Cooper Reservoir System during the 1950s and 1960s led to a stocking program that has been implemented nationwide for land-locked striped bass.

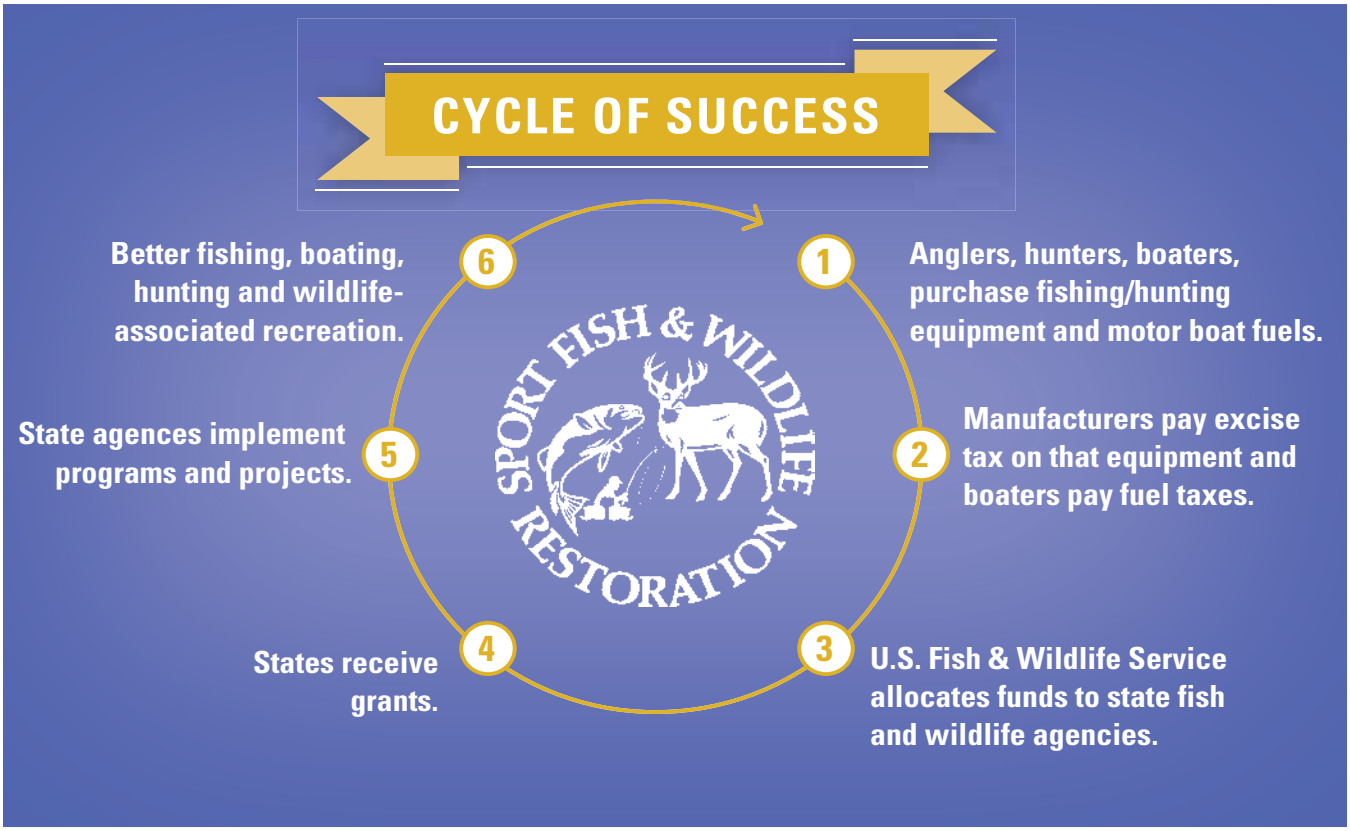
Yet, research and restoration is only half the story. With these excise tax-derived funds coupled with license dollars, state agencies have been able to provide hunter education to more than 24 million people; build hundreds of public shooting ranges; develop Walk-In Hunting Access programs; provide more than 22,000 public fishing sites; educate youth in schools about how conservation is funded; and deliver outdoor skills training to millions of Americans of all ages.

Wildlife and Sport Fish Restoration funds have also helped agencies acquire and maintain hundreds of millions of acres of habitat across the country as well as provide hunting, recreational shooting, fishing and boating access through leases, easements and purchases. These lands and waters are economic assets to both the states and local economies that depend on the more than $85 billion market force of hunters and anglers.

We like to say that hunters and anglers pay for conservation in this country, which is clearly evident through the Wildlife and Sport Fish Restoration Program. However, we must also give tremendous credit to the industries that manufacture sporting good products and send their quarterly tax checks to the U. S. Treasury, often before those products are sold at the retail or wholesale level.

It is a true partnership—from the sportsmen and-women who pay for the equipment and ammunition… to the industry that writes the checks… to the U.S. Department of the Treasury that collects the funds from industry… to the U.S. Fish and Wildlife Service that allocates them… to the state fish and wildlife agencies for on-the-ground conservation work and access that allows hunters, shooters, archers, anglers, and boaters greater opportunities to enjoy the activities they love best.

But, what would happen if a link in this cycle of success were to break and the Wildlife and Sport Fish Programs lost? There would be an immediate loss of more than $800 million annually for fish and wildlife conservation. License fees would need to increase by at least



36 percent to recoup lost excise tax revenues. There would likely be a drop in hunting and fishing participation due to higher license fees. It is a future that could look too much like the now distant past.

With the changing dynamics of federal and state legislative entities, state fish and wildlife agencies need the continued involvement of all partners in order to maintain support for the excise tax program and conservation. State legislation is a fluid issue and must be continuously reviewed for possible license revenue diversion issues. Likewise, it is imperative for state agencies to remember that activities and programs funded with Wildlife and Sport Fish Restoration dollars must remain visible to both industry and legislative bodies; and that America's sportsmen-and-women are, importantly, the first-line payers into the program.

As we celebrate the 75th Anniversary of the Wildlife Restoration Program, let's celebrate those who had the wisdom and foresight to create and advocate for the program that helps keep us in business—both state fish and wildlife agencies and industry. Let's recommit to the partnership among state fish and wildlife agencies, the hunting, shootings sports, angling and boating industries, and the U.S. Fish and Wildlife Service to ensure our great shared legacy passes down to tomorrow's sportsmen-and-women. Hunters and anglers should take great pride in knowing that the states' conservation success is the result of their continued contributions to America's unique model of user-pay, everyone-benefits!

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POTENTIAL DIVERSION ISSUES OF STATE LICENSE REVENUES

FY 2012 – 7 States
FY 2011 – 3 States
FY 2010 – 6 States

After 75 years, states continue to face potential diversions of hunting and fishing license revenues. The increased frequency in diversion issues in recent years may be due to harsh economic times and statewide budget shortfalls. USFWS must continually monitor and audit state expenditures, and proposed state legislation to protect funds. Federal and state agencies work in concert to rectify identified concerns.

Source:USFWS

Industry Pride in Its Conservation Efforts

Glenn Sapir, Editorial Services Director
National Shooting Sports Foundation

The firearms and ammunition industry is proud to be a leader and proud to be a partner

When it comes to the unique history of conservation in the United States, the firearms and ammunition industry stands unabashedly proud of the leadership it showed in the establishment of the innovative Wildlife and Sport Fish Restoration Program. Throughout the 75 years since the passage of the Pittman-Robertson Federal Aid in Wildlife Restoration Act, the firearms and ammunition industry, represented since 1961 by its trade association, the National Shooting Sports Foundation® (NSSF®), has helped maximize the nation's funding of each state's wildlife management efforts and has worked with a variety of partners to help implement the internationally-envied North American Model for Wildlife Conservation.

Numbers are one way of telling the story, an accounting that some call "the greatest story never told." To help tell its story, the National Shooting Sports Foundation has distributed hundreds of thousands of Hunter's Pocket Fact Cards throughout the country. The card provides fascinating statistics and describes some of the incredible results of an historic partnership among industry, sportsmen and -women, state and federal government and an array of sporting organizations.

The numbers change upward daily, ensuring some measure of obsolescence almost immediately; however, the data included on the most recent edition of the card, revised in July 2011, are eye-opening nonetheless. Here are a few examples:

- Sportsmen and -women contribute nearly $8 million every day, adding more than $2.9 billion each year for conservation. Some $749 million of that annual revenue is raised through excise taxes paid solely by sportsmen through the purchase of firearms, ammunition, archery gear, fishing tackle and boats. For 2009, for example, firearms and ammunition manufacturers contributed approximately $450 million to wildlife conservation through excise payments. [In 2011, the figure was $460 million, the greatest one-year amount in history.]

- Hunters and target shooters [through the firearms and ammunition manufacturers] have paid $6.8 billion in excise taxes since the inception of the Pittman-Robertson Act in 1937.

- In 1900, less than half a million white-tailed deer remained in the nation. Today, conservation programs have returned the white-tail population to some 32 million.

Sportsmen and -women, whether at the range or in the field, are important partners in the Wildlife and Sport Fish Restoration Program. Credit: NSSF

- 1901, few ducks remained. Today, there are 44 million populating the United States and Canada.

- By the early 1900s, the nationwide population of wild turkeys was less than 100,000. Today, that population exceeds 7 million.

- About 55 years ago, the pronghorn antelope population in the United States was only about 12,000. Now it is in excess of 1,100,000!

State wildlife management agencies deserve the lion's share of the credit for their professional management of wildlife resources, both game and nongame, within their borders. Their work, of course, is dependent

upon adequate financial resources, so it is with understandable pride that NSSF, on behalf of the firearms and ammunition industry, recognizes the contribution of its members and the sportsmen and -women they serve.

The sportsman and -women are an important partner in the firearms distribution chain, and thus a key contributor to wildlife conservation, not only by buying a firearm that has already contributed to the Wildlife Restoration Fund, but by purchasing hunting, fishing and trapping licenses that direct funds to the state's wildlife and or fish management agencies. Credit: NSSF

Since 1970, a 10 percent excise tax on handguns has helped fund wildlife restoration and hunter education. The measure produces an estimated $125 million per year. Credit: NSSF

Robert Scott, chairman of the board of governors of NSSF, said, "The wisdom and commitment to the conservation of our great natural resources displayed 75 years ago—and today—speaks volumes about the dedication, commitment and responsibility that the leaders of our industry have shown to our sports and to our great outdoors." The Federal Aid in Wildlife Restoration Act, passed in 1937, earmarked an excise tax of 10 percent on sporting long arms and ammunition, which was transferred from the federal treasury to state wildlife management agencies. During World War II the tax was raised to 11 percent and now yields about $310 million per year for wildlife conservation programs.

The Dingell-Hart Bill was enacted in 1970, creating a 10 percent excise tax on handguns, which would fund wildlife restoration and hunter education. This measure produces an estimated $125 million per year.

The firearms industry, the pioneer of this funding program, was joined by the archery community in 1972 when the Dingell-Goodling Bill, creating a similar, 11 percent excise tax on archery equipment, was passed. The Federal Aid in Sport Fish Restoration Act, enacted in 1950, commonly known as Dingell-Johnson after its Congressional sponsors, implemented a similar excise tax on fishing tackle, which yields an average of an additional $380 million annually.

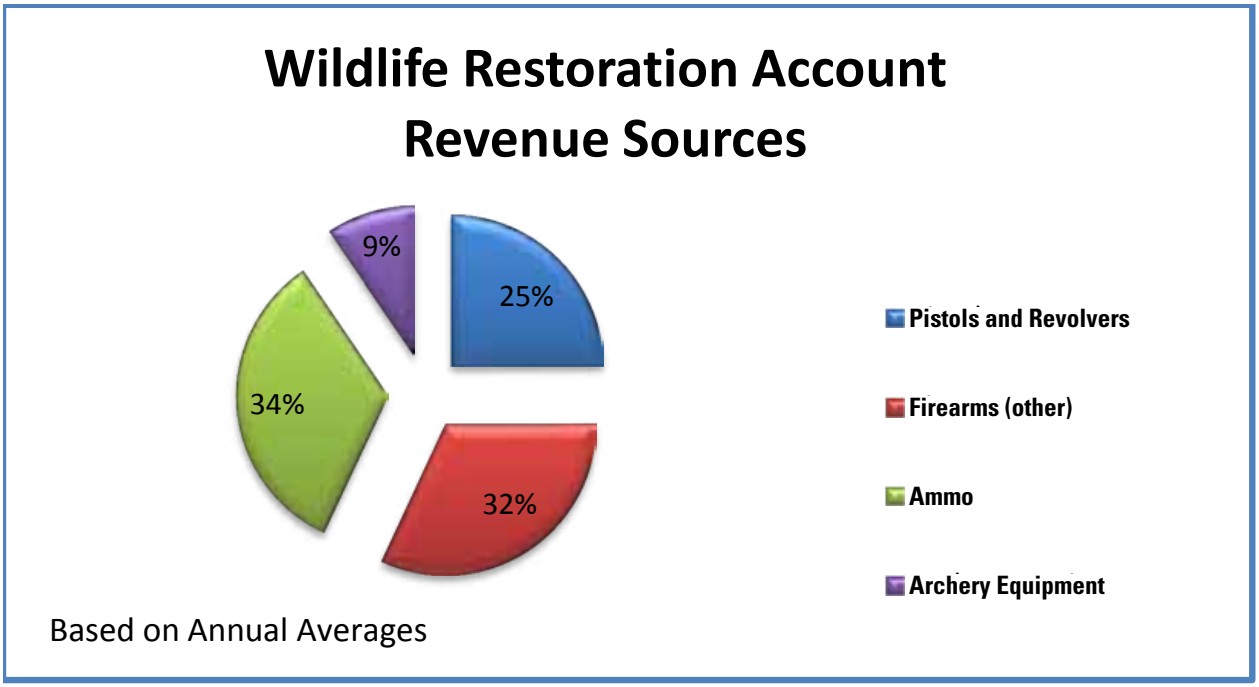
Payment of these excise taxes presents a financial burden on manufacturers, who must pay the tax after their goods are distributed but typically long before payments for these products have been received from retailers or distributors. Until 2010, the firearms and ammunition industry was required to adhere to a more frequent payment schedule than other industries contributing to the wildlife restoration program. The archery and fishing tackle industries always have made payment on a quarterly basis. However, the firearms industry, the trail-blazing participant of the cornerstone of the North American Model of Wildlife Conservation, had historically followed a bi-weekly payment schedule that required not only extra paperwork and staffing but also the necessity for some companies to incur debt to pay the excise tax for which they had not yet been reimbursed by their customers. In 2010, the Firearms Excise Tax Improvement Act resolved this issue by adjusting the firearms and ammunition manufacturers' schedule to quarterly payments. This change, though perhaps not obvious, presented the potential for the firearms and ammunition industry to generate even more funding for wildlife conservation.

Hunters and target shooters, through the firearms and ammunition manufacturers, have paid $6.8 billion in excise taxes since the inception of the Pittman Roberston Act in 1937. Credit: NSSF

"The bill strengthens wildlife conservation," declared Lawrence G. Keane, NSSF senior vice president and general counsel, after the legislation was passed by Congress. "By enabling manufacturers to grow their business [by diverting funds from administrative and bank fees to reinvesting in manufacturing production], excise tax receipts will actually grow."

History commonly attributes 1937 to the start of the federal excise tax paid by the firearms and ammunition manufacturers on the products they manufacture. Actually, such an excise tax was initiated in 1932, but those funds were not earmarked for conservation purposes.

It was the voice of the firearms and ammunition industry, along with other conservation-minded allies, that called for redirecting these taxes to benefit wildlife populations and assuring that these funds could not be redirected for other purposes. To preserve hunting as an American tradition and, thus, to help discourage any further moves toward nationwide gun control following passage of the National Firearms Act of 1934, the



industry realized that its funding of conservation was necessary for the survival of our hunting heritage and the wildlife that inhabited the nation.

"I can think of no other industry that took such a bold step, in the midst of such hard economic times, to unselfishly establish specific earmarks of the excise taxes paid on the first sale of every product to go to broad-based conservation of all species, game and nongame species alike," said NSSF President and CEO Steve Sanetti. "Between excise taxes and licenses, sportsmen [and–women] pay for 75 percent of all wildlife and fishery management efforts in the nation, a record that no group can match.

"Every hunter and target shooter should be immensely proud of the important part we play in our industry-established system of 'user pays—everybody benefits,'" Sanetti added, "which is the envy of the world…" and the pride of the firearms and ammunition manufacturing industry.

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Boating-Related Revenues Pack a Powerful Funding Punch for Aquatic Conservation and Boating Infrastructure Programs

Douglas Hobbs, *Sport Fishing & Boating Partnership Council Coordinator, U.S. Fish and Wildlife Service*

Ryck Lydecker, *Assistant Vice President for Government Affairs, Boat Owners Association of The United States*

The effort to expand funding for the Sport Fish Restoration Program began more than 30 years ago. The genesis of how this expansion would eventually be funded started innocently enough on a fishing trip on Pennsylvania's Juniata River, which included a member of Congress and the head of a respected fishery conservation organization. Today, the legislation and subsequent amendments and bills that came about thanks to a conversation between a couple of anglers power not only aquatic resource conservation efforts but also programs designed to increase recreational angling and boating opportunities on America's waterways.

Motorboat fuel tax is a major source of funding for the Sport Fish Restoration Program. Credit: RBFF

Credit:RBFF

The member of Congress on that long ago fishing trip was then-Representative John Breaux of Louisiana and his angling partner was Gil Radonski, president of the Sport Fishing Institute (SFI). An avid boater and angler since childhood, Breaux was seeking an alternative source of funding to dramatically expand the original 1950 Sport Fish Restoration Program funded under Dingell-Johnson. He wanted to contribute more to the sport he loved. As Radonski recounts, Congressman Breaux lamented that the bill he had introduced to capture revenue from an excise tax on boats and their motors, to be used to provide additional monies for the Sport Fish Restoration Program, was not getting any support from his Congressional colleagues. He asked Radonski and the SFI to help.

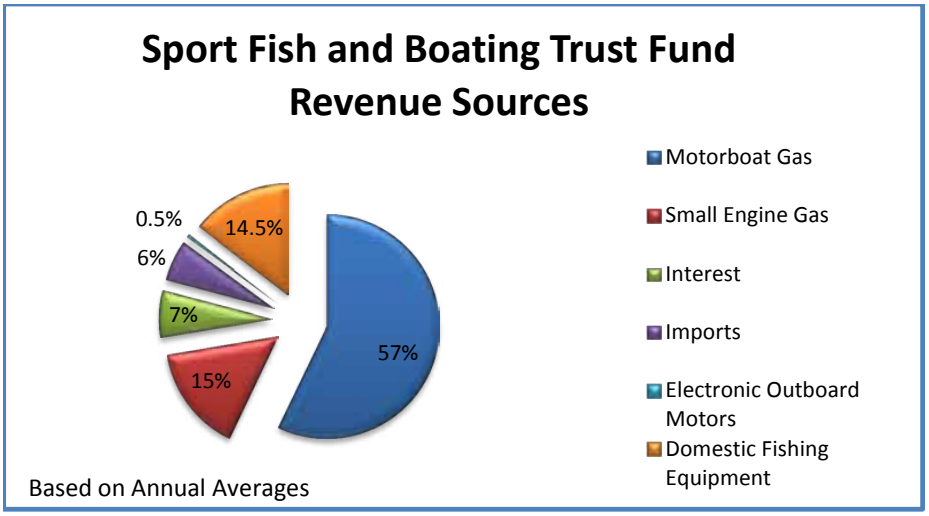
With SFI's help, as well as support from other conservation organizations, Breaux endorsed an alternative funding concept: gas tax revenues on the portion of fuel used in motorboats would be used to fund the expanded Sport Fish Restoration Program. Representative Breaux and his Senate colleague, Malcolm Wallop of Wyoming introduced and shepherded the legislation through Congress. The Wallop-Breaux amendments, enacted in 1984, were designed to dramatically increase the amount of available funding for aquatic resource conservation programs and for greater recreational opportunities for anglers and boaters. Subsequent revisions created additional funding sources to support this country's aquatic resources and provide better fishing and boating opportunities for the American people.

Boating-related revenues pump up conservation funding

In the broadest sense possible, Wallop-Breaux was critical because it brought boaters and the revenues they generated into the Sport Fish Restoration Program fold. For more than 30 years, Sport Fish Restoration

had been funded through excise taxes on sport fishing equipment. However, this funding model did not take into account the fact that many anglers fished from motor-powered boats. It was a natural fit to bring recreational boaters into the Sport Fish Restoration community.

Aside from the alliance it created between anglers and boaters, perhaps the most important aspect of the Wallop-Breaux legislation was that, in its first year, apportionments were made under the provisions of the legislation and funding apportioned to the States increased from $35 million in 1985 to almost $110 million in 1986. The newly- created Boating Access Program directly benefitted recreational boaters because it provided a dedicated funding source States could use to build and maintain boat ramps and associated infrastructure. The legislation also enabled States to use funds for Aquatic Resources Education programs. Finally, the law called for equitable funding between saltwater and freshwater projects.



Building on success: Program Expansion Benefits Anglers, Boaters and Aquatic Resources

Building on the successful 1984 legislation, Congress passed subsequent laws expanding both program funding and support for the improvement and/or construction of boating infrastructure, such as docks and sanitary sewage pumpouts, as well as the promotion of boating safety.

The 1988 Wallop-Breaux reauthorization and amendments not only supported boater safety education, but also funded much-needed research to verify the actual percentage of fuel taxes collected each year directly attributable to recreational boaters, since this would determine the revenues available for use by the Sport Fish Restoration Program. In 1990, Congress expanded the portion of fuel taxes deposited in the program, increased funding by adding taxes from small gasoline engines and funded coastal wetlands protection and restoration programs.

In 1992, Congress enacted the Clean Vessel Act, which provides grants to States to install and maintain sanitary sewage pumpouts for use by recreational boaters, and also increased funding available for improving boating access facilities. Also, in 1998, the Boating Infrastructure Grant Program was enacted. It funds grants to States and the private sector to provide docks and other boating infrastructure for non-trailerable boats. Congress also further enhanced boating safety programs, increased funds available for boating access, captured more gas tax for use by the program, and created and funded the National Outreach and Communications program. The most recent major enhancements to the program occurred in 2005, when Congress expanded the Sport Fish fund by approximately $110 million by capturing all remaining fuel taxes attributable to motorboat and small engine use that was being diverted for other purposes. (American Sportfishing Association; National Marine Manufacturer's Association, 2005).

Case Studies: Examples of benefits to the angling and boating public

Sport fishing is serious business in Florida and, as so many anglers attest, when it comes to sport fishing, the largemouth bass reigns supreme. Largemouth bass, the Florida subspecies, grows faster and larger than its bass cousins elsewhere. Therefore, it puts up quite a fight and poses a greater challenge to anglers.

In 2002, the Florida Fish and Wildlife Conservation Commission started planning to transform an old hatchery, the Richloam State Fish Hatchery, into a modern state-of-the-art rearing facility. Five years later, the state unveiled the Florida Bass Conservation Center (FBCC) with a mission "to conduct and utilize essential research to optimize production, stocking and recruitment of Florida largemouth bass to facilitate integrated conservation management of Florida's freshwater fisheries resources."

A significant portion of the project was funded through the Sport Fish Restoration program and came from revenues collected from a special excise tax on fishing tackle and motorboat fuels. In essence, it is the anglers who so enjoy Florida's waters who pay for the upkeep of those very waters - and the FBCC promises great returns on their investment. Today, the FBCC is the state's major freshwater fish production hatchery, supplying largemouth bass and other fish

such as crappie, catfish, bream, triploid grass carp, striped bass, and sunshine bass. Thanks to the Center, Florida anglers still enjoy their stature as members of the "Fishing Capital of the World," as they wrestle to reel in home-grown trophies.

Angling skills passed on to a new generation. Credit:USFWS/Lori Bennett

Aquatic resources education in Minnesota helps develop future conservationists

Minnesota has a rich fishing heritage, with more than two million people fishing its waters and contributing approximately $2 billion each year to the state's economy. Recognizing that recreational fishing and hunting can create strong connections to the environment, the Minnesota Department of Natural Resources (DNR) developed the Fishing: Get in the Habitat! MinnAqua Leader's Guide for use by educators in formal and non-formal educational settings. The guide aims to increase students' understanding of Minnesota fish, aquatic resources, and resource management; involve students in water-related service learning projects; and connect students to their local aquatic resources through the recreational activity of angling. Lessons and activities provide angling and environmental education opportunities for schools, web-based education programs, non-traditional schools, community park and recreation programs, youth program leaders, nature centers, museums, sporting groups, environmental learning centers, state agencies, watershed districts, fisheries resources and management educators, and any organization conducting academic, standards based, science, outdoor, environmental, natural resources, conservation and/or outdoor recreational education programming for children. The program accommodates multiple learning styles through the differentiation and diversity of lesson activities.

Through funding from the Sport Fish Restoration Program, Minnesota and other States are actively engaging the public in order to raise awareness of the importance of conserving our nation's aquatic resources.

Boating Access: Recovering from Disaster

In September, 2003, Hurricane Isabel roared up the Chesapeake Bay leaving havoc in its wake. One of the casualties it left behind was the boating access facility on the York River in Gloucester Point, Virginia. The facility, which was 90 percent destroyed, had been a key point of access for recreational boaters and anglers for not only the York River but also the wide-open waters of the lower Chesapeake Bay. However, thanks to core funding of $685,282 from the Sport Fish Restoration funds matched with $228,428 from other sources, a $913,710 facility was constructed and was ready for the 2006 prime boating season. Two accessible piers were constructed as well as a 9,237 square yard parking lot capable of handling 69 car/trailer combinations. Other amenities including restroom facilities and walkways – all handicapped accessible – were added. To protect the environment, erosion and sediment control devices were installed and sensitive submerged aquatic vegetation established. "Most weekends, the facility is filled to capacity," said James Adams of the Virginia Department of Game and Inland Fisheries, "and during certain fish migration times the facility is filled to capacity for several weeks at a time." The Boating Access provisions included in the 1984 Wallop-Breaux legislation made this and other boating access projects possible.

Access for Transient Boaters: Boating Infrastructure Grant Program

When the Tennessee Wildlife Resources Agency started talking about a water trail through the state in 1999, it was not thinking about canoes, kayaks and cartop boats. It was thinking big, as in 800 miles of designated rivers and waterways; big, as in accommodating vessels up to 100 feet and longer; and BIG, as in the federal Boating Infrastructure Grant (BIG) program. After a series of BIG-funded projects along its route, to build dedicated transient facilities for cruisers, the agency declared the Tennessee Boating Trail complete. Seven BIG-funded projects built in partnership with private marinas, state parks and municipal governments in Tennessee helped create the water trail. With a total of eleven BIG-funded transient projects on the Tennessee and Cumberland rivers now complementing the commercial marinas already available, boaters have tie-up facilities that are never more than an easy day cruise apart--about six hours, maximum, at typical trawler cruising speeds. These BIG projects are at a major crossroads for boaters cruising the Great Loop—the increasingly popular water route around the entire eastern United States via inland rivers, the Gulf of Mexico and Atlantic Ocean, major coastal tributaries, and the Great Lakes—and provide critical boating facilities along the way.

Posters and postcard images designed by USFWS to convey WSFR program benefits and partners. Credit: RBFF

Clean water needed: Clean Vessel Act Protects Alaska's Coastal Waters

Juneau, Alaska's Aurora Harbor marina faced a dilemma common to many other marinas in the United States. Pumpout equipment had been installed in years past; however, its location on the fuel dock meant that boats only used the service when re-fueling. Often, boaters not needing fuel either were reluctant to occupy that space or did not want to wait for access to the pumpout.

Using a $100,000 Clean Vessel Act grant, Juneau installed a new system powered by a single pump, which provided five new connections along the harbor's main float, every 140 feet. Today, boat owners with assigned slips near the main float are able to pump out their holding tanks without ever leaving their slips. Other boaters, including transients, are able to temporarily moor in specially designated zones to service their holding tanks without blocking the fuel dock or other boats. With installation of the new pumpout equipment at the new location, boaters can properly dispose of their sewage, thereby reducing discharge of untreated sewage into Alaska's coastal waters.

A Successful and On-Going Legacy

All Americans have reason to celebrate the 75th anniversary of the Wildlife and Sport Fish Restoration Program. Since passage of the original legislation to expand funding for the Sport Fish Restoration Program and subsequent program revisions, funding apportioned to the States for the program has grown from roughly $35 million in 1985 to more than $400 million in 2009. Critical not only to the future of aquatic resource conservation, the funding also supports improved recreational opportunities for boaters and anglers. Programs like CVA, BIG and Boating Access have provided real benefits to the angling and boating public through the installation of approximately 3,800 coastal pumpout facilities and more than 2,200 inland pumpout facilities. Some 3,500 facilities have been maintained through the CVA program to ensure boaters can do their part to maintain clean water. Since the inception of the Boating Access provisions of the Sport Fish Restoration Program, new boating access construction has taken place at more than 3,800 sites and renovation or improvement of boating access at more than 7,400 sites.

By uniting the economic resources generated by the recreational endeavors, conservation leaders such as John Breaux, Malcolm Wallop and Gil Radonski created a conservation legacy that is still paying dividends to not only anglers and boaters, but to the entire American public.

Valuing the Benefits of Wildlife

Anna Harris, Economist
U.S. Fish and Wildlife Service

During the 19th Century, America saw a dramatic demographic shift. In 1820 only 5 percent of the U.S. population resided in urban areas; by the late 1800s, it exceeded 20 percent, and some feared America was losing her pioneering spirit and becoming too urban. With the onset of this migration, resource exploitation of America's wildlife created a catalyst for conservation, as described in detail throughout this publication.

A Total Valuation Framework for Wildlife

Economists usually value wildlife resources from the point of view of society as a whole. Economic value is determined in terms of maximum willingness to pay or minimum compensation demanded. Recreational expenditures can be used to understand local economic impacts, but these, alone, are not a satisfactory measure of the economic value of wildlife to society as a whole.

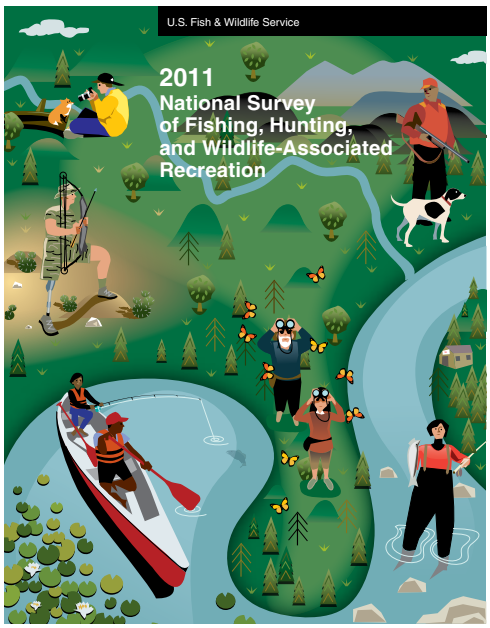
To calculate the total economic value of outdoor recreation, economists measure both "use values" and "nonuse values." Use values are generated when management decisions affect the enjoyment people get from current use of wildlife and include direct as well as indirect use. Direct use values include activities such as hunting, fishing and wildlife observation; indirect use considers personal enjoyment of wildlife without direct interaction such as reading a book about wildlife.

Nonuse values are generated when management decisions affect possibilities for future use and consist of existence, option, and bequest values. Existence values are the benefits people receive from just knowing a resource exists, although they may not actually experience it first-hand, such as, protecting an endangered species in the Arctic. Option values include not only the availability of wildlife for current use but also its continued availability for future use. The benefits accrued from preserving natural resources for future generations are known as bequest values.

Total economic value is the sum of all use and nonuse values. Net economic value is measured as participants' "willingness to pay" for outdoor recreation over and above what they actually spend to participate. The benefit to society is the summation of willingness-to-pay across all individuals.

A price is society's way of placing values on the goods it wants to consume. How high the price is depends on how much consumer demand there is for the product and how much of it can be produced at that price. The cost of a recreational trip serves as an implicit price for outdoor recreation since a market price generally does not exist for this type of activity. All other factors being equal, the lower the cost per trip, the more trips recreationists will take. An individual demand curve gives the number of trips a recreationist will take per year for each different cost per trip. A downward sloping demand curve represents marginal willingness to pay per trip and indicates that each additional trip is valued less than the previous trip. By totaling the net economic values of all individuals who participate in an activity, we derive its value to society.

Economists have developed



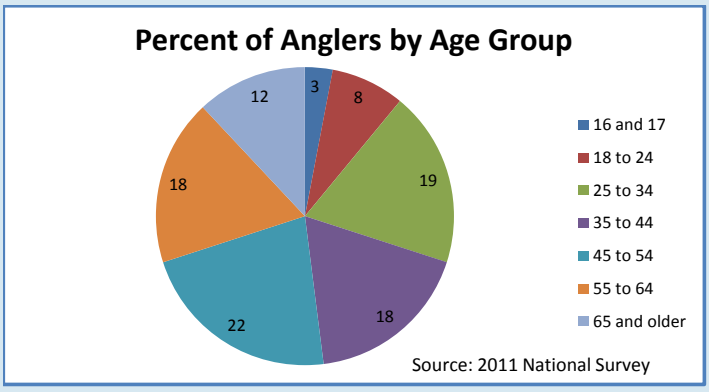
"Wildlife-associated recreation not only sustains our spirit and connects us to each other and the natural world, but also provides significant financial support for wildlife conservation in our nation's economy. According to information from the latest national survey, 90 million Americans, 38 percent of the U.S. population whom are 16 years and older, participated in wildlife-related recreation in 2011 and spent almost $145 billion dollars. This spending supports thousands of jobs in industries and businesses connected to fishing, hunting and the observance of wildlife."

~Dan Ashe, USFWS

QUICK FACTS FROM THE 2011 NATIONAL SURVEY OF FISHING, HUNTING, AND WILDLIFE-ASSOCIATED RECREATION

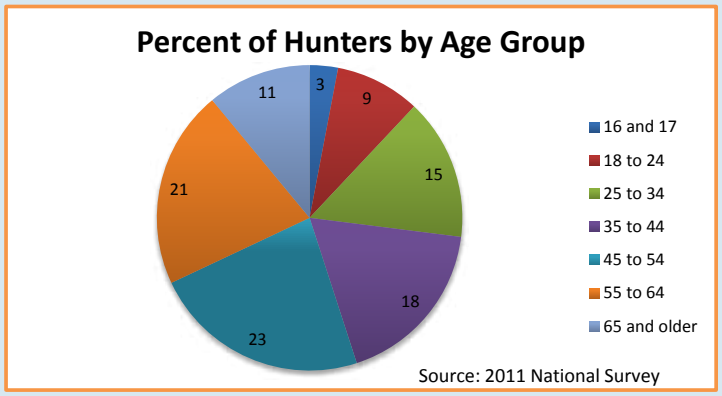
Wildlife-Related Recreationists: 2011
33.1 million anglers
13.7 million hunters
71.8 million wildlife watchers

In 2011, 90.1 million U.S. recreationists spent $145 billion on their fishing, hunting, and wildlife watching (closely observing, feeding, and photographing wildlife).



Anglers Pursing Selected Fish by Type of Fishing (Numbers in millions)

Fish sought	Number of anglers	Percent
Anglers, total	**33.1**	**100**
Freshwater except Great Lakes	**27.1**	**82**
Black bass	10.6	32
Panfish	7.3	22
Trout	7.2	22
Catfish/bullhead	7.0	21
Great Lakes	**1.7**	**5**
Walleye, sauger	0.6	2
Black bass (largemouth)	0.6	2
Perch	0.5	2
Salmon	0.4	1
Saltwater	**8.9**	**27**
Striped bass	2.1	6
Flatfish (flounder, halibut)	2.0	6
Red drum (redfish)	1.5	5
Sea trout (weakfish)	1.1	3



Hunters Pursuing Selected Game by Type of Hunting (Numbers in millions)

Game sought	Number of hunters	Percent
Hunters, total	**13.7**	**100**
Big game	**11.6**	**85**
Deer	10.9	79
Wild turkey	3.1	23
Elk	0.9	6
Bear	0.5	4
Small game	**4.5**	**33**
Squirrel	1.7	12
Rabbit, hare	1.5	11
Pheasant	1.5	11
Quail	0.8	6
Migratory birds	**2.6**	**19**
Ducks	1.4	10
Doves	1.3	9
Geese	0.8	6

stated preference techniques to assess participants' "willingness to pay" for outdoor recreation. The demand curve approach uses both expressed preference methods and revealed preference methods to find the maximum amount a person would be willing to pay for a service. The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, conducted for the U.S. Fish and Wildlife Service by the U.S. Census Bureau, asks contingent valuation questions to find an individual's "willingness to pay" for participation in outdoor recreation.

Contingent valuation is one technique widely used to measure user values. The National Survey asked anglers, hunters and wildlife watchers about the number of recreational trips taken in 2006 and the average cost per trip. Respondents were then asked how much money would have been too much to pay per trip. This question, in a different form, was asked again in case there had been a misunderstanding. Assuming a linear demand curve, annual net economic value can be calculated using the difference between current cost and the maximum costs at the intercept, (i.e. the "choke price") in combination with the number of recreational trips taken. Contingent valuation data from the National Survey are studied only to determine use values and do not measure non-use values.

Public Use Values for Wildlife and Sport Fish Restoration Projects

The net economic benefits of wildlife-related recreation vary considerably depending on the particular site and the activity involved. Wildlife-recreationists differ widely according to income, activity, skill, knowledge, and other personal factors. Even the places we decide to explore differ in location, scenery, time of year, accessibility, and other factors. To approximate the likely range of user values for each of the following examples, use estimates derived from similar activities in the same state are applied. The $14 billion, approximately $25 billion 2012 dollars, (See Apportionment Data, Appendix) spent on restoration and management does not entirely reflect the national economic benefits of wildlife management attributable to the 75-year-old Wildlife and Sport Fish Restoration Program. Although it is not possible to put a value on all the wildlife restoration projects funded in part by WSFR monies, a representative sample demonstrates the program's success.

Big Game Hunting: Crex Meadows Wildlife Management Area, Wisconsin

Crex Meadows, at 30,000 acres, is one of the largest state-owned wildlife areas in Wisconsin. Originally part of the Wisconsin Pine Barrens, Crex is now the state's largest remaining portion of this sensitive savanna community. As a result of intense wetland and prairie restoration practices, 22 miles of dikes now flood 6,000 acres of marsh. Extensive prescribed burning is conducted annually for habitat improvement. Today, more than 9,000 sandhill cranes use Crex as a staging area and thousands of ducks and geese are visible during the fall migration. Home to some 270 species of birds, including threatened and endangered species, Crex Meadows is a hub of biodiversity.

Purchases for the prairie and marshland began in 1945. At present, Wisconsin DNR owns 28,019 acres of the 31,094 acres proposed to create Crex. Pittman-Robertson funds helped leverage the effort; the average annual cost of acquisition, habitat development, maintenance, and general operations was approximately $1.9 million (2009 dollars). The state matched these expenditures with an additional 25 percent.

Twenty-five percent of all visitors come to Crex to hunt or trap deer, bear, waterfowl, and a variety of small game. In Wisconsin, the average deer hunter spends $28 per day on trip-related expenditures including food, lodging, and transportation. Each year, on opening day for white-tail deer at Crex, about 550 hunters take to the field. In 2009, deer hunters spent an estimated $15,400 in trip-related expenditures.

Sandhill cranes are just one of the migratory bird species found at Crex Meadows. Credit: NEBRASKAland Magazine/Nebraska Game and Parks Commission

Along with deer, Crex offers

Today, more than 7 million birds thrive throughout North America, thanks to the efforts of conservation partners. Credit: NEBRASKAland Magazine/Nebraska Game and Parks Commission

some of Wisconsin's best bear and waterfowl hunting. Estimated net economic benefits for hunting in 2009 at Crex totaled nearly $2.6 million, based on a value per day of $87. The benefits accrued from just 25 percent of wildlife-recreationists at Crex demonstrate the powerful economic effect wildlife recreation can have on an area in a single year with minimal investment.

Wild Turkeys: Georgia

North America's wild turkey population was nearly extirpated in the early 1900s due to habitat degradation and unregulated market hunting. As recently as 1973, Georgia's estimated wild turkey populations numbered only 17,000 birds. That same year, Georgia DNR began an intensive turkey restocking program. Concluding in 1996, the program has restored the bird to most of its original range, with the population now numbered at some 300,000 birds. In 1980, the average annual cost of the restoration program was about $80,000, of which approximately $48,000 each year was financed by Pittman-Robertson funds.

Hunters in Georgia bagged 27,323 turkeys in 2009 during 1.2 million hunting days. Using average daily expenditures for food, lodging, transportation, and fees for Georgia hunters, it is estimated that hunters seeking wild turkey spent about $31 million (in 2009 dollars).

Contingent valuation estimates were not available for wild turkey per se, but turkey (and deer) is considered big game in the 2006 Survey. Contingent value estimates for deer hunting is about

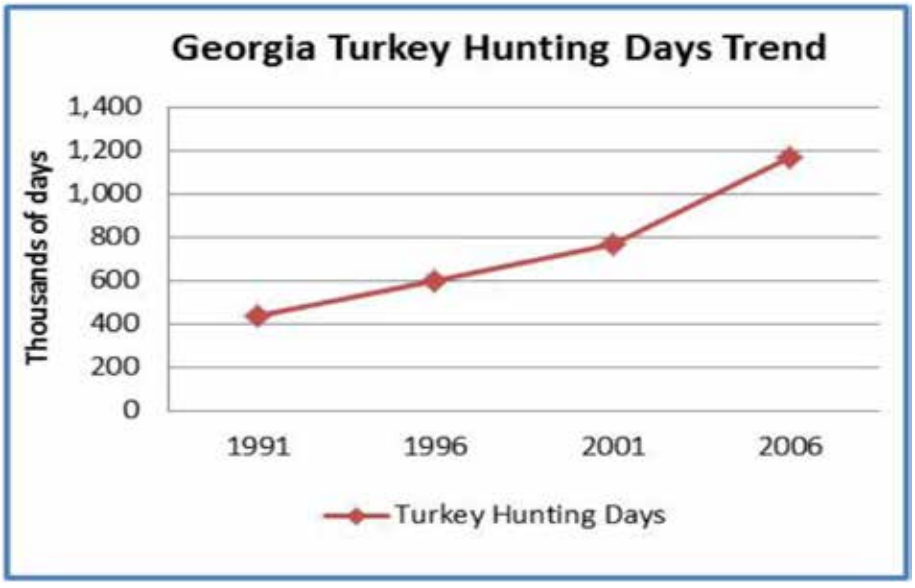


Figure 1

$58 per day (2009 dollars) for Georgia state residents and $63 for non-residents (2009 dollars). Using a value of $61 per day gives estimated net economic benefits of hunting wild turkeys in Georgia in 2009 of about $70.1 million.

It is an interesting aside that turkey hunting is increasing in popularity at a time when participation in most other forms of hunting is decreasing. Figure 1 demonstrates the significant increase in the number of days hunters in Georgia sought wild turkey. The relationship of estimated benefits to costs of this program is remarkable. The dollars used for restoration over the entire life of the turkey restoration program are far less than the net economic benefits of hunting wild turkeys in Georgia in 2009 alone.

Waterfowl Hunting: Fountain Grove Conservation Area, Missouri

Fountain Grove Conservation Area was the first wetland management area developed by the Missouri Conservation Commission. It is an important migration stop for a variety of wildlife. Sitting in the floodplain of the Grand River, Pittman-Robertson funds assisted in the purchase of the initial 3,433 acres in 1947 for $6.2 million (2011 dollars). As a result of extensive clearing, draining, and cultivation of surrounding wetlands, Fountain Grove gradually deteriorated into a silting basin for increasingly constricted river flows, significantly degrading the wetlands. In view of declining duck populations and other considerations in 1960, the Missouri Conservation Commission decided to develop the area primarily as goose habitat. Acquisitions have expanded the management area to its present size of 7,154 acres.

There are significant public uses of Fountain Grove for a variety of outdoor recreation activities. The area is managed to provide diverse wetland habitats, including marshes, bottomland forests, grain fields, oxbow lakes, and sloughs. Throughout the winter, bald eagles are commonly observed. Since its inception, waterfowl hunting has also been an important activity at Fountain Grove. Goose hunting for Canada, White-fronted and snow geese continues to be a popular pastime in north central Missouri.

Hunters bagged an average of 1.29 Canada geese per day during the month-long prescribed waterfowl season in 2011. More than 1,700 hunters visited Fountain Grove Conservation Area during the regular duck season, spending a total of about $95,000.

The National Survey no longer determines contingent valuation estimates for waterfowl hunting. However, these questions were asked in the 1985 Survey and, adjusting for inflation, the data gathered gives an estimated net economic benefit for waterfowl hunting at Fountain Grove in 2011 of $82,156, based on a value of $46 per day.

Waterfowl hunting is one example of the difficulty in isolating the benefits of a single project from other national wildlife management efforts. Visitors to Fountain Grove and similar sites enjoy the benefits of wildlife management projects in distant locations that provide habitat and food for migratory populations. Some of the benefits of investments at Fountain Grove really belong to other projects elsewhere, but some of the costs at Fountain Grove are offset as well by benefits at other sites.

Nonconsumptive Uses: Swan Island Wildlife Management Area, Maine

Swan Island is one of only two state-owned wildlife management areas in Maine where camping is allowed and education programs are provided for visitors. Abundant migrating waterfowl, wild turkeys, white-tailed deer, and bald eagles provide excellent wildlife watching opportunities on the Island. In the 1940s the Department of Inland Fisheries and Wildlife, through the use of Pittman-Robertson funds, began buying Swan Island farms.

Despite widespread drought, USFWS reported record numbers of waterfowl with an estimated population totaling 48.6 million in spring 2012 in the traditional survey areas. Credit: Virginia Department of Game and Inland Fisheries

Since becoming state operated, Swan Island's existing township remains relatively unaltered. In fact, a number of the original buildings still stand and, in 1995, the Maine Historic Preservation Commission successfully had Swan Island listed on the National Register of Historic Places.

Each year, from the first day of May through Labor Day in

September, some 3,000 to 4,000 visitors come to Swan Island. Annual revenue from public use fees have ranged from a low of $5,000 to a high of $18,000. In 2009, the operating cost was approximately

Credit: Missouri Department of Natural Resources

$96,500, with about $16,700 received in visitor fees.

Wildlife observation is the major recreational use on Swan Island. With an average of 3,500 visitors in 2009, the value of Swan Island for wildlife-associated recreation is $336,000, based on a value per year of $90. Swan Island's operating costs are about a quarter of the net economic benefits of wildlife observation.

Fishing and Nonconsumptive Uses: Skagit Wildlife Management Area, Washington

The Skagit Wildlife Management Area is located on the Skagit Bay estuary and consists of 16,700 acres of intertidal mud flats and marsh. Four hundred and fifty acres are in agricultural food plots for use by waterfowl. Currently, the principal project involves enhancement and restoration of degraded habitats to help threatened Chinook salmon populations recover. The recent federal Endangered Species Act listing of Chinook salmon as threatened in the Skagit watershed is shifting management priorities of the Skagit Wildlife Management Area.

The Skagit River system was once home to one of the largest runs of wild Chinook salmon in Puget Sound. By 1999, however, the number of returning wild spawning spring Chinook had dropped below 500 fish and the National Marine Fisheries Service listed Puget Sound Chinook as "threatened" under the Endangered Species Act.

The major recreation uses of Skagit include waterfowl hunting, fishing, wildlife observation, hiking, boating, and kayaking. Because of its proximity to Seattle and other population centers, the Skagit has become one of the more important publicly-owned wildlife areas in Washington State, with 110,065 use days in 2005.

The land acquisitions for Skagit Wildlife Management Area were made thanks to a variety of funding sources, including $122,000 in Pittman-Robertson funds in the 1950s, as well as land exchange agreements with Bureau of Reclamation, general state funds, and private donations. Currently, 75 percent of operation and maintenance costs are funded with P-R money.

Fishing values have been estimated from the 2006 Survey. Public use for this activity was 8,300 fishing days, with related visitor expenditures of $260,000. Non-consumptive use of the Skagit Wildlife Management Area was nearly 77,350 days in 2005. Total expenditures for wildlife observation, the most prominent non-consumptive use on Skagit, exceeded $1 million.

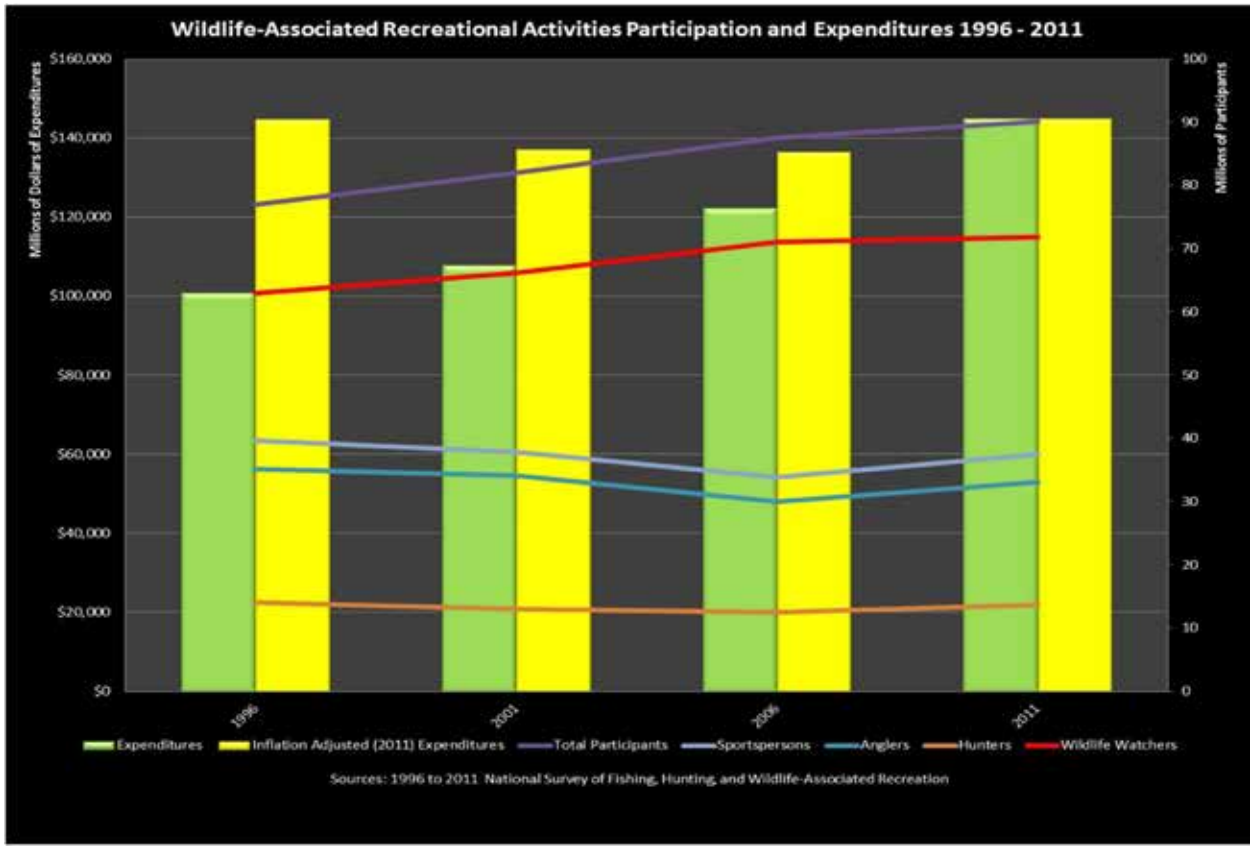
Estimated net economic benefits of trout fishing were $207,500, based on a value per day of $25. It is also possible to estimate the net economic benefits of non-consumptive uses from the 2006 Survey. Wildlife watching yields an estimated $1.9 million in economic benefits, based on a value of $25 per day. Estimated net economic benefits of fishing and non-consumptive use on the Skagit totaled $2.1 million in 2006.

Conclusion

Hunting in Alaska is a dream-come-true for most big game hunters. Bison, one of the last iconic animals of the American West, are legally hunted in certain areas of the State. Each year roughly 15,000 hunters apply for 100 permits, and on average about 74 bison are harvested. The bag limit for residents is one bison every ten years and non-residents may only bag one animal per lifetime. Due to the small number of tags available, combined with the mystical attraction and zeal for the animal, out-of-state hunters are willing to pay upwards of $5,000 for this chance of a lifetime to hunt bison in Alaska.

These examples demonstrate that the benefits from Pittman-Robertson and Dingell-Johnson funded projects have been very large relative to the modest public investments which established and maintain them. Much of the economic impact goes to rural areas, with relatively depressed local economies, so that expenditures of visitors to these areas improve the distribution of economic activity in the nation as a whole.

The examples discussed in this section represent typical wildlife management program use values and benefits. There are instances, such as bison hunting in Alaska, which demonstrate dramatic success stories. Because of the number of visitors to these sites, the total annual benefits of wildlife-related recreation are quite large relative to costs in each case. It's important to keep in mind that we only quantified part of the public use benefits in each area, and have done nothing with existence, option and bequest values. Some studies



have estimated these non-user values at roughly twice the size of user values. If this is true, then our traditional emphasis on hunting-related expenditures and user values may have led to gross understatements of the actual value of wildlife resources to the Nation.

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The 2011 Survey estimates that over 17% of the 71.8 million wildlife watchers participated in away-from-home wildlife photography. Credit: Christina Triantafilidis

Reliable Funding Source Benefits America's Sport Fisheries

Don Gabelhouse, Fisheries Administrator
Nebraska Game and Parks Commission

Today, 62 years after legislation was passed to create the Dingell-Johnson program, state fish and wildlife agencies are accustomed to receiving DJ/Wallop-Breaux Sport Fish Restoration (SFR) apportionments. We probably take the program for granted, because it has been a constant, reliable funding source for more than 60 years. Perhaps the best way to portray the importance of the SFR program to state fish and wildlife agencies is to imagine what our programs might look like today without it, and consider all of the great things that would not have been accomplished if these funds were not available.

Without the SFR program, we would be looking at significantly smaller state agency budgets. A survey of state fish and wildlife agencies in 2001 found that SFR funding constituted an average of 44 percent of inland fisheries program expenditures in the 41 states responding (Gabelhouse 2005). This percentage ranged from 11 percent in Missouri to 75 percent in Hawaii, Indiana, Nevada, New Mexico, North Dakota, Oklahoma, and Texas. The face of fisheries management would look far different today in most states, without the SFR program. Your state's 1950 guide to fishing regulations will remind you about what fisheries management amounted to before the DJ program began.

How many of the differences between then and now are due to advances made possible because of the SFR program? Perhaps most importantly, the DJ program provided the resources that allowed state fish and wildlife agencies to hire more employees, including college graduates. For example, in Wyoming, fishery management crews were employed to conduct watershed surveys to measure species' distributions and abundance to reduce the need for fish stocking (Wiley 1995).

To see some of the best projects achieved across the country using SFR funding, one only has to examine the Outstanding SFR awards presented annually by the Fisheries Administration Section of the American Fisheries Society. Winners constitute a "Who's Who" list of innovation, creativity, and application in fisheries management and development, research and surveys, and aquatic education using SFR funds.

SFR funds are used to support a wide variety of programs, projects, and activities, but there are some standard uses of the funds that occur in most states. Many states have been able to build and operate new state-of-the-art fish hatcheries because of SFR funding. All states use SFR funds to monitor fish populations and assess how management practices influence their recruitment, growth, and mortality. Studies of human influences on fish populations, particularly angling, are also important SFR-funded activities, typically evaluated through angler creel surveys. Data collected are used to implement and evaluate regulations, establish harvest quotas, and document constituent demographics, behaviors, and opinions.

Property has been purchased or leased, developed, operated, and maintained with SFR funds, and aquatic habitat has been preserved, restored, and enhanced in both marine and freshwater environments. Man-made impoundments have been built, including fish-friendly features, thanks to the SFR program, and angling and boating access have been established and improved.

Since 1950, a 10% excise tax on sport fishing equipment has helped fund America's fisheries. Credit: NEBRASKAland Magazine/Nebraska Game and Parks Comission

Although most of the research conducted with SFR funding is applied, information generated from basic research on fish life history, behavior, genetics, and ecology is sometimes required to manage fish populations effectively. Such research would often not be accomplished if funding were limited to just fishing license/permit revenues.

Credit: Missiouri Department of Natural Resources.

Lake Wanahoo, a Lower Platte North Resource District reservoir near Wahoo Lake nearly full with construction underway on recreation facilities. (Grant # NE F162B) Credit: NEBRASKAland Magazine/Nebraska Game and Parks Commission

Brenda Pracheil, biologist, scans the rostrum of a paddlefish netted below Fort Randall Dam to determine if it contained an electronic tag identifying it as a hatchery-raised fish. Credit: NEBRASKAland Magazine/Nebraska Game and Parks Commission

While the SFR program provides up to 75 percent of project costs, the 25 percent non-federal match can be an important obstacle for some state fisheries programs. A significant decrease in the numbers of anglers will impact the amount of revenue available from fishing license and permit sales. Given the dependence most state fisheries programs have on those funds, it is sometimes daunting for a state to achieve its matching funds requirement in order to fund all that could or should be done, if the state lacks the necessary operating budget.

Today, as is the case with many other underfunded programs, it often takes partnerships for SFR to be completely effective. Needed work can still be accomplished despite austere state budgets if non-federal partners are willing to provide the matching funds. Additionally, SFR program support may be even more important in the future if angler numbers continue to decline and revenue from fishing licenses and permits does not keep pace with inflation.

Twenty years ago, outreach, marketing, and promotion were not considered important components of most state fisheries programs; rather, the "build it and they will come" philosophy prevailed. Today, considerable effort is directed toward understanding, communicating with, educating, influencing, recruiting, developing, and retaining anglers and other constituents. SFR funding helps pay for many of these efforts.

As we continue to face new challenges, such as the appearance of new aquatic invasive species, habitat fragmentation, global climate change, and ever-increasing competition for water, funding through the SFR program remains vital. To maintain this program, as well as our base funding, we need to do a better job of communicating how our work, with help from the SFR program, not only benefits American fisheries, but also our quality of life.

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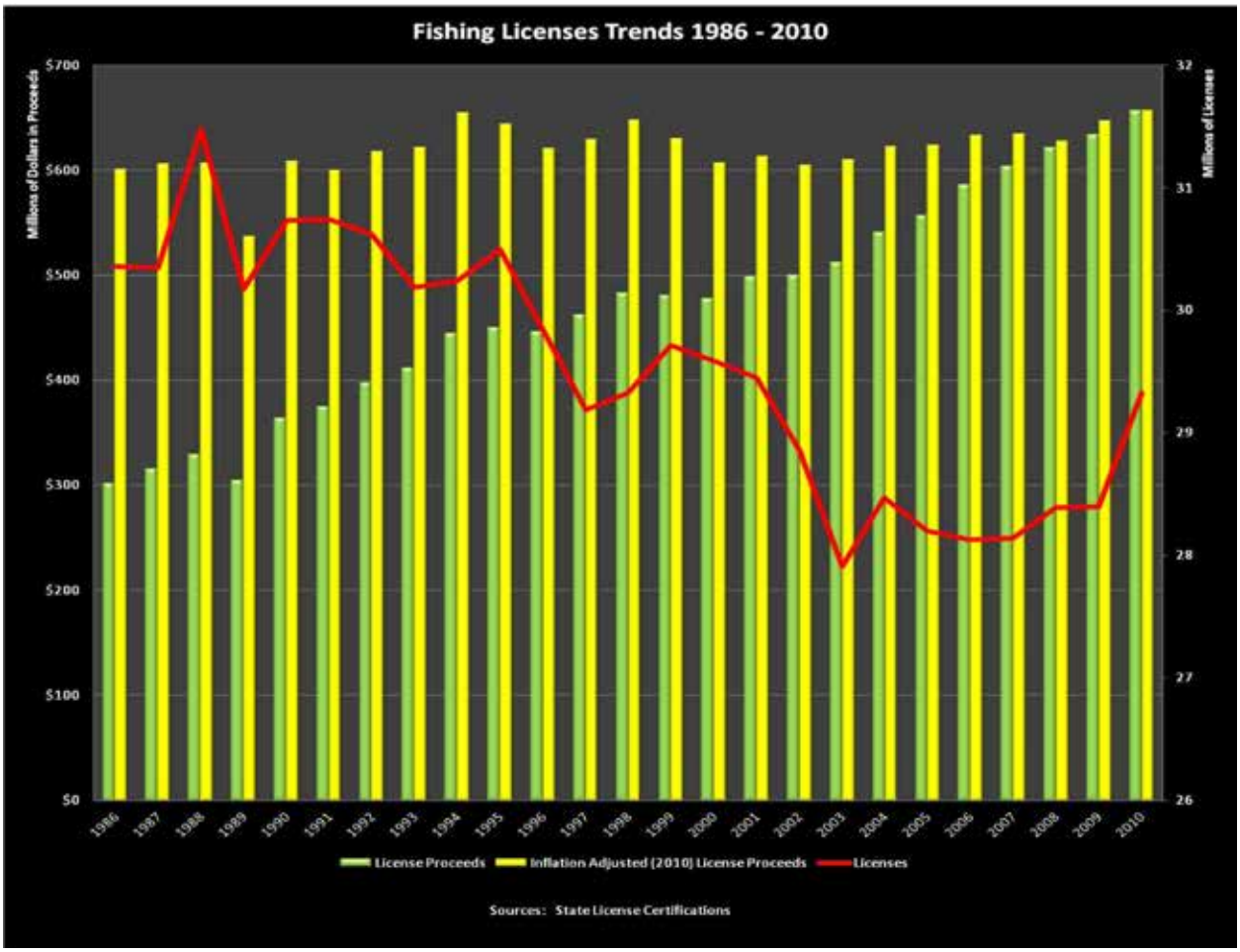
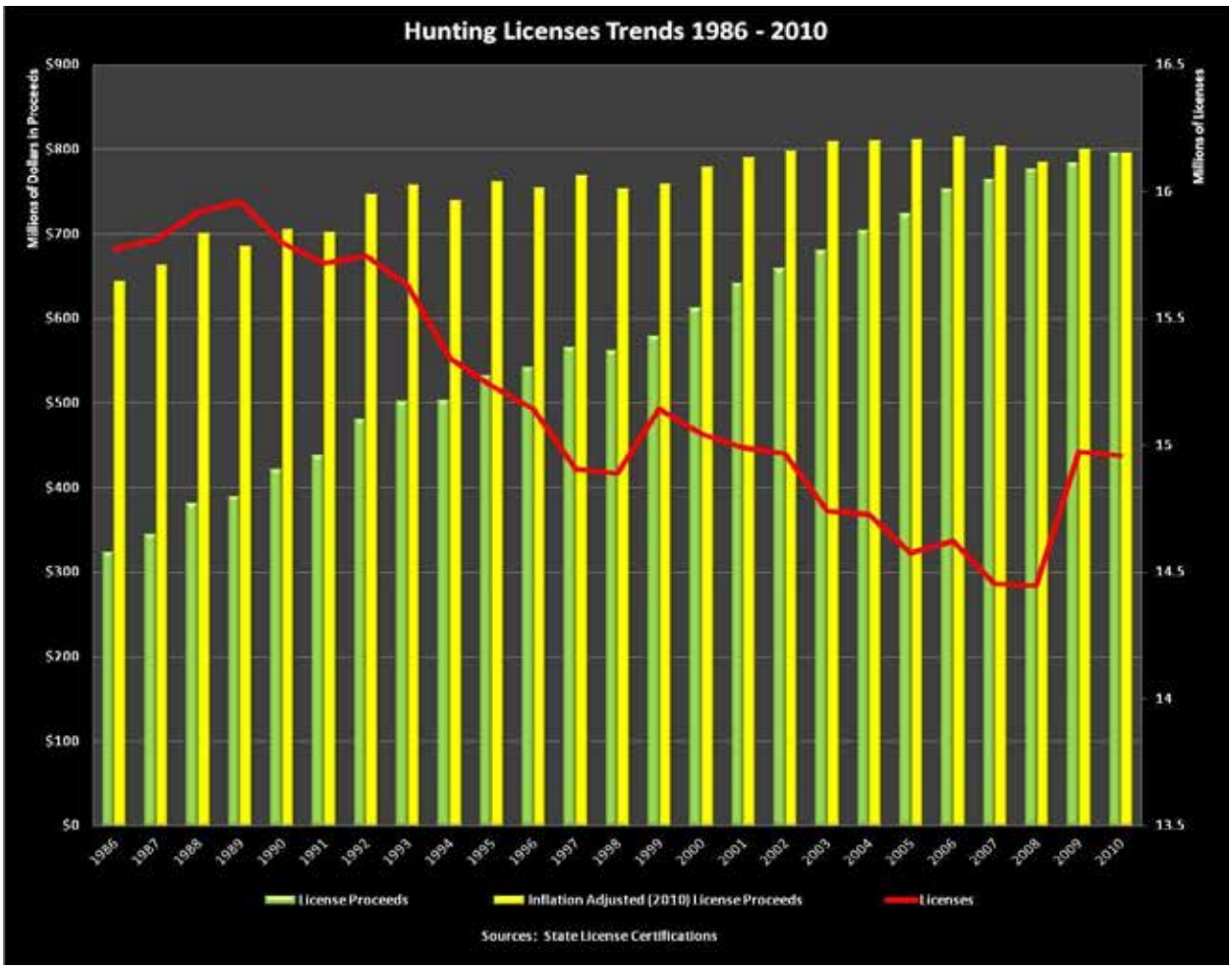

Fishing Licenses Trends 1986 - 2010
Millions of Dollars in Proceeds
Millions of Licenses
$700
$600
$500
$400
$300
$200
$100
$0
32
31
30
29
28
27
26
1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
License Proceeds
Inflation Adjusted (2010) License Proceeds
Licenses
Sources: State License Certifications


Hunting Licenses Trends 1986 - 2010
Millions of Dollars in Proceeds
Millions of Licenses
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$800
$700
$600
$500
$400
$300
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$100
$0
16.5
16
15.5
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14.5
14
13.5
1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
License Proceeds
Inflation Adjusted (2010) License Proceeds
Licenses
Sources: State License Certifications

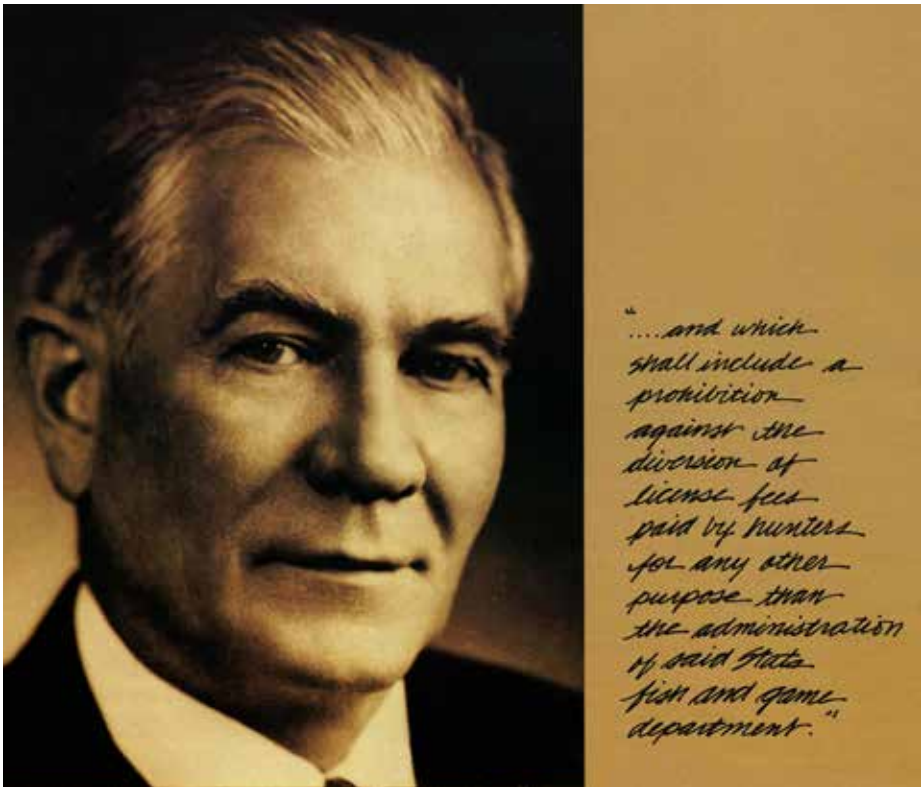
Preserving Virginia's Wild Heritage

Virginia Shepherd (Retired)
Virginia Department of Game and Inland Fisheries

In 1929, A. Willis Robertson, the beleaguered chairman of the Virginia Commission of Game and Inland Fisheries wrote:

"Anyone who has an idea that a public job is a bed of roses should just lie on it for a few months and he will soon find that the thorns are more prominent than the perfume."

These words undoubtedly echoed the frustration felt by his fellow state fish and wildlife commissioners across the country in the early 1930s. Though charged to protect their state's wildlife legacy, fish and game agencies were—without exception—underfunded, understaffed, and politically controlled. Most relied on hunting and fishing license fees as the chief source of income to carry out enormous responsibilities; however, these funds were sorely inadequate and perpetually threatened by cash-strapped state legislatures.



Robertson's twenty-nine words heard around the conservation world. Credit: Virginia Department of Game and Inland Fisheries.

Simply put, state fish and wildlife agencies alone could not rescue the country's imperiled fish and wildlife resources. The science of wildlife management was in its infancy. Even the most basic understanding of populations, life histories, habitat requirements, and species interactions was patchy at best— and grossly flawed at worst. The Cooperative Wildlife Research Unit Program, providing academic training in professional wildlife management, would not be established until 1935. No state agency had the funds, the knowledge, or trained personnel to effectively restore and manage its own fish and wildlife populations.

Virtually the only management tools fish and wildlife agencies had at their disposal were the setting of hunting seasons, bag limits, and methods of hunting. But even these were used as political tools, wielded by state legislators and carried out by ill-equipped, politically-appointed game wardens more concerned with ferrying voters to the polls than enforcing hunting and fishing regulations.

In December of 1931, after five frustrating years as head of Virginia's fish and game agency, A. Willis Robertson wrote to his politically-appointed Commission board members:

"Frankly, I cannot point with any degree of pride to a substantial increase in either game or fish during the past 5 years of our administration…Unless, therefore, our Commission looks these facts squarely in the eye and develops some way of increasing the supply of wild life without reducing the shooting privilege to the point where the average hunter will quit in disgust, our administration of this natural resource is going to be regarded as a failure."

It took six more years for that way to be found—and it would happen on a national scale, breaking new ground as the most ambitious initiative ever launched to save America's fish and wildlife legacy. The initiative mapped out a federal-state matching program, whereby federal monies would be matched with state funds on a 3:1 basis. Robertson

seized the opportunity to use his experiences in Virginia to add a provision to the bill, requiring states to enact laws prohibiting the diversion of hunting license revenue from fish and game

Virginia DGIF personnel rekease deer purchased from other states. Credit: Virginia Department of Game and Inland Fisheries

agency coffers. With a mere 29 words, Robertson ensured that a sustained and politically untouchable source of funding would be available for long-term wildlife restoration. Seventy-five years later, the Federal Aid in Wildlife Restoration (Pittman-Robertson) Program has proven its worth as the nation's most effective tool used to restore and sustain the nation's fish and wildlife legacy.

Once passed, the Pittman-Robertson (P-R) Program immediately began to provide states the matching funds necessary to launch legitimate wildlife restoration work. Virginia's Department of Game and Inland Fisheries (DGIF), like other states, first looked to restore depleted wildlife populations. Its White-tailed deer population had decreased statewide from an estimated 400,000 animals to a mere 25,000. Using P-R funds, Virginia purchased adult deer from North Carolina, Pennsylvania, Michigan, Wisconsin, and Alabama and released the animals into suitable habitat. So significant was the success of these restoration efforts that from 1930 to 1957, Virginia's deer harvest rose from 1,299 to a record 22,473. Today, the state boasts an annual harvest of 231,000 and a deer population of one million animals.

By the 1940s, support from the P-R program allowed Virginia to focus on long-range wildlife research projects, habitat restoration, education, and technical assistance to landowners. P-R funds supported the first-ever comprehensive study of wild turkey, published in 1943 by Henry S. Mosby at Virginia Tech. This landmark achievement in the field of wildlife management set the stage for the restoration of wild turkey populations nationwide. The cannon-projected net trap, originally developed for waterfowl in Missouri in 1948 by H.H. Dill and W. H. Thornsbery, gave Eastern turkey biologists the tool they needed to put their knowledge to work. Using this technology, Virginia embarked upon a 40-year effort to restore turkeys into suitable habitat around the state. During this time approximately 900 turkeys were trapped and relocated, and today Virginia turkey hunters enjoy their sport in every county in the state. An estimated population of some 150,000 birds supports both a spring and fall season of 60,000-70,000 hunters.

At the same time newly-trained biologists were working to restore wildlife populations in Virginia, the number of hunters and anglers taking to the woods nationwide skyrocketed. In the 1950s, hunting and fishing revenue in Virginia alone doubled from $1 million to $2 million, and the number of hunters and anglers increased from 400,000 to nearly 1,000,000 in a single decade. The P-R program allowed DGIF to respond to the surge in demand for hunting and fishing opportunities by purchasing 45,000 acres of public hunting and fishing lands, increasing office and field personnel, and providing technical assistance to improve wildlife habitat on more than one million acres of private land. By 1976, DGIF was managing nearly 2 million acres of land either owned directly or managed cooperatively. More than half of the land owned by DGIF was purchased with P-R dollars.

The research necessary for effective "on-the-ground" habitat and wildlife work has been a high priority for P-R funding. In Virginia, every category of wildlife has received attention through applied

Relocated turkeys released. Credit: Virginia Department of Game and Inland Fisheries

wildlife research and data collection. In 1947, the State initiated a mandatory big game checking system and the information gathered every year since then has been part of an effort to record important data for evaluating the status of various species of wildlife. The knowledge gained from

PR dollars fund trained biologists and research. Credit: Virginia Department of Game and Inland Fisheries

P-R funded research and surveys provides the basis for hunting and trapping season recommendations made by the Department's staff of professional wildlife biologists.

Not only does the P-R program fund the management of game species, but it has also helped DGIF fulfill its

The PR program benefits many species including the bald eagle. Credit: Virginia Department of Game and Inland Fisheries

mandate to ensure the health of all wildlife in Virginia, including such species as the bald eagle, the Virginia northern flying squirrel, and the piping plover. The P-R program has helped fuel the development of the Department's Wildlife Action Plan, a coordinated driving force for all wildlife conservation efforts across Virginia. It utilizes public and private partnerships to help protect and restore endangered species and sustain healthy populations of common species as well. Further supporting the research arm of Virginia's wildlife program are P-R funded regional projects, including the Southeastern Cooperative Wildlife Disease Study, which provides southeastern wildlife agencies access to resources otherwise unavailable to any single state organization.

In 1970-71, the state's role in hunter education received a substantial boost when the P-R Act was expanded to include the receipts from a ten percent excise tax on handguns and an 11 percent excise tax on the sale of archery equipment. In Virginia, DGIF manages a free, mandatory hunter education program for 12- to 15-year-old children and first-time hunters using a dedicated cadre of more than 900 trained volunteer instructors. Thanks to financial support from the P-R program, these volunteers work with 160 DGIF Conservation Police Officers and train 13,000 students each year. Since 1988, there has been a 25 percent reduction in the rate of hunting-related shooting incidents statewide. In 2007, the program recorded more than 500,000 graduates of the course.

The Federal Aid in Wildlife Restoration Act has proven a remarkable framework to restore and safeguard the future of our nation's fish and wildlife legacy. Undoubtedly, the accomplishments of the program throughout the past 75 years have exceeded the expectations of even the boldest of its early visionaries. However, the responsibility for the health of America's fish and wildlife demands constant vigilance. In Virginia alone, 925 species have been identified as wildlife species of greatest conservation need, and the habitats they live in are threatened by development, fragmentation, and degradation.

Loss of wildlife habitat remains a future concern. Credit: Virginia Department of Game and Inland Fisheries

The challenges we face today are no less daunting than they were 75 years ago. However, since 1937 the Wildlife Restoration Program has provided us with the means to respond to overwhelming odds with boldness, inspiration, and steady, informed action. It is our responsibility to protect the future of our wildlife populations and the integrity of their habitat. Once again, we must figure out a way to do it.

The Educational Realm

Steve Hall, Executive Director
Texas State Rifle Association

Hunter Education
A Pittman-Robertson Success Story

The passage of the Dingell-Hart Amendment (handgun excise taxes) in 1970 and Dingell-Goodling Amendment (archery excise taxes) in 1972 bolstered Federal Aid in Wildlife Restoration (Pittman-Robertson) funds, giving states opportunities to further develop one of the greatest volunteer-led programs in the history of conservation – Hunter Safety Education. The program's main success has been the reduction of hunting accidents by more than two-thirds since the 1950s and 60s. Hunter education also has improved compliance with wildlife regulations and enhanced the overall image of hunters and hunting. Federal Aid and state hunter education personnel have administered hunter education, developed safe target ranges for public access and initiated or provided key assistance to programs such as shooting sports, bow hunter education, youth hunting, archery, and outdoor programs and expositions.

A North American "Conservation Education" Model

A "voluntary hunter safety" program began in 1946 in Kentucky's school and statewide camp programs, using firearm and hunting safety materials such as the "Ten Commandments of Hunting Safety" produced by the National Rifle Association (NRA). Based on high numbers of hunting accidents at that time, as detailed in the Uniform Hunter Casualty Report, New York State kicked off the first "mandatory program" in 1949 and hired the NRA to conduct training and issue hunter certifications. As more states followed suit, the International Association of Fish and Wildlife Agencies (IAFWA) appointed a "Hunter Safety Committee" in 1957, and, in 1966, the NRA hosted the first national "Hunter Safety Coordinators Workshop." This evolution led to the formation in 1972 of the North American Association of Hunter Safety Coordinators (NAAHSC), now known as the International Hunter Education Association or IHEA. It was at this time, in 1970 and 1972, respectively, that Congress passed key amendments to the Pittman-Robertson (P-R) Act, allowing states to fund hunter education programs and develop target ranges as part of their already successful wildlife conservation programs. In 1974, NAAHSC affiliated with the IAFWA, and since then, all 50 states (as well as territories, Canadian provinces and other countries) have passed mandatory laws, requiring hunters of varying age groups to complete hunter education courses prior to purchasing hunting licenses and going afield. Today, IHEA serves as a modern-day clearinghouse for information and caretaker of the hunting accident (incident) database – a role turned over to it by the National Safety Council.

The success of hunter education is one of the hallmark achievements of the Federal Aid in Wildlife Restoration (P-R) Act of 1937. The heartbeat of hunter education is the Volunteer Instructor. Early on, with all of the many duties facing conservation officers (game wardens), fish and wildlife agencies realized they needed help to ensure hunter education and safety courses were widely available. From the ranks of a growing NRA rifle and pistol instructor program, and from conservation and youth organizations, agencies recruited individuals as hunter safety instructors and trained

Hunter education student learns basic shotgun safety and skills in a live firing exercise. Credit: Steve Hall

them to instruct beginning hunters in the basics of safe firearm handling, hunting and shooting practices. Along with the NRA and the National Shooting Sports Foundation, private companies including the Conservation Department of Winchester (Olin Corporation), as early as the 1960s, and Outdoor Empire Publishing and Madison Films, in the 1970s and 1980s, fulfilled the call for student manuals, films and other materials to assist instructors in providing higher quality, standardized training across the United States.

The Wildlife Restoration Program funds hunter education. Credit: Virginia Department of Game and Inland Fisheries

Hunter education teaches students in live-firing, enabling them to learn safe firearm handling techniques, practice good habits, and sight in their hunting firearms. Credit: Steve Hall

Turkey clinic promotes safe hunters. Credit: Dan Lehman/California Department of Fish and Game

Sporting arms and ammunition industries also understood the marketing potential and worked with states to provide live firing and safety equipment, ensuring students would be tested in safe handling techniques and marksmanship skills.

Today, some 50,000 hunter education instructors, many of whom are volunteers or professional educators, teach more than 600,000 students nationwide each year. Hunter education's core mission remains unchanged today: to teach and promote safe, knowledgeable, responsible, and involved actions by shooters and hunters. Its comprehensive objectives include not only promoting safe and legal firearm and hunting practices, but also familiarization with all other sporting arms, marksmanship, field activities, and the role of today's hunter in wildlife conservation. Other objectives include outdoor preparedness and basic hunting responsibilities such as good landowner relations, fair chase principles, taking care of game from "field to the freezer," and the development of sound outdoor values. What has changed is the use of new and ever-changing technologies such as internet study courses, online registration processes, and social media to communicate the importance of hunter education to future hunters.

P-R Provides Funding for Safe Ranges

Hunter education programs received a real boost when P-R funding became available for use to enhance or build target ranges throughout the United States in order to provide accessible, convenient, and safe places where hunter education instructors could teach. People can use these ranges to enjoy the shooting sports, sight in their firearms for hunting seasons, practice, and enjoy friendly competition. They can also learn how to safely and competently shoot their sporting, tactical, military, and historical firearms. P-R funding also supports the building of archery ranges where bow hunters and crossbow users can safely practice their sports.

Some states use their available funding to build and operate their own public ranges, and some provide "third party grants" wherein local communities, clubs, and range owners operate the ranges once they are built or enhanced.

Hunter Education in Texas

In Texas, a voluntary hunter safety program began in 1971 under the direction of Theron D. (T.D.) Carroll of the information and education (I&E) section, mainly to train young Texans needing to comply with nearby Colorado's hunter education requirements. In the early 1980s, assistant, Darrell Holt, was hired to coordinate the program, and he, in turn, appointed I&E specialist, John "J.D." Peer, as his assistant. They began to offer pre-service training workshops to certify volunteers to teach hunter education throughout

Hunter education promotes safe and responsible shooters. Credit: California Department of Fish and Game

Texas, and in-service workshops to improve the quality of instruction. In 1987, "Mandatory Hunter Education" arrived in Texas and subsequent approval and implementation began in June 1988. Steve Hall was appointed hunter education coordinator and hired Terry Erwin as the new assistant.

Due mainly to hunter education, the annual accident rate in Texas of more than 100 injuries and 30 fatalities recorded in the1960s and 70s today averages about 25 injuries and only one to four fatalities per year, most of which were caused by hunters without any hunter education training – either because they were exempt (Texas law applies only to those born on or after September 2, 1971) or because they were found to be in violation of hunter education regulations, the most common citation written by Texas game wardens in the past.

The Texas program continues to serve as a model state program and has garnered many state and national awards for hunter education instruction. It certifies an average of more than 35,000 hunters annually and conducts numerous outreach programs and activities each year. The Texas hunter education program also initiated, or assisted in the development of target ranges, and bow hunter education, mobile sporting clays, Texas Becoming An Outdoors-Woman®, National Archery in Schools Program®, Texas Youth Hunting Program and related programs. Hunter education truly is a conservation legacy program in the Lone Star State!

Aquatic Resource Education

Carl Richardson, Education Program Manager
Pennsylvania Fish and Boat Commission

25 Years of Aquatic Resource Education in Pennsylvania

In 1984, Aquatic Resource Education (ARE) was initiated into law and made eligible for grant funding under the Wallop-Breaux Amendment to the Federal Aid in Sport Fish Restoration Act (SFR). The subjects covered under this provision included aquatic ecology, aquatic resources management, aquatic safety, conservation ethics, public information, and fishing. Moreover, the amendment allowed state fish and wildlife agencies to spend up to 10 percent of their apportionment under SFR for Aquatic Resource Education. In 1998, Public Law 105-178 clearly defined what constituted an aquatic resource education program as "a program designed to enhance the public's understanding of aquatic resources and sportfishing, and to promote the development of responsible attitudes and ethics toward the aquatic environment." This amendment also increased the percentage of funding available to state fish and wildlife agencies from 10 percent for an aquatic resource education program to 15 percent for an aquatic resource education program and outreach and communications program.

All states, the District of Columbia, and insular areas within the United States have ongoing ARE programs. It is up to each state fish and wildlife agency to determine its needs and objectives related to aquatic resource education, and choose whether to use its SFR grant funds for such a program. Not every state has opted to fund its program through SFR funding; however, all recognize the importance of aquatic resource education and have programs to meet the needs of the public. Primarily, states which do not use SFR funding for ARE programs do so because of other priorities related to ongoing fisheries program activities in their state. SFR funds require a 25 percent state match which most states meet with volunteer time (in-kind services) and other contributions. The use of in-kind services and contributions to a state ARE program generally far exceeds the amount necessary to meet the 25 percent match requirement.

The Pennsylvania Fish and Boat Commission (PFBC) is currently in its 24th grant year of Aquatic Resource Education. The program has continued to evolve and adapt to change, including technological, social, academic, and most recently economic changes. However, thanks to Federal Aid funding, and the agency's commitment to education, PFBC has been able to sustain and even grow the program.

While a state may currently spend up to 15 percent of its SFR funds on ARE, Pennsylvania, like many other states, spends 5 percent or less on aquatic resource education. SFR dollars are critical to many other state fisheries programs and they continue to receive the lion's share of the apportionment. Fortunately, the PFBC has invested more than the required 25 percent match in ARE. Prior to recent state budget difficulties, PFBC funding for ARE exceeded Federal Aid dollars. From 1992 through 2011, expenditures increased 360 percent, from approximately $177,000 to $645,000; and, the state share increased 560 percent, from $44,284 to $248,756. Even accounting for inflation over the last 20 years it is obvious that, without dedicated SFR funds, supporting the PFBC ARE program would not have been possible.

The additional funding supported an increase in the number of programs offered and the number of field staff delivering them. Today, the PFBC has 17 different positions assigned to the program and other educational initiatives; a nearly 300 percent increase in staff time is invested in ARE. The growth has translated into some impressive program numbers. Since 1992, more than 10,000 educators have completed an aquatic resources education workshop, and more than 672 fishing skills instructors have been trained. The ARE Program staff has assisted the Pennsylvania Department of Education in the development of academic standards related to aquatic resources and outdoor recreation. Within the last five years, more than 6,000 people have participated in one of

Credit: Jason Scott

PFBC Family Fishing Program reaches diverse populations.
Credits: Pennsylvania Fish and Boat Commission

ARE's Family Fishing Programs. More than 220 school groups in Pennsylvania participate in the Trout in the Classroom program. ARE personnel established 65 fishing tackle loaner sites around the state. And, as part of the Governors' Institute for Teachers, ARE instructors provided graduate-level training in stream ecology to teachers. In order to keep pace with new challenges involving aquatic resources and aquatic resource management issues, the ARE program conducted a needs assessment and baseline survey on angler knowledge, behavior and attitudes about aquatic invasive species.

Pennsylvania's aquatic resource education programs are reaching more diverse audiences, through community-based programming and also through targeted advertising and promotion.

ARE program growth in Pennsylvania and throughout the rest of the country is not just about increasing participant numbers or the number of programs offered. Over the last 28 years, the amount of research available to guide our efforts has increased, as has the amount of information we know about our customers and potential customers. We've learned why people fish and why they don't. We've learned that you cannot create a resource steward in a single program, or stop the spread of invasive species with a sticker. The process of creating resource stewards and knowledgeable and active anglers takes many years and much experience. This long-term approach can only be supported by sustained funding-- the type provided by Sport Fish and Wildlife Restoration funds, matched with agency dollars.

Becoming an Outdoors Woman

Lori Bennett and Eddie Bennett,
U.S. Fish and Wildlife Service

In the past, mostly men and boys hunted and fished. Young women were often not encouraged to participate or were unable to participate due to constraints of where they lived and the past-time activities of their parents. In 1991, Dr. Christine Thomas of the University of Wisconsin-Stevens Point determined to change this demographic and developed a unique program called "Becoming an Outdoors-Woman" (BOW). Her goal was to encourage women to become competent and confident as well as knowledgeable about the outdoor environment and the activities associated with hunting and fishing.

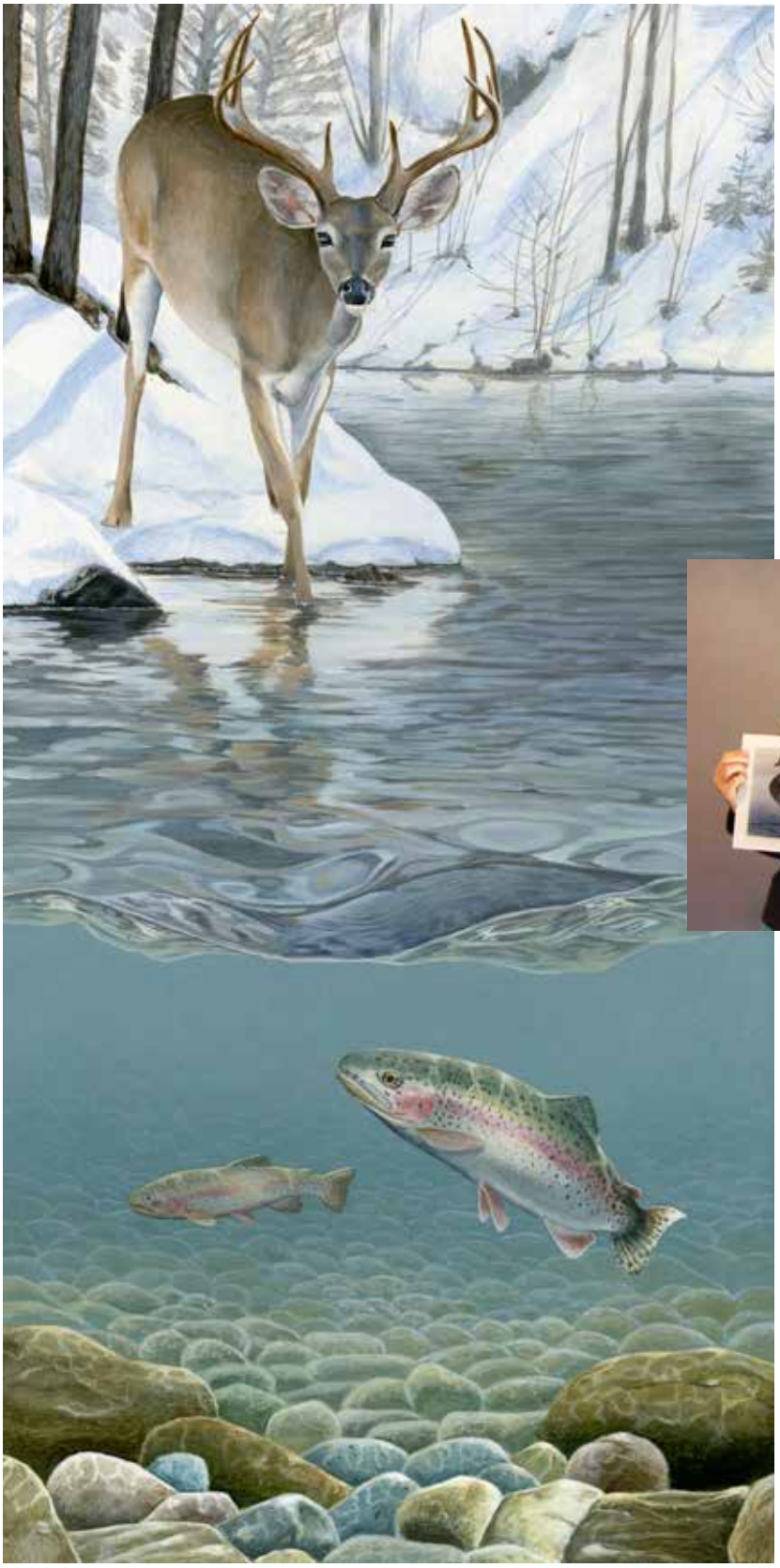
Dr. Thomas enlisted many other women to assist her in introducing this program and clearly saw the important connection of partnering with the state fish and wildlife agencies. State agencies engaged professional biologists, and conservation and hunter education coordinators to assist with the program. In most states, the conservation education programs offered introductory courses in fishing and fly fishing, along with aquatic resource programs. Hunter education instructors provided hands-on training with rifles and shotguns as well as information about wildlife conservation. Together, state fish and wildlife agencies have partnered with BOW, often using P-R and D-J funding to sponsor events every year since 1991.

BOW workshops promote hunting and fishing activities.
Credit: USFWS/Lori Bennett

BOW is for all women ages 18-90+, from all backgrounds, to interact with other women in a supportive, non-competitive learning environment. Workshops are held in approximately 40 states with numbers of female participants in the range of 20,000 per year. BOW workshops offer participants a list of over 20 activities in the weekend-long programs. Current BOW Director Peggy Farrell was quoted in OUTDOORSFORHER.COM as saying, "The growth of BOW means we are reaching more women and providing them with a venue to learn not just outdoor skills, but also about themselves. Women all over the country have told us that BOW has changed their lives."

Whether learning how to cast or tie a fly or learning where fish live, to learning real life experiences of camping, outdoor cooking, or learning to shoot a rifle or shotgun, BOW provides the knowledge and awareness of what else is possible for women among the myriad of outdoor recreation activities.

"Trophies" WSFR 75th painting



"Trophies" painted by Rebekah Nastav was the winning submission for the Wildlife and Sport Fish Restoration Program's 75th Anniversary Art Contest. She "thought it would be an interesting challenge to paint a half-underwater scene." Rebekah was the 2006 Junior Duck Stamp winner, and is a competitor in the annual Federal Duck Stamp Contest. She is a 20-year old college student who lives in Amoret, Missouri. Rebekah has been painting since she was a child. In addition to being a wildlife artist, she aspires to obtain a degree in wildlife biology.

Rebekah Nastav with her 2012 Federal Duck Stamp Contest Entry and her coyote painting. Credit: Rebekah Nastav

Conservation Success Stories

These stories are highlights from the USFWS and the States, and are not meant to represent all types of WSFR-funded projects.

Pacific Region: The Elements of Success: How WSFR Funds Helped Create Summer Lake Wildlife Management Area (Grant # OR W9D, W5L)

Amanda Fortin, U.S. Fish and Wildlife Service

Where Conservation Meets Recreation

In the northwestern corner of the Great Basin, about 100 miles from Bend, Oregon, is a haven for wildlife and wildlife enthusiasts alike. Summer Lake Wildlife Management Area was the first wetland-focused wildlife area established in Oregon and, thanks to funds from the Wildlife and Sport Fish Restoration program (WSFR), the nearly 19,000 acres play a vital role in the conservation of hundreds of species, and in the enhancement of outdoor recreation opportunities for thousands of visitors each year.

"It is a remarkable wildlife area in a remarkable setting," says Martin St. Louis, the state Wildlife Manager at Summer Lake. "Our management revolves around native plants and trying to mimic what was here naturally; this makes it an especially attractive place for birds and game animals, which makes it attractive to birders and hunters."

Today, the Summer Lake Wildlife Area is home to more than 40 mammal species, at least 280 species of birds, 15 reptile and amphibian species, and eight fish species. Large nesting populations of waterfowl—including Canada Geese, Gadwalls, and American Coots—can be seen there, as well as Trumpeter Swans and Snow Geese that stopover during spring and fall migrations.

While conserving wetland habitat, Summer Lake Wildlife Area offers public recreation such as fishing, bird watching, wildlife photography, hunting, and camping. Open year-round, its facilities include well-maintained access roads and parking area, restrooms, picnic areas, nature trails, a canoe launch, camp sites, and interpretive signs. Approximately 7,500 people visit the area each year.

Many of those visitors stay at The Lodge at Summer Lake, a privately-owned bed and breakfast located across from SLWA. "People come here from big cities for R&R," said Jan Froust, owner of the Lodge. "There are also a lot of unique things about the geographical area. From wetlands and desert to forest and the lake, there is so much to love about this place."

Along with unique geographical features, Summer Lake also has a special place in history: John C. Fremont, one of President Lincoln's four major-generals, stood on the cliffs above Summer Lake in the winter of 1843 and gave it its name. "It was a cold, clear day and he was standing in deep snow up on that rim," Froust said, recalling the area's history. "He looked down and saw a sunlit valley with a smooth lake and no snow. It looked like summer to him so he called it 'Summer Lake'."

Creating Summer Lake Wildlife Area, Elements for Success

Over the course of several decades, multiple elements came together to create the wildlife area at Summer Lake, beginning with the passage in 1937 of the Federal Aid in Wildlife Restoration Act. "Without money from Pittman-Robertson, the land never would have been acquired," said Dan Edwards, Wildlife Branch Chief for the WSFR program in the Service's Pacific Region. "The state would have had a hard time getting the space."

Great Egrets are one of the 280 species of birds found at Summer Lake Wildlife Area. Credit: USFWS

Wildlife conservation

Partnerships fostered under the Act, among federal and state fish and wildlife agencies, the sporting arms industry, conservation groups, and sportsmen played key roles in successful land acquisition and habitat development efforts as well as in supporting the construction of

refuge infrastructure at Summer Lake. By 1939, land acquisition was underway and, on April 12, 1944, Summer Lake Wildlife Area was established.

"Originally, the wildlife area included only about 2,500 acres of wetlands north of Summer Lake," said St. Louis. "Even though it wasn't a huge space, the Summer Lake wetlands were an important stopover for migratory waterfowl and shorebirds traveling along the Pacific Flyway."

With the first acquisition complete, growth was the next element contributing to Summer Lake's success. Since1939, the area has expanded as additional land was acquired by purchase, inter-governmental agreement, and private easements. The last two large purchases took place in 1963, when the refuge acquired the 2,545-acre Williams Ranch expanding the north and eastern boundaries of the wildlife area and in 1971with the addition of the 1,404-acre River Ranch tract.

Today, the wildlife area extends over 18,941 acres of Oregon's high desert range land, meadows, wetlands, and marshes. The Oregon Department of Fish and Wildlife owns 12,818 acres of the refuge's land and 5,124 acres are owned by the Bureau of Land Management and other agencies. The entire wildlife area is managed by the state fish and wildlife agency. An additional 999 acres of private land are covered by easement agreements.

Putting the 'fun' in funding, Maintaining SWLA for Wildlife and Wildlife Lovers

The PR Act authorizes the Fish and Wildlife Service to cooperate with the states to fund wildlife restoration projects. "Each state determines which projects are eligible," said Edwards. "These projects may include restoration, conservation, management, and enhancement of wildlife and their habitats for the enjoyment of the public."

This funding is the final element necessary for the continued success of the Summer Lake Wildlife Area. All developmental, management and maintenance projects accomplished at the wildlife area have been a result of PR funding through WSFR. Over the past five years, funding for the operation and maintenance of the Summer Lake Wildlife Area has averaged approximately $250,000 annually.

"Everything accomplished to date at Summer Lake Wildlife Area, and probably everything yet to be done, is the result of this funding," said St. Louis. "The Pittman-Robertson Act will continue to support all wetland restoration, management and enhancement and maintenance activities to ensure that this place continues to be a success."

The success of Summer Lake Wildlife Management Area can be measured in many ways: from the increased number of waterfowl nesting on Summer Lake each year to the thousands of acres acquired for recreation, the impact of this area has been far-reaching. Yet there are other successes that are not quite as quantifiable. "We go there to feel refreshed, have more energy, and to take a break from the hustle and bustle of the lodge," Foust said. "It is so quiet you can actually hear the beating of bird wings above you."

Conservation on Sarigan Island, Northern Mariana Islands: Pre-empting Potential Species Extirpation or Declines from Brown Tree Snake Predation (Grant # CNMI W3R)

Paul Radley, Wildlife Biologist
Department of Lands and Natural Resources, Commonwealth of the Northern Mariana Islands

Since 2008, the U.S. Fish and Wildlife Service's (USFWS) Wildlife Restoration program has funded the translocation of native forest birds for the purpose of conservation in the Northern Mariana Islands. In 2004, an independent review panel from the U.S. Department of the Interior determined that Saipan harbors an incipient population of the brown tree snake (BTS) - a highly invasive species. It is responsible for the extinction or extirpation of nine of 12 native (and/or endemic) species of forest birds on Guam. In addition, the Commonwealth of the Northern Mariana Islands (CNMI), Department of Fish and Wildlife (DFW), USFWS, and the Association of Zoos and Aquariums (AZA), a non-governmental conservation organization, jointly concluded that the long-term survival of avian species in the CNMI required the establishment of satellite "insurance" populations on those islands in the Mariana Archipelago deemed safe from BTS. Since 2008, this project has cost a total of $149,768, with the funds used to successfully translocate three species of forest birds (Bridled White-eye, Golden White-eye, and Mariana Fruit Dove) from the island of Saipan to the neighboring island of Sarigan

Release of Golden White-eye on Sarigan. Credit: Paul Radley

Results of Bridled White-eyes surveys conducted on Sarigan in 2010 and 2012 indicate that the population has increased substantially over the 100 birds originally introduced to the island in 2008 and 2009. Thus, the conservation introduction of this species was deemed a success. Observations of nest building and other signs of

breeding by Golden White-eyes on Sarigan likewise suggest the 2011 translocation of that species, too, was successful. The evidence of breeding, recruitment, and increase in numbers bodes well for the long-term sustainability of translocated birds, and reaffirms the decision to establish redundant populations where appropriate as a pre-emptive conservation measure.

Ultimately, the project has been successful because of the cooperative, working relationship among all of the partners – DFW, USFWS, AZA, and Pacific Birds Conservation. Additionally, this project is designed to benefit current and future generations of all people of the CNMI by protecting their avifauna from extinction caused by the introduced BTS. To further these efforts, the four agencies have future plans to establish additional populations on five other islands in the Mariana Archipelago north of Saipan.

Desert bighorn sheep peer through a forest of ocotillo at Red Rock Wildlife Area, a captive breeding area where the New Mexico Department of Game and Fish raises the sheep to eventually be released into the wild. Credit: Dan Williams, New Mexico Department of Game and Fish

A helicopter carries three desert bighorn sheep to a processing area at Red Rock Wildlife Area in New Mexico, where they are treated and collared before being released into native ranges around the state. Credit: Dan Williams, New Mexico Department of Game and Fish

Southwest Region: Desert Bighorn Sheep Restoration in New Mexico (Grant # NM W135M, W127R)

Dan Williams, New Mexico Department of Game and Fish

Eric Rominger gauges the success of New Mexico's desert bighorn restoration efforts by the number of skulls he carries out of the rugged mountains of the Chihuahuan Desert. "From 1996 to 2001 I picked up maybe 75 bighorn skulls and carried them across the desert," said Rominger, a bighorn sheep biologist with the Department of Game and Fish. "I was filling my pickup bed with them. Now, I hardly ever pick up a skull."

Rominger and fellow bighorn biologist Elise Goldstein credit sheep transplants and aggressive mountain lion control for saving New Mexico's desert bighorns from extinction. Today, thanks to a 30-year, $5 million restoration program, the statewide population has grown from a low of 69 to more than 645 animals – sufficient numbers to remove bighorns from the state threatened and endangered species list.

On November 3, 2011, the New Mexico Game Commission voted unanimously to delist desert bighorns under the State's Wildlife Conservation Act. The decision was a milestone for everyone who enjoys wildlife, said Tod Stevenson, Department Director from 2008 to 2011.

"Restoring our native wildlife species and protecting their habitat is one of our agency's priorities," Stevenson said. "This is the first species ever delisted from the New Mexico threatened and endangered species list due to restoration."

Stevenson praised the State Game Commission, Department staff, various partners from other agencies, conservation groups, and sportsmen and -women who contributed to the restoration. "The biggest heroes in this effort are the sportsmen," Stevenson said. "Without their support and their funding through sales of

Eric Rominger, bighorn sheep biologist for the New Mexico Department of Game and Fish, releases three desert bighorn sheep rams into the Little Hatchet Mountains as part of the desert bighorn sheep restoration program. Credit: Dan Williams, New Mexico Department of Game and Fish

hunting licenses, equipment, and special auction and raffle tags, we might not have any desert bighorns in New Mexico today."

Desert bighorn restoration has received broad support from sporting and conservation groups for years, and most notably since 1980, when the species was first listed under the Wildlife Conservation Act. Like most wildlife restoration efforts, sportsmen were the biggest contributors.

"A lot of people want desert bighorns in our state, and sportsmen made it happen for everyone's benefit," Goldstein said. "Since the bighorns were listed as endangered, sportsmen have paid more than $5 million toward recovery."

Most of the money for desert bighorn recovery comes from the annual auction and raffle sale of a bighorn hunting license. The auction, conducted by the Wild Sheep Foundation since 1990, has raised as much as $210,000 in one year. The winning auction hunter can select either a desert or Rocky Mountain bighorn license, with second choice going to the raffle winner. The auction and raffle combined have raised more than $2 million for the bighorn sheep program since 1990. The money is matched three-to-one by federal funds through excise taxes on hunting equipment.

Before delisting, the state offered only one other desert bighorn license - a once-in-a-lifetime hunt through the public drawing process. The year after delisting, 16 desert bighorn licenses were offered. "We're being conservative at first," said Jim Lane, who took over as Department Director in 2011. "The herds can easily sustain an increased harvest of rams."

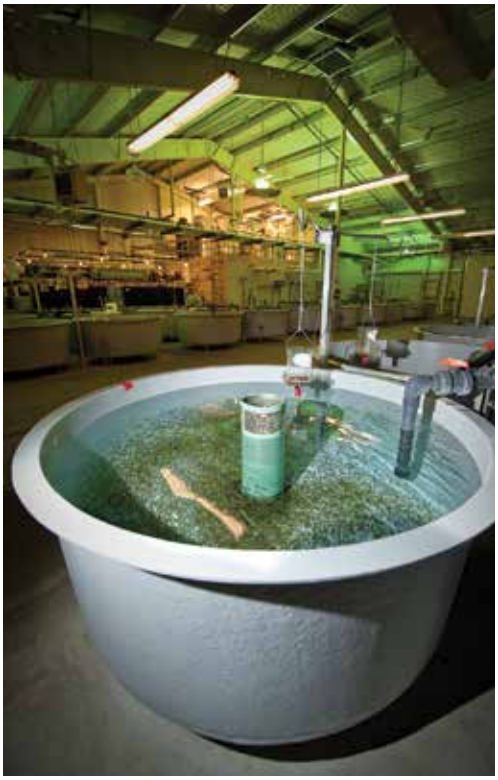
Harvesting more bighorn rams will have very little effect on the Department's objective to grow the herds, Goldstein said. "Bighorns mate opportunistically, and our research shows that the biggest three or four rams will do 50 percent of the breeding in a herd, and smaller rams do the other 50 percent," she said. "In the end, all the ewes get bred and continue to grow the herd - even if there are not quite as many rams on the mountain."

Unmanaged hunting was partly responsible for the desert bighorn's precipitous decline in the early 1900s, when vast herds in nearly all desert mountain ranges dwindled to only two. The other big threat was disease introduced by domestic sheep and goats, a problem still

threatening today's bighorns. As a result, bighorns are never transplanted into areas where there are domestic sheep.

Currently, mountain lions pose the major threat to bighorns. Aggressive lion control in bighorn ranges has resulted in bighorn population increases statewide. It also has eased Rominger's burden of having to carry bighorn skulls off the mountains.

"Lion control was the most important factor in desert bighorn recovery," Rominger said. "When the population was at 166 with only 70 ewes despite our transplants, we were never going to recover without lion control."



Fingerlings at WI Hatchery. Credit: HDR

In 2001, the Department began paying lion hunters to remove lions from bighorn ranges, where research indicated that the top predators had been responsible for as much as 85 percent of desert bighorn mortalities. The strategy, along with more transplants from the Department's Red Rock captive breeding area, allowed the bighorns to turn the corner and begin expanding their numbers -- and ranges.

Today, desert bighorn herds are thriving in six mountain ranges. The most recent population estimates place the statewide herd at more than 645 animals and is projected to surpass 700 this year. Those numbers and trends paved the way to delisting.

"Our next challenge," Goldstein said, "will be to build on the existing populations, especially in the San Andres Mountains."

The San Andres, a 100-mile mountain chain on White Sands Missile Range, has the capacity to have the largest herd in the state. One of the oldest in the state, this herd has endured some of the most difficult challenges, including an outbreak of scabies mites that reduced its numbers to a single ewe by 1997. Since then, the San Andres herd has been scabies-free and transplants from Red Rock and Arizona have helped build it back to around 100 animals.

"We will be looking at expanding the San Andres herd in the near future," Rominger said. "The size of the range and the fact that the bighorns are protected on the missile range and the San Andres National Wildlife Refuge give it the potential of holding well over 1,000 sheep.

"One of our big hopes," Rominger said, "was to capture and transplant wild sheep, something we had never done with desert bighorns. All our transplants have been from Red Rock or the Kofa National Wildlife Refuge in Arizona."

In November 2011, the Department conducted its first sheep capture operation in a wild herd when 75 sheep were translocated from herds in four mountain ranges and from Red Rock. Bighorns were moved from the Fra Cristobal Mountains to the Big Hatchet and Peloncillo Mountains. Others were captured, collared and released in the San Andres, Fra Cristobal, Little Hatchet and Sierra Ladron mountains. Twenty pregnant ewes were captured and fitted with vaginal implant transmitters, which will allow biologists to determine where lambs are born.

"It has taken lots and lots of players to make this happen," Rominger said. "From Department staff, other agencies and people who help us trap, to high-dollar auction hunters and conservation groups, we've gotten support from everywhere.

"It's not often that you see animals delisted because of recovery. Usually, it's because they went extinct."

Wild Rose State Fish Hatchery. Credit: HDR

Midwest Region: Renovation of Wisconsin's Wild Rose State Fish Hatchery (Grant # WI F95P)

Submitted by the Wisconsin Department of Natural Resources

Wild Rose State Fish Hatchery is critical to Wisconsin's $2.3 billion sport fishery. It produces, for stocking statewide, 27 percent of the trout and salmon, 64 percent of the northern pike, and most of the lake sturgeon and spotted musky raised in the state. This hatchery is also particularly important to Michigan fishing because it stocks Lake Michigan with more than 94 percent of its fish.

Wild Rose has been a workhorse for Wisconsin's fish propagation system since the state bought

it in 1908. But the century-old hatchery's ability to continue meeting that stocking demand was threatened by aging facilities and water supply problems. Fish production was decreasing and the hatchery violated environmental laws enacted since the facility had been built. Plans were developed to renovate the hatchery in phases. A facility was designed to meet 21st Century demands such as the need to recognize the genetic diversity of fish populations and also to cope with emerging disease issues such as viral hemorrhagic septicemia (VHS). Essentially two new facilities would be built – a cold water hatchery for trout and salmon and a cool water hatchery for northern pike, spotted musky, walleye and lake sturgeon.

Phase One of the renovation to build the cold water hatchery was begun in the summer of 2006 at a construction price tag of $15.9 million. It was paid for with Sport Fish Restoration funds, money from environmental restoration agreements reached with paper companies on the Fox River, and anglers' license dollars. Included in this part of the renovation was the construction of a cold water nursery building for egg incubation and early rearing, a broodstock building, four covered production raceway buildings, a new water supply, distribution and water reuse systems that bring the water supply into compliance, a new consolidated, state-of-the-art fish rearing wastewater treatment system to meet or exceed current discharge standards, and a visitors center. The first fish were moved into the raceways in the spring of 2008.

Construction of Phase Two, the cool water portion of the hatchery, began in June 2008 at a construction cost of $17.7 million and was completed in August 2009, allowing for cool water fish production the spring of 2010. Sport Fish Restoration funds and anglers' license dollars paid for this part of the renovation. The major goals for the second phase were: the construction of a cool water nursery building for egg incubation, hatching and early rearing, and providing the capacity to rear fish under intensive recirculation conditions; the construction of 14 modern rearing ponds; and construction of a water supply and distribution system that includes a high capacity well. A water reuse system will take water from the cold water side of the hatchery that has been filtered and disinfected with ultraviolet light for use in the new cool water facility. A new wastewater system cleans water leaving the hatchery to the highest possible degree before releasing it into the Pine River, a Class 1 trout stream.

The third and final phase of this project is planned for the future. This will include the restoration of the wetlands, springs and headwaters of a stream existing on site before the old hatchery was built more than a century ago. A backup groundwater well will also be constructed to supply both the cool and cold water sides of the hatchery.

When finished, Wild Rose will be a state-of-the-art hatchery facility with greater efficiency and flexibility, and enhanced safeguards for environmental protection. The hatchery will produce healthier fish, and be able to increase production of trout and salmon by about 15 percent. Also, it will be able to nearly double its production of northern pike, spotted musky, lake sturgeon and walleye.

Southeast Region: Elk Restoration and Management in Eastern Kentucky (Grant # KY W45)

Submitted by the Kentucky Department of Fish and Wildlife Resources

As a part of Kentucky's statewide wildlife management grant, the Kentucky Department of Fish and Wildlife Resources (KDFWR) uses Wildlife Restoration grant funds to restore and manage elk in Eastern Kentucky.

Elk once roamed the hills of Kentucky but by the mid 1850s, none were to be found. In a true partnership effort, the Kentucky Department of Fish and Wildlife Resources, the Rocky Mountain Elk Foundation and the Shikar Safari Club joined forces to bring this magnificent animal back to Kentucky. An aggressive elk re-establishment program ensued. From 1997 to 2002, the Kentucky Department of Fish and Wildlife released a total of 1,556 elk originating from Arizona, Kansas, New Mexico, North Dakota, Oregon, and Utah. More than 100 animals were released at eight suitable sites in a 16-county elk zone. In 2009, the herd reached the project goal of 10,000 elk.

Release of elk in Kentucky; Credit: John S. Perkins

Crowd watches elk release in 1997. Credit: John S. Perkins

The herd is being maintained through Wildlife Restoration funds and, within the current 16-county zone, through managed hunting. A self-sustaining herd of approximately 10,000 wild elk now inhabit several hundred thousand acres of reclaimed coal mines in Southeastern Kentucky.

Not only is the herd biologically viable, but it has produced significant economic benefits to the local communities.

Much of the occupied range is open to the public for viewing and hunting opportunities via access agreements with the KDFWR. Several entities, including state parks and private vendors, operate elk viewing tours and organize special events featuring elk viewing for a variety of user-groups. The number of commercial hunting guides for elk hunting has increased annually. Since the first elk hunt in 2001, the number of hunting permits also has increased, numbering some 800 each year.

Kentucky's Elk Restoration and Management project is a perfect example of how a "user-pay, user-benefit" program works. The hunters are the ones who pay into the Wildlife Restoration program and they are now reaping the benefits of a healthy elk herd to hunt in Kentucky.

Melody Quinn finds some Asiatic clams during Alabama's Creek Kids program; Credit: Jace Barnett

Alabama Children Get Their Feet Wet in the Creek Kids Program (Grant # AL F54)

Submitted by the Alabama Department of Conservation and Natural Resources

Each summer and fall, a special environmentally-oriented camp, "Creek Kids," provides a hands-on aquatic education experience to Alabama school children. More than a year old, "Creek Kids" is proof that learning about watersheds can be both fun and educational. This fall 1,174 students in fourth through 8th grades from Bibb, Jefferson, Tuscaloosa, and Walker counties became Creek Kids participating in an aquatic education program located at Tannehill Ironworks Historical State Park. With its rolling hills, cold water springs, rapids, pools and a mill dam, Tannehill is the perfect setting to get kids out of the classroom and immersed in nature.

Students learn about watersheds and the aquatic environment through this partnership between the Alabama Department of Conservation and Natural Resources (ADCNR) Wildlife and Freshwater Fisheries Division (WFF) and Tannehill Ironworks Historical State Park near McCalla. For the year, 23 schools and approximately 3,000 participants experienced the program.

Teachers participating in Creek Kids deem the program a success. Twelve science teachers rated the program 3.92 on a 4.0 scale. Susie Lamon, a sixth-grade science teacher from Parrish Elementary in Walker County, said her class will definitely be back. "I sincerely appreciate the effort WFF went to in order to ensure we had a positive learning experience. The program not only met our expectations, but exceeded it," Lamon said.

Robert Ray, a fourth-grade teacher from Southview Elementary in Tuscaloosa, Ala., agreed. "The best way for children to learn about aquatic education is to get them wet in Alabama's creeks, and the Creek Kid program does just that," he said.

During the class, students and teachers waded into Tannehill's Bubbling Spring and Mud Creek for a hands-on experience with native fish and invertebrates. They collected macroinvertebrates and later studied them under microscopes. Various materials were on hand such as species identification books and local species samples. Some students commented that this was the first time they had ever been to a state park or had waded in a creek.

Maurice Jackson helps Jayden Fields and Melody Quinn find invertebrates during Alabama's Creek Kids program; Credit: Jace Barnett

Students also experienced an extensive overview of the watershed via a train ride, learned about the impact of a mill dam on fish passage and used an interactive educational model, EnviroScape, that illustrates how pollution moves into the aquatic environment. A visit to the Iron and Steel Museum of Alabama to learn about Alabama's iron industry rounded out the field trip.

According to 2005 data from Child Trends Data Bank, the percentage of Alabama fourth graders scoring at or above science proficiency is 12 – 21 percent. At higher grade levels the scores are lower.

Research shows that student success in science is crucial for the advancement of science, technology, and medicine. Through a greater understanding of science, students can learn how to better protect the environment. With that in mind, WFF designed Creek Kids to make understanding the environment fun.

The Creek Kids program costs $5 per student. Public schools with at least 40 percent of their students eligible for free or reduced price lunches may have any fees waved. Assistance may also cover some transportation costs. Funding for Creek Kids comes from the sale of "Take A Kid Fishing" automobile license plates along with Sport Fish Restoration funds. Creek Kids is an excellent example of utilizing Sport Fish Restoration funds to teach youth about aquatic resources and to get them interested in nature.

The Alabama Department of Conservation and Natural Resources (ADCNR) promotes wise stewardship, management, and enjoyment of Alabama's natural resources through its five divisions: Marine Police, Marine Resources, State Parks, State Lands, and Wildlife and Freshwater Fisheries.

Northeast Region: Virginia's Quail Recovery Project (Grant # VA WE99R)

Submitted by the Virginia Department of Game and Inland Fisheries

Virginia's Quail Recovery Initiative officially began on July 1, 2009. At the heart of the program are the five Private Lands Wildlife Biologists (PLWBs) hired jointly through the Department of Game and Inland Fisheries, the Natural Resources Conservation Service, and the Conservation Management Institute at Virginia Tech. The biologists' primary role is to increase technical assistance, outreach, and financial program delivery for habitat enhancement

For perhaps 200 years or more, quail were one of the most common birds of the rural Virginia landscape. Credit: Dwight Dyke, Virginia Department of Game and Inland Fisheries

to private landowners throughout Virginia. Collectively they have made more than 500 site visits to landowners, helping to establish or maintain approximately 7000 acres of habitat (affecting over 34,000 acres). However, their success would not be possible without strong partnerships with the State's local Soil and Water Conservation Districts. Portions of funding for all these programs come from the Federal Aid in Wildlife Restoration Program.

Another important component of the quail initiative is the Quail Management Assistance Program, or QMAP. The QMAP is designed to offer increased technical assistance to landowners regardless of habitat cost-share funding levels. It has established a network of quail enthusiasts linked by a listserv, allowing biologists to quickly send notices of workshops, ideas on habitat improvements, and to share peer success stories. Eventually QMAP will lead to the formation of "quail quilts"-- concentrations of landowners focusing on quail conservation who pool their lands to generate landscape level response. Currently, there are 59 landowners enrolled, owning tracts of land totaling more than 19,000 acres, with 3,500 under some form of quail management.

Restoration of Arctic Char and Eastern Brook Trout at Big Reed Pond, Maine (Grant # ME F28P35)

Submitted by the Maine Department of Inland Fisheries and Wildlife

Big Reed Pond (BRP), located in Township T8R10 WELS in northern Piscataquis County, Maine, is surrounded by property owned by The Nature Conservancy (TNC), much of which has never been harvested for timber products. In fact, the reserve is classified by TNC as an ecological forest reserve and nearly the entire watershed of BRP is protected within it. Access to the pond is either by floatplane or a primitive hiking trail. Partnering with the Maine Department of Inland Fisheries and Wildlife (IFW) on the project are: The Nature Conservancy (TNC), Bradford Camps (a long-time sporting camp outfitter on nearby Munsungan Lake), Mountain Springs Trout Farm (MSTF), Presque Isle High School's Aquaculture Facility (PIAF), Maine National Air Guard, Maine Outdoor Heritage Fund (MOHF), the University of Maine, and several private donors.

Maine's Arctic char are a rare and unique resource as they are the only endemic, viable populations of the species found in the lower forty-eight states. Big Reed Pond supports not only one of these 12 endemic char populations, but also a population of wild brook trout. The two fishes once provided a special back-country angling experience in northern Maine. However, numerous invasive fishes once threatened the long-term viability of both salmonid species. The most recent, and likely most harmful invaders, were rainbow smelt (Osmerus mordax) and creek chub (Semotilus atromaculatus), their presence

having been confirmed in 1991 and 1992, respectively.

Formed in 2006 to address this problem, a stakeholders group charted a course of restoration outlined in a peer-reviewed plan. The restoration model it developed includes: 1) establishing a captive population for both Arctic char and brook trout; 2) chemical reclamation with rotenone; and 3) reintroduction of the endemic fish group, which also included northern redbelly dace (Phoxinus eos). Prior to starting rotenone treatment in October 2010, the group completed an intensive three-year effort to capture and relocate relict adult and juvenile Arctic char and brook trout. These captive populations were managed by a private hatchery facility, Mountain Springs Trout Farm, a partner in the restoration project.

The remote location and lack of easy access presented logistical problems not normally encountered with ponds targeted for reclamation. Years of planning were needed to fully develop the peer-reviewed plan, acquire necessary permits, notify abutting landowners, allow for public comment, and organize a sizeable work crew to carry out the four-day treatment. However, the most daunting task was transporting some six tons of liquid and powder rotenone to Big Reed Pond.

For nearly eight months IFW worked with the Army Aviation Support Facility located in Bangor, Maine to organize the use of Army Black Hawk helicopters for a training exercise to air lift rotenone to the pond. On September 29, 2010 nine crew members of the Army Facility at Bangor arrived with two Black Hawks and met Department biologists on a Seven Islands Land Company dead-end road about three miles south of BRP. The Aviation Unit crews proceeded to air-lift eight loads to BRP where IFW staff removed crating and temporarily secured the rotenone.

Fisheries Biologist Frank Frost with Arctic Char. Credit: Frank Frost

Arctic Char. Credit: Frank Frost

After years of planning by fisheries biologists across the state, the week of October 3, 2010 finally arrived when 17 biologists, four contractors, and seven volunteers met at various staging locations to begin the four-day treatment process of the pond, its tributaries, and outlet. The main goal was to use the minimum amount of rotenone needed to remove all fishes within the pond upstream of a natural falls on the outlet (which would prevent the migration of invasive fishes back into the pond). The treatment of BRP was also the debut of a totally revamped reclamation program featuring new equipment, several newly licensed applicators within the Fisheries Division, and new personal safety measures and equipment.

With a stretch of ideal weather conditions during October 3 and 6, 2010 - cool, dry, and calm winds - the rotenone application went flawlessly. Fish recoveries during

Landscape photo of Tabby Mountain. Credit: Miles Hanberg

the treatment process revealed the desperate situation at BRP. Although thousands of invasive rainbow smelt, white sucker, creek chub, and various minnow species were recovered, no Arctic char were found. The team did locate approximately 40 brook trout. Thirteen of the trout were revived in fresh water and flown to MSTF with several spawned later in the month.

Numerous individuals of char and trout were captured, reared, and artificially spawned between 2007 and 2011. Reintroduction began in June 2011 when 600 yearling char and 1,950 trout fry were released. An additional 300 char were released in October 2011, with ten fitted with acoustic tags to allow future tracking. IFW divers documented light spawning activity by char on a suspected spawning shoal on November 16, 2011; a few days later, 130 char, two to four days from spawning, were released from the hatchery onto this shoal. The pond iced over about five days later.

Restoration efforts have continued in 2012 with an additional 3,180 trout fry released in May. A fall stocking of char is planned as well as another effort to artificially spawn all trout and char currently held at the hatchery.

Mountain Prairie Region: Smith Family "Legacy" Becomes New Addition to Utah's Tabby Mountain Wildlife Management Area (Grant # UT W96L)

Submitted by the Utah Division of Wildlife Resources

"Our grandfather, Moroni Smith, who acquired much of this land 100 years ago, also instilled in us a simple philosophy, leave the land in better shape for future generations than you found it," said Allan Smith. "Our family is happy this land, 5,700 acres, is going to the UDWR (Utah Division of Wildlife Resources). It's our legacy to the people of Utah."

The approximately 55,000-acre Tabby Mountain Wildlife Management Area [WMA], located in the foothills of Tabby Mountain in Duchesne County, Utah, was acquired between 1959 and 2009, thanks to Pittman-Robertson funds. It provides some of the most important wildlife habitat in eastern Utah, and is critical as a winter and transition range for elk, deer, sage-grouse and other wildlife. In addition to the UDWR, other partners in the effort to protect this vital habitat are the Mule Deer Foundation and the Rocky Mountain Elk Foundation.

The Mule Deer Foundation's Miles Moretti, and Kevin Christopherson, UDWR Regional Supervisor, commend the Smith family's conservation stewardship. "This land exchange is a tremendous legacy for the people of Utah as it protects thousands of acres of critical wildlife habitat," Christopherson said.

"There are a couple thousand elk and several thousand mule deer that either winter in this area or pass through on their way to other winter ranges," he

said. “Sage-grouse use is also expanding in the southwestern section of the property due to efforts to enhance the range and increase population numbers.

“The Smith property adjoins and compliments the other WMA lands in this area. It’s not by accident the Tabby Mountain WMA is the largest in the state; it’s critical winter range from some of the biggest, healthiest herds in Utah.”

“I was delighted when they [UDWR] asked me if the Mule Deer Foundation could assist with the purchase,” Moretti said. “I first saw this land over 30 years ago when I first joined the Division. It was prime country then and it’s even better now.

“It’s a critical winter and transition range for the Wasatch, Currant Creek and Tabby Mountain deer herds. The Foundation contributed more than $200,000 for the purchase, most of it raised at a local banquet. It feels good to be investing in the future of wildlife and it’s even better when it’s close to where the funds were raised.” The total cost of the purchase was $981,179, and the UDWR provided the remaining funds.

“Most of the purchase funds came from a sale of Division property in Roosevelt,” Christoperson said. “The property was originally purchased with sportsmen’s dollars. It had been used as a game farm and was open to hunting until residences were built all around it. Local leaders asked if we would sell it as it had now become more valuable as a commercial or residential property rather than a wildlife property. This [Smith property sale] would not have happened without the support we received from the landowner, surrounding landowners, local communities and the local political leaders.”

“This land is a good example of how wildlife and ranching communities can come together,” Smith said. “The Tabby Mountain

Today, free ranging elk prosper across the country. Credit: George Andrejko/Arizona Game and Fish Department

foothills were homesteaded in 1905. Our family, which ran sheep at the time, was able to acquire the land when the homesteaders discovered it was unsuitable for farming.

“Just twenty years ago this was almost a badlands. It was mostly old sage with little grass or forbs in the understory. Studies also showed these and the surrounding lands were responsible for roughly half of the silt flowing into Starvation [Reservoir]. We were in the process of decreasing our sheep and cattle herds when the Soil Conservation Service [SCS; the agency is now known as the Natural Resources Conservation Service] approached us and asked us to participate in a restoration project.

“The SCS provided most of the plan and machinery, the UDWR provided seed and we provided funds and extra manpower. By the time we were done, we had treated about 5,000 acres. Today, we estimate it has around 23 to 24 hundred pounds of forage, which

is shared by both livestock and wildlife. We also slowed the flow of silt down by roughly 99 percent. We [UDWR and ranchers] are the stewards of the land and this is a good example of what can be done. We can co-exist together."

"We are looking at the long term to protect and preserve this critical winter range for mule deer, elk, sage-grouse and a large variety of other species that utilize this area sometime during the year," Christopherson said. "With the property changing to public ownership, the land will be more accessible to the public, at least during the summer and fall. During the winter, it will likely be closed to keep herd disturbances to a minimum.

"Our habitat biologists will continue to enhance this area for wintering wildlife with special attention given to sensitive species such as the sage-grouse and for elk and deer. We'd like to see the herds stay on our ground rather than moving onto or into the farms, ranches and communities lower down.

"The UDWR will also continue livestock grazing as we plan to use cattle as a tool to maintain and enhance wildlife habitat. This particular land can be enhanced for wildlife with selective grazing.

"This sale means a lot to wildlife and to the people of Utah. We will protect and enhance its wildlife values and preserve it forever."

"We'd been talking about a possible sale to the Division for years, but it was still a close call," Smith said. "Family members had been approached about selling it for development and we could have gotten much more if we sold it to become five- to 20-acre lots for trophy homes.

"In the end, though, we decided to work with the Division to preserve the land for wildlife. I've looked out over this piece when there must have been 1200 to 1500 elk and an equal or greater number of deer. It's an amazing sight, and now it will continue to be protected for future generations to enjoy."

Whirling Disease Research in Colorado – Resistant Rainbow Trout Studies (Grant # CO F237R)

Connie Young-Dubovsky, U.S. Fish and Wildlife Service

The loss of economic, recreational, and intrinsic values associated with healthy wild rainbow trout fisheries—due to the presence of whirling disease—is a critical management issue for Colorado. Increased spawning, rearing, and survival of this highly desired sport fish species, to provide improved recreational opportunities for Colorado's anglers, is a high priority for the Colorado Division of Wildlife.

Myxobolus cerebralis, the parasite responsible for salmonid whirling disease, was identified as a major contributor to loss of rainbow trout young-of-the-year in several Colorado rivers starting in the late 1980s and early 1990s (Nehring and Walker 1996). Originating in Europe, the parasite disease was inadvertently introduced to the United States in the 1950s through imported trout. It made its way to Colorado in the 1980s, and had a devastating impact on wild rainbow trout populations. Because Brown trout are also native to Europe the species has a natural resistance to the parasite. However, these fish can still carry and transmit the pathogen. Also, Brown trout have taken advantage of the absence of any competition, greatly expanding their numbers in waters infected by the parasite. Brown trout are the dominant salmonid in many Colorado waters today, thereby adding another layer of complexity to restoration of wild rainbow trout populations.

The strain historically used for establishing wild rainbow trout populations in Colorado is the Colorado River Rainbow trout (CRR). Evaluated in laboratory and field studies, it has been identified as extremely susceptible to whirling disease. Research was conducted at the Fish Research Hatchery, Bellvue, Colorado, and in various lake and river stocking sites throughout the State of Colorado, by the Colorado Division of Wildlife, Colorado State University, and the Cooperative Fish and Wildlife Research Unit. These efforts were supported by $1,548,327 in federal SFR funds and $516,109 contributed by the state. The research efforts identified certain strains of rainbow trout with strong resistance to the parasite (Hedrick et al. 2003).

Two strains, the 'Hofer' rainbow trout, from Germany, and the 'Harrison Lake' rainbow trout, from Montana, were imported to Colorado in 2003 to be evaluated for whirling disease resistance. The Hofer rainbow trout strain, which originated from the Kamloops rainbow trout in North America's Columbia River System, has demonstrated strong resistance to the parasite. In the late 1800s these fish were exported to Germany to be grown as food fish in local hatcheries. Because whirling disease is endemic in Germany, the fish were reared in whirling disease-positive waters. Over time, this rainbow trout strain developed its resistance.

Harrison Lake rainbow trout also have demonstrated a higher level of resistance than many other wild rainbow trout strains. Increased resistance in the Harrison Lake strain is thought to have occurred due to strong selection pressure in Harrison Lake, Montana, which has a wild naturally reproducing run of rainbow trout exposed to the parasite.

The Hofer strain, when crossed with the CRR strain and Harrison Lake strain produced varieties of rainbow trout with strong whirling disease resistance, growth, and survival characteristics. Evaluation of these pure strains and crosses of these strains yielded excellent

results, with crossed varieties demonstrating retention of desirable characteristics of both parental strains (Schisler et al. 2006, Fetherman 2008). Therefore use of these strains has been expanded to virtually all of Colorado's state fish rearing facilities. Production and maintenance of brood stocks for continued production of these disease-resistant fish in Colorado is of vital importance to the state's fish management program.

Although the effects of whirling disease in Colorado are still apparent, resulting in reduced rainbow trout numbers in many waters, significant strides have been made to control the further spread of the parasite. These efforts include capital investments to protect the State's hatchery system. In 1998, 11 of Colorado's 16 hatcheries were contaminated by the parasite; currently just three trout rearing facilities are considered positive for the parasite. Colorado Division of Wildlife policy now dictates that no fish reared in a parasite-positive facility may be planted in waters capable of sustaining wild trout populations unless an exemption is obtained.

While much has been learned about the resistance of these new strains and their crosses in the past several years, difficulties in re-establishing wild populations still exist. SFR funding will continue to be used for studies to identify management techniques to ensure healthy wild populations of rainbow trout in Colorado. Further fish culture and management questions need to be answered for these strains to be used to their full potential. In addition, refinement of strains used for fingerling stocking, especially in reservoirs, is necessary to optimize post-release survival, minimize whirling disease infection severity, and maximize recruitment in these impoundments.

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Alaska Region: Kenai Moose Research Center - A World Leader in Moose Science (Grant # AK W334, W3311, F12AF00050)

Riley Woodford, Alaska Department of Fish and Game

The moose, popular with photographers and wildlife watchers, is Alaska's official land mammal. Also pursued by thousands of hunters each year, about 7,000 moose are harvested annually, providing more than three million pounds of wild, organic meat. About 90 percent are harvested by Alaskans.

Understanding what it takes to maintain healthy moose populations is important to the Alaska Department of Fish and Game and to wildlife managers in moose country across the North. But a full-grown, ¾-ton moose can be a dangerous animal to study. A moose kick can kill a wolf, and more than one person has been on the receiving end of such a deadly blow.

It is difficult for a biologist to dog the heels of a foraging wild moose to watch exactly how it eats, or to closely monitor the pregnancy of a cow moose. On the other hand, tame moose do not object to human company. By bottle-raising moose and conditioning them to human contact, biologists at the Kenai Moose Research Center, located on the U.S. Fish and Wildlife Service's Kenai National Wildlife Refuge, have cultivated cooperative subjects.

An hour's drive down gravel roads from Sterling, Alaska, the Center is home to about 20 moose. More than 15 miles of eight-foot-high woven wire wildlife fencing encloses four tracts, each a square-mile, with a landscape of trees, meadows and small lakes. In a ranch-like setting, the lab and research

Tom Lohuis of the Alaska Department of Fish and Gamebottle feeds a baby moose. Credit: Riley Woodford

facilities, bunkhouse, and caretaker's cabin are surrounded by rolls of fencing material, building supplies and farming paraphernalia.

"This facility has so much to offer," said biologist Stacy Crouse, who worked at the Center for 13 years. "There are things you can do here that you can't do in the wild, and plenty of

Moose researchers John Crouse, Stacy Jenkins and Tom Lohuis of the Alaska Department of Fish and Game bottle feeds a baby moose. Credit: Riley Woodford

things you can test out and apply to the wild."

Stacy Crouse and her husband John met while working at the Center, and he now serves as the director. As scientists and caretakers their duties have ranged from performing ultrasound examinations and drawing blood to fixing fences and hazing bears.

Over the years, moose researchers from Norway, Sweden, Russia, Japan, Canada and other American states have worked on projects at the Center. Many of the studies are long-term, because scientists are able to work with the same animals for years, an opportunity rarely available in the wild.

"More than 250 scientific papers based on research at the Center have been published," said biologist Wayne Regelin, a former Fish and Game Deputy Commissioner who worked at the center in the 1970s and early '80s. "A lot of pioneering work has been done at the Center - how to capture moose using drugs, studies on moose-habitat relationships, various ways to evaluate moose physical condition - it's a leader in moose research." In the 1990s and early in the 21st century, captive caribou were also studied at the facility. Today, however, the focus is totally on moose. The first moose in the facility were not tractable, hand-raised animals, but wild moose. When the facility was built in the late 1960s, pens served as moose traps, with entrances that let Kenai's moose enter but not escape.

"Initially they trapped wild moose in the pens," John Crouse said. "They first measured all the vegetation in the pens, and then they trapped moose in the pens and studied the impact on the vegetation. At one point they had 40 moose in one of the pens over winter. They were getting a sense for how much vegetation was required to sustain a moose - not only how much but also the nutritional content of the forage."

In the wild, a bull moose may live about 13 years, a cow moose about 17 years. Scores of different moose have lived at the center over the past four decades, many hand-raised by John and Stacy Crouse and other staff.

"We are still hand-raising moose as we need them. We are not a receptacle for orphaned animals," John Crouse said. "Every two or three years we raise a group of animals so we have several cohorts available to study."

"Most of the moose are tractable," John Crouse said. "The hand-raised animals will put up with us standing next to them watching. We are able to sample blood, feces and urine, recording what and how much they're eating. We can collect urine samples directly, get them on a scale and weigh them, and do an ultra sound exam – all without having to sedate them. There are no drugs involved; we're just walking around with them. For weights we lead them down to the scale, they get up on the scale and we get a weight measurement."

"The only way to really find what a moose is eating is to watch a moose eat," Stacy Crouse said. "You can go in after the fact and measure bite size and get ideas about what part of the plant they're exploiting. That's why we've put so much effort over the past few years to raise these calves, to have a moose that's tractable and will stand next to you like a dog, but will forage like a wild moose.

"If you don't have bottle raised animals you really can't do these kinds of studies, they just growl at you," she added.

Alaska Department of Fish and Game has collaborated with the U.S. Fish and Wildlife Service and other agencies, as well as graduate students conducting doctoral and masters degree studies. Currently all research is done by state biologists, and the work has direct applications to moose management in Alaska.

"The bulk of our funding is through Pittman-Robertson funds," John Crouse said. "It funds research to develop techniques and understand relationships that help us manage wild moose populations." P-R funds total about $180,000 annually.

Moose live off their reserves in winter, supplementing with the meager woody browse they can find. This winter nutrition is tied to their survival, their calving and their impact on the habitat.

"Right now we're looking at protein nutrition over the winter, using nitrogen isotopes and various metabolites, to determine whether protein comes from body stores or the diet," John Crouse said. "This is the second year for this line of investigation. We've done a lot of work with body fat. Protein has been a lot more difficult. Fat stores you can measure directly with an ultrasound, they build up and deplete, but protein is a lot more dynamic. We do know moose store fat and protein for use in periods of deficit in the winter. We're looking at when they don't have enough protein in the diet and start using body stores, and how far it goes before it becomes detrimental to them and what the impacts are on reproduction and such."
Another project at the Center has implications for moose research worldwide – improving the understanding of data collected by new GPS and VHF devices used to track and study wild moose. These devices, usually attached to collars, are used to study animals ranging from wolverines and bears to moose and mountain goats. Early devices enabled researchers only to locate animals, whereas the newer devices can record, store, and even transmit a wide range of data. The tame, easily observed moose in the large pens are perfect test subjects.

"We can put these out and correlate the behaviors to the data the collars are collecting," John Crouse said. "If activity measures are different enough, eventually we may be able to say whether they're nibbling on low bush cranberries or stripping willows, rather than just determining whether animals are actively foraging or not."
Alaska Fish and Game biologists are collaborating on the project with researchers at the University of Minnesota at Duluth and using collars from several of the different product manufacturers.

"There's been a lot of good people come through the facility," John Crouse said. "The Moose Research Center was given the Group Achievement Award by The Wildlife Society in 1992 for outstanding achievements benefitting wildlife."

Pacific Southwest Region: Lake Mohave Habitat Enhancement Project (Grant # NV F20)

Submitted by the Nevada Department of Wildlife

Lake Mohave, a large (28,160 surface acres) riverine (64 miles long, 4-miles wide max.) impoundment along the Colorado River, borders Nevada and Arizona. Entirely within the Lake Mead National Recreation Area, the regionally-important Lake Mohave sport fishery averages more than 111,000 angler use days annually. The upper 20 miles, stocked with rainbow trout from the Willow Beach National Fish Hatchery and the Nevada Department of Wildlife (NDOW), provide a coldwater fishery in a river/canyon setting. The area

Brush bundle ready to be sunk. Credit: Michael Burrell

Diver counting fish on a PVC structure. Credit: Michael Burrell

receives deep-water releases from Lake Mead's Hoover Dam.

The main body of the reservoir, however, reaches depths in excess of 100 ft and thermally stratifies. A warm water fishery exists consisting of stocked rainbow trout, large- and smallmouth bass, striped bass, bluegill, green sunfish, channel catfish, and yellow bullhead. Threadfin shad and carp are present as well as native razorback sucker (federally endangered) and flannelmouth sucker (state species of concern).

Several factors influence the production of self-sustaining sport fishes, primarily reduced lake fertility and juvenile protective cover. While dealing with lake fertility is difficult in such a large reservoir, enhancing habitat appears more plausible. The lake bottom is mainly comprised of silt, sand, gravel, and some rock. In addition, little aquatic vegetation is produced since water levels widely fluctuate throughout the year. When the water level is low, the protective habitat for juvenile fishes is enhanced by inundating normally terrestrial plants such as tamarisk. Annually supported since 2006 by $27,500 in Sport Fish Restoration Program funds, the NDOW, the National Park Service, and the Arizona Game and Fish Department have worked to enhance habitat for greater sport fish production. Other funds come from the National Park Service, Nevada Conservation Fee, and the National Fish and Wildlife Foundation. BassPro donated the Habitat Badge, and multiple volunteers from local fishing organizations assist throughout the project.

After the entire shorezone had been mapped, eight coves showing gradual slopes with some exposure to the open water, and low habitat complexity characteristic of much of the rest of the reservoir were chosen for habitat enhancement. However, sites that might conflict with razorback suckers or had higher boat use were excluded.

Habitat structures were constructed on-site using a variety of natural and artificial materials, including A-framed pallets and tamarisk brush piles, PVC frames with snow fencing, pallet stacks, large brush bundles, or Christmas tree bundles. As of 2010, more than 750 large habitat structures were added to the eight coves.

Each year, monthly SCUBA diving and snorkeling surveys have been completed comparing fish types and abundances in areas with new habitat structures to control areas devoid of aquatic vegetation or low habitat complexity. General findings showed that all Lake Mohave sport fish species—adults and juveniles—concentrated around all types of constructed habitat structures. Only when natural aquatic vegetation was present nearby did some species (mostly panfishes and juvenile black bass) abandon constructed structures.

Based on dive counts in project sites having constructed habitat versus control areas, littoral species such as adult and juvenile black bass, panfish-sized sunfishes, channel catfish, and carp generally were two to five times more abundant on constructed habitat. During many of the monthly surveys, no fish were found in control areas; in comparison, only on rare occasions were no fish found around the new habitat structures.

Hunting and Fishing: A Modern Answer to Environmental Concerns

By Keith Warnke, Hunting and Shooting Sports Coordinator
Wisconsin Department of Natural Resources

I always knew that one of my primary reasons for hunting and fishing was to obtain food. I enjoy everything about using wild game as food—all the way from processing to preparation to eating it. In fact, I really prefer wild game to all other meats and the same is true for my family.

Since 1937, sportsmen have funded habitat conservation. Credit: Dr. Thomas Barnes,University of Kentucky

The reality of that lifestyle hit home several months ago when my eldest daughter, a budding hunter and angler who loves venison and fried bluegills, announced that she was not eating meat anymore!

"But," I replied, trying to maintain my composure as a supportive parent, "You love to hunt, and you love venison."

"Dad," relief hit me as I saw her eyes brighten, "Of course, if we kill it ourselves, that's OK. That's the best kind of food there is."

What a great point! Lately, the terms "green, sustainable, free-range and organic" have gained greater prominence in society. People care about their environment. They care about where their food comes from and how it got to their table.

Looking around, I see a generation of young adults working to live with lower impact on the environment, to live more "green". It got me thinking: hunting and fishing have always been green activities. What better way to get ethically-raised, sustainable protein!

As hunters and anglers, we recognize the fact that unregulated harvest in the 18th and 19th centuries was, in part, responsible for the decline of America's fish and game populations. In fact, slaughter without limits threatened many species with extinction. But everyone needs to be aware that hunters and anglers were the original agents of change. They demanded regulations to protect fish and game populations, provide bag limits and closed seasons, and developed a system that protected habitat for all species. As a result, President Franklin D. Roosevelt signed the Federal Aid in Wildlife Restoration Act in September of 1937.

The 75th anniversary of the Wildlife and Sport Fish Restoration program is the perfect opportunity to spread the word about the conservation contributions of hunters and anglers. Their leadership led to revolutionary changes in fish and wildlife conservation in North America and resulted in a system envied around the world. Our system of fish and wildlife conservation in this country also provides for sustainable harvest of "green" protein.

The key principles that make up conservation in the United States are:

- Fish and wildlife are publicly owned;
- Laws and policies are established from a basis in science;
- Hunting and angling opportunities should be available for everyone; and,
- Conservation, management, research, habitat restoration, and enforcement are funded primarily by hunters and anglers through license fees and revenue from excise taxes.

Hunting and angling are critical to conservation in the following ways:

First, the revenue from hunting and fishing license sales and excise taxes on equipment make up the vast majority of the nation's conservation budget.

Second, regulated hunting and angling have been relatively effective, low-cost methods for maintaining wildlife populations at levels that are socially acceptable and within habitat carrying capacity.

Hunting promotes a connection with nature. Credit: Steve Hall

Third, hunting and fishing are great ways to obtain free-range, ethically-raised food in a highly sustainable system.

Finally, and perhaps most importantly, hunting and fishing promote a deep physical and spiritual connection with the natural world. These activities shape a culture and lifestyle around the importance of learning the intricate details of how nature works and how fish and wildlife interact with their environment. Hunting and angling give humans a participatory, hands-fully-on, sustainable link with nature and conservation.

Hunting and fishing for food are a perfect fit in an increasingly conservation-oriented "green" world. Today's young adults have demonstrated strong interest in lower impact living, food co-ops, farmers' markets, and sustainability, and invented the term "locavore"-- meaning you gather your food as close to home as possible. Hunting and fishing are, and have always been, a natural part of this movement.

Our challenge, as active hunters and anglers, is to provide the opportunity for these people to get involved. For novices interested in getting in the game, the Wildlife and Sport Fish Restoration program provides funding and a variety of tools to introduce hunting and fishing. One thing that always works for me is food. Make sure there is an ample supply of wild fish and game for recruits to taste test and the hook is set!

The next generation of hunters and anglers is out there. It's our responsibility to reach out to them.

Aldo Leopold's shack made the perfect location for this group of mentors and adult first time hunters on a Learn to Hunt outing in Wisconsin. The novice hunters spent four weeks in a course titled "Hunting for Sustainability." They learned about conservation, conservation funding, deer hunting techniques and tactics, scouting, field dressing, and butchering, and had numerous chances to sample venison dishes. At the end of the hunt, nearly all novice participants expressed their intention to purchase a license and continue deer hunting this year. Wisconsin Department of Natural Resources will track future participation to evaluate the effectiveness of this hunter recruitment effort. (Grant F11A01050) Credit: Paul Smith, Milwaukee Journal Sentinel

A Noiseless Effort That Has Changed the World

Lynn A. Greenwalt
Former Director, U.S. Fish and Wildlife Service

Occasionally I peer outward from the tranquil world of my retirement. Today, several decades have dropped behind me since I was actively engaged in the affairs of the U.S. Fish and Wildlife Service. So many years have passed that whole careers have come and gone since early 1981 when I left the corner office that was my final and most cherished habitat.

I have been asked to offer my perspectives on the Wildlife and Sport Fish Restoration [WSFR] program as I have seen it over the years, and, indeed, I have pondered this enterprise often and conclude it remains an excellent example of the way government should work, in cooperation with state agencies, private and public organizations, and the many and varied citizens who joined into a common constituency by a co-mingled and diverse interest in the central subject of the design: fish and wildlife and the places they live.

In its early days, the new program was called "Federal Aid." Today, the variety, complexity, and purpose of the ideas, aims, and the execution of the program have transcended the simple meaning of that phrase.

The use of an excise tax as the funding vehicle was advanced skillfully and with an insight that even today I find remarkable. It was a way for the users and beneficiaries of the restoration program to pay for it themselves and thereby avoid the shoals and whirlpools of having to compete with other demands for limited revenue sources. Also, it fostered comfortable partnerships and lasting alliances, another major advantage of the original idea.

The details of the basic program were carefully crafted to give state fish and wildlife agencies a long-sought opportunity to emerge into a world of science-based decisions and set realistic and attainable goals, based on steadily improving planning. The federal matching formula gave every state, and later on territories, a way to multiply limited local funding -largely license fees- and support restoration work of many kinds and for many purposes. In the process it produced state-level programs that would become models of resource management worldwide. This led to a demand for more and better trained wildlife and fishery scientists and, in turn, stimulated the formation of an array of splendid schools offering the latest in wildlife conservation education.

I have enjoyed a long association with practitioners of what I call the "noiseless revolution" because WSFR continues to work smoothly and in accord with time-tested and carefully adjusted plans. Such a revolution only comes about when people of good will and a common commitment to a clearly understood and well-stated purpose, set out to do a job in which failure is not an acceptable option. Dedicated conservationists, they go about their work quietly, expecting no fanfare.

I continue to watch, in awe and with boundless admiration, the many times the people who worked in "Federal Aid" did things with gentle hands on the tiller and made possible the implementation of ideas that appealed not only to hunters, anglers, but also those who enjoy outdoor recreation, environmental educators, and the

Wood duck box in tidal freshwater marsh. Credit: USFWS/Lori Bennett

rapidly growing population for whom environmental protection has a particular interest. Land is purchased and restored, fish programs put in place and enlarged, always involving the many elements of a bedrock partnership based on the conviction that wild creatures and the places they live deserve a prominent place in the scheme of things, everywhere.

My conviction is that this program, in only 75 years, has been an unparalleled success for fish and wildlife conservation. It has been a "noiseless revolution" that changed how we do conservation at home and abroad. Now is the time for a little noise in celebration.


SPORT FISH & WILDLIFE RESTORATION
75 Years
IT'S YOUR NATURE

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Credit: USFWS/Joe Milmoe

U.S. Fish and Wildlife Service
Apportionment of Dingell Johnson
Sport Fish Restoration Funds (CFDA 15.605)

STATE	Fiscal Year 2012	FYs 1952 to 2012
ALABAMA	$ 6,120,522	$ 114,207,075
ALASKA	17,488,184	363,798,864
AMERICAN SAMOA	1,165,878	24,115,973
ARIZONA	7,002,230	150,659,711
ARKANSAS	**5,966,290**	**130,765,214**
CALIFORNIA	17,488,184	364,823,441
COLORADO	8,362,857	178,958,210
CONNECTICUT	3,497,637	72,964,692
DELAWARE	3,497,637	72,964,692
DISTRICT OF COLUMBIA	**1,165,878**	**22,884,957**
FLORIDA	11,738,231	202,738,436
GEORGIA	5,880,253	138,349,857
GUAM	1,165,878	24,465,106
HAWAII	3,497,637	72,879,097
IDAHO	**6,046,296**	**124,275,277**
ILLINOIS	7,086,724	151,672,076
INDIANA	4,526,014	107,946,838
IOWA	4,979,550	102,457,178
KANSAS	4,934,995	106,316,510
KENTUCKY	**5,183,503**	**112,985,923**
LOUISIANA	6,425,719	123,474,499
MAINE	3,497,637	72,999,022
MARYLAND	3,497,637	75,282,761
MASSACHUSETTS	3,497,637	72,964,692
MICHIGAN	**11,209,041**	**255,233,150**
MINNESOTA	12,915,108	273,506,682
MISSISSIPPI	4,097,486	93,669,391
MISSOURI	8,013,983	178,937,963
MONTANA	8,226,445	170,696,308
N. MARIANA ISLANDS	**1,165,878**	**23,198,724**
NEBRASKA	4,371,919	92,433,812
NEVADA	5,058,351	109,596,507
NEW HAMPSHIRE	3,497,637	72,964,692
NEW JERSEY	3,497,637	72,964,692
NEW MEXICO	**6,004,996**	**129,668,493**
NEW YORK	9,582,468	183,915,437
NORTH CAROLINA	9,417,164	136,056,509
NORTH DAKOTA	3,829,764	78,138,561
OHIO	7,080,430	171,730,559
OKLAHOMA	**7,120,224**	**142,085,820**
OREGON	8,000,438	171,421,616
PENNSYLVANIA	7,991,845	180,032,827
PUERTO RICO	3,497,636	71,282,793
RHODE ISLAND	3,497,637	72,964,692
SOUTH CAROLINA	**5,083,091**	**90,883,214**
SOUTH DAKOTA	4,227,061	89,697,101
TENNESSEE	7,282,254	157,014,486
TEXAS	17,488,184	364,656,402
U.S. VIRGIN ISLANDS	6,239,189	29,180,084
UTAH	**3,497,637**	**124,074,993**
VERMONT	1,165,878	70,632,933
VIRGINIA	5,442,711	115,916,623
WASHINGTON	7,256,001	158,741,877
WEST VIRGINIA	3,497,637	72,979,486
WISCONSIN	**11,504,700**	**244,154,294**
WYOMING	5,290,254	114,338,108
TOTAL	**$ 349,763,692**	**$ 7,297,718,930**
INFLATION ADJUSTED (2012) TOTAL		**$ 11,022,000,000**

U.S. Fish and Wildlife Service
Apportionment of Pittman-Robertson
Wildlife Restoration Funds (CFDAs 15.611 and 15.626)*

STATE	Fiscal Year 2012	FYs 1939 to 2012
ALABAMA	$ 9,010,087	$ 133,284,895
ALASKA	15,403,917	302,139,862
AMERICAN SAMOA	618,513	9,610,275
ARIZONA	9,371,865	168,375,196
ARKANSAS	**6,776,366**	**127,059,821**
CALIFORNIA	12,282,822	258,206,537
COLORADO	9,294,002	180,132,734
CONNECTICUT	2,802,447	51,959,075
DELAWARE	2,251,081	41,884,170
DISTRICT OF COLUMBIA	**0**	**0**
FLORIDA	6,686,459	121,409,320
GEORGIA	8,049,760	153,861,642
GUAM	618,513	11,123,053
HAWAII	2,263,862	41,510,392
IDAHO	**6,944,524**	**134,904,393**
ILLINOIS	7,973,254	153,670,561
INDIANA	6,593,960	130,300,839
IOWA	5,737,185	123,379,117
KANSAS	6,711,357	128,594,731
KENTUCKY	**6,582,966**	**122,382,956**
LOUISIANA	6,884,437	129,425,020
MAINE	4,063,348	80,897,642
MARYLAND	3,748,789	69,866,663
MASSACHUSETTS	3,833,227	66,633,494
MICHIGAN	**12,303,439**	**263,337,165**
MINNESOTA	11,151,096	209,883,948
MISSISSIPPI	5,069,672	109,617,158
MISSOURI	9,965,193	190,493,253
MONTANA	9,748,753	194,565,854
N. MARIANA ISLANDS	**618,513**	**10,045,641**
NEBRASKA	5,942,262	117,300,984
NEVADA	6,437,222	126,118,966
NEW HAMPSHIRE	2,251,081	42,022,667
NEW JERSEY	3,833,227	68,364,025
NEW MEXICO	**7,232,932**	**146,620,891**
NEW YORK	10,062,572	212,178,126
NORTH CAROLINA	9,440,769	160,900,933
NORTH DAKOTA	5,437,678	100,715,425
OHIO	8,065,629	165,426,165
OKLAHOMA	**8,155,533**	**143,038,928**
OREGON	8,473,524	169,161,246
PENNSYLVANIA	13,364,999	277,760,030
PUERTO RICO	1,591,851	28,965,397
RHODE ISLAND	2,251,081	41,857,848
SOUTH CAROLINA	**5,327,609**	**92,300,803**
SOUTH DAKOTA	6,628,479	121,642,307
TENNESSEE	10,726,478	189,504,304
TEXAS	16,973,282	333,649,712
U.S. VIRGIN ISLANDS	6,622,794	17,242,513
UTAH	**2,251,081**	**122,854,988**
VERMONT	618,513	40,961,205
VIRGINIA	7,025,491	141,256,895
WASHINGTON	7,270,797	145,495,420
WEST VIRGINIA	4,056,683	84,941,872
WISCONSIN	**11,305,796**	**220,531,519**
WYOMING	6,567,982	130,859,548
TOTAL	**$ 371,274,752**	**$ 7,160,228,128**
INFLATION ADJUSTED (2012) TOTAL		**$ 13,888,000,000**

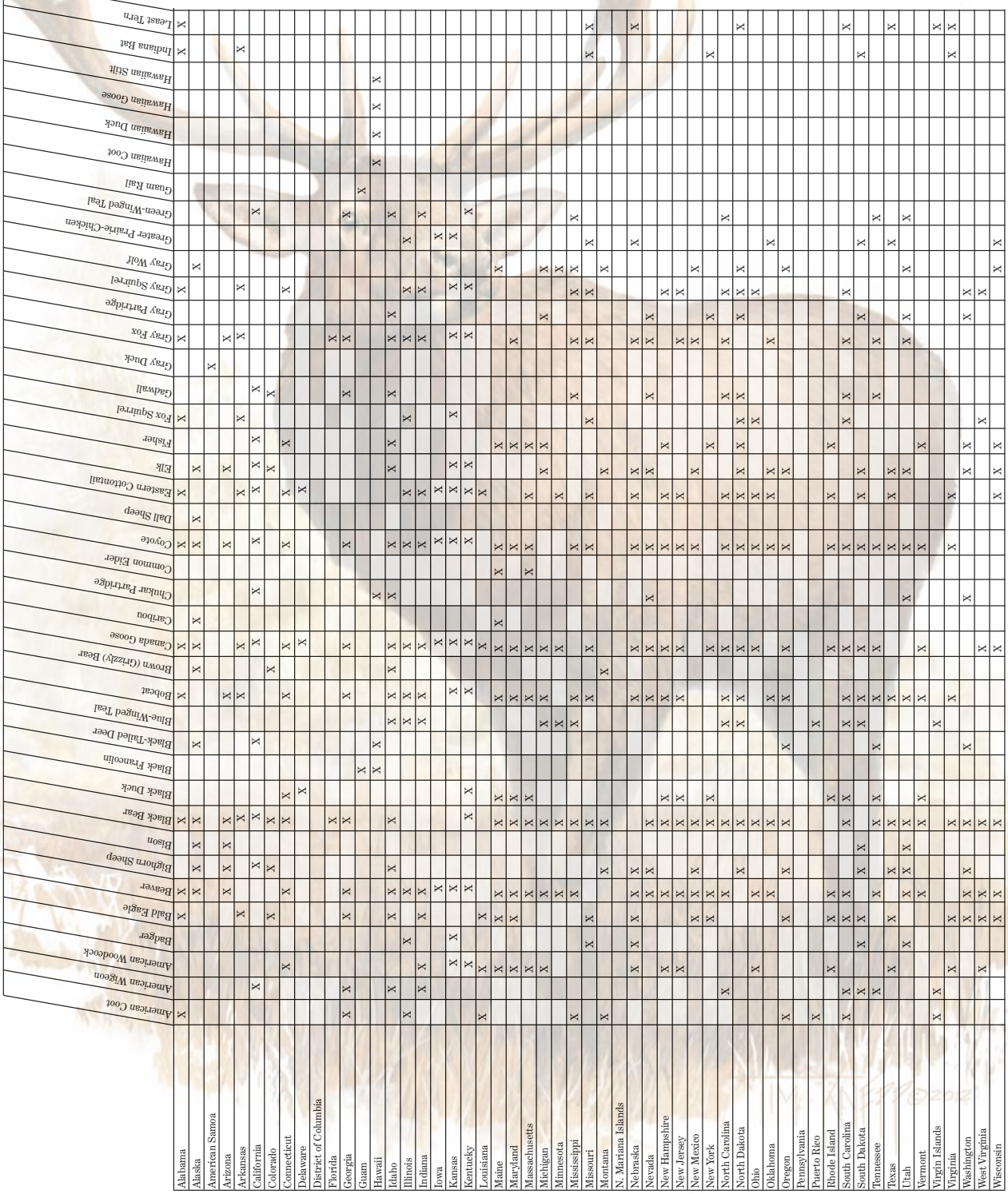
*Wildlife Restoration Apportionment includes hunter education sections 4(c) and 10.

	Alewife	American shad	Atlantic salmon	Black crappie	Bluegill	Brook trout	Brown trout	Channel catfish	Chinook salmon	Coho salmon	Cutthroat trout	Lake trout	Largemouth bass	Muskellunge	Northern pike	Rainbow trout	Red drum	Redear sunfish	Sauger	Smallmouth bass	Sockeye salmon	Spotted seatrout	Striped bass	Summer flounder	Walleye	Weakfish	White bass	White crappie	Yellowfin tuna
Alabama				X	X			X					X				X	X	X	X		X	X				X	X	
Alaska									X	X	X	X			X	X			X		X								
American Samoa																												X	
Arizona				X	X	X		X			X		X			X				X			X	X					
Arkansas				X	X	X	X	X			X	X	X		X	X		X		X			X		X		X		
California			X		X	X	X	X	X	X	X	X	X		X	X		X		X	X		X			X		X	
Colorado					X	X	X	X	X		X		X			X			X	X					X		X		
Connecticut			X		X	X	X	X					X		X	X				X	X			X	X			X	
Delaware			X		X	X	X	X					X			X		X		X			X	X					
District of Columbia			X										X							X					X				
Florida			X		X			X					X				X	X				X	X	X			X		
Georgia					X	X	X	X					X			X	X	X				X	X	X					
Guam																												X	
Hawaii								X					X			X				X									
Idaho					X	X	X	X	X	X	X	X	X	X	X	X				X	X				X			X	
Illinois			X		X	X	X	X	X	X		X	X	X	X	X		X	X	X			X	X	X			X	
Indiana			X			X	X	X	X	X		X	X	X	X	X		X	X	X			X	X	X				
Iowa			X		X	X		X					X	X	X	X		X	X	X				X	X			X	
Kansas					X	X	X	X					X			X		X	X	X		X	X	X	X			X	
Kentucky					X	X	X	X					X	X		X		X	X	X		X	X	X	X			X	
Louisiana					X	X		X					X				X					X	X	X	X			X	
Maine			X	X		X	X					X	X			X													
Maryland			X		X	X	X	X					X	X		X	X	X		X		X	X	X		X			
Massachusetts			X	X		X	X					X	X	X	X	X				X		X	X	X	X			X	
Michigan			X		X	X	X	X	X	X		X	X	X	X	X		X		X				X					
Minnesota			X		X	X	X	X	X	X		X	X	X	X	X				X				X	X				
Mississippi					X			X					X				X	X		X		X	X	X		X	X		
Missouri					X	X	X	X					X	X		X		X		X			X	X	X		X		
Montana																			X		X								
N. Mariana Islands																												X	
Nebraska			X		X			X				X	X	X	X	X		X	X	X							X		

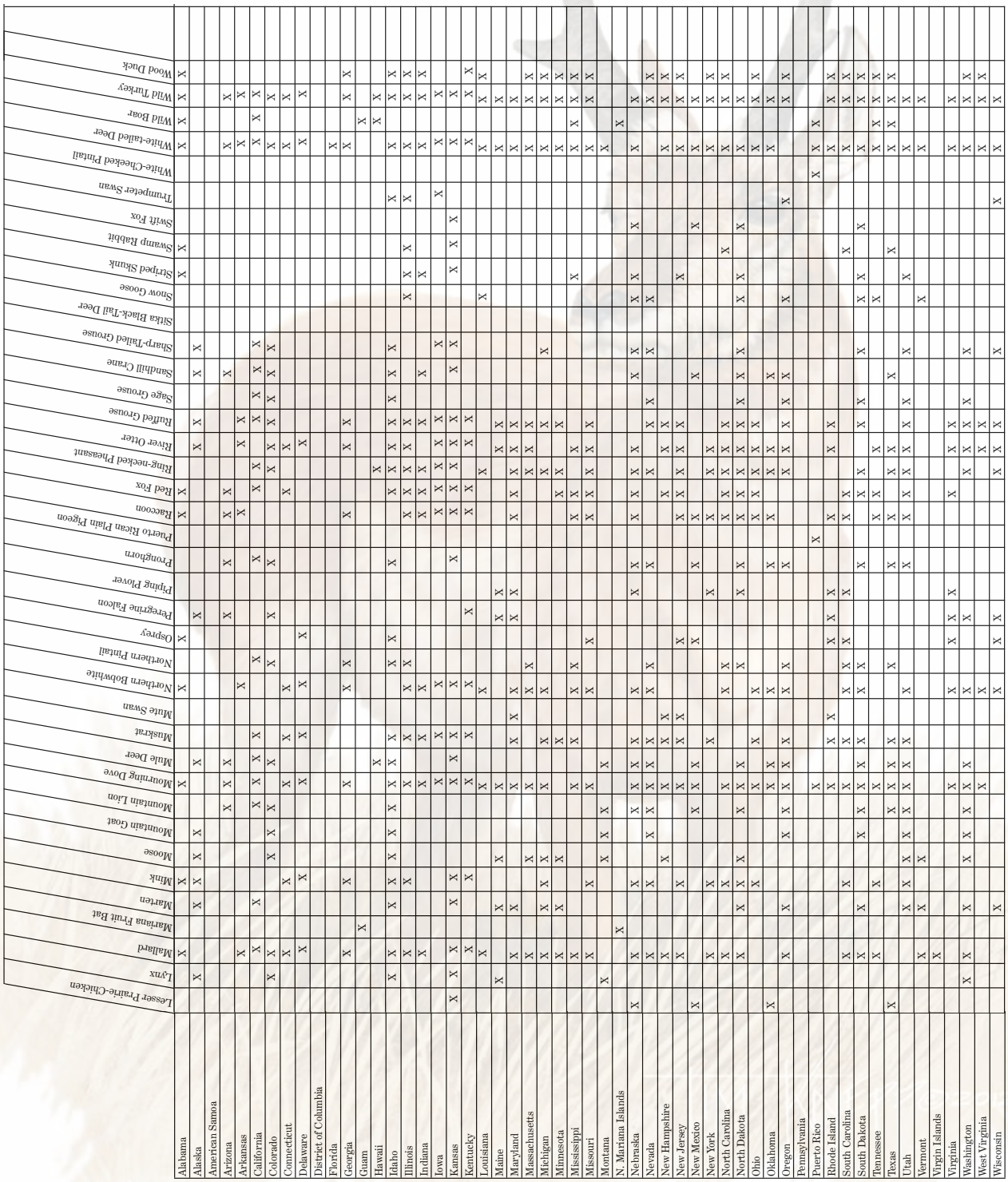
Most commonly-targeted fishes addressed with Sport Fish Restoration funds, by State (1987-2012).
Source: Federal Aid Information Management System.

	Alewife	American shad	Atlantic salmon	Black crappie	Bluegill	Brook trout	Brown trout	Channel catfish	Chinook salmon	Coho salmon	Cutthroat trout	Lake trout	Largemouth bass	Muskellunge	Northern pike	Rainbow trout	Red drum	Redear sunfish	Sauger	Smallmouth bass	Sockeye salmon	Spotted seatrout	Striped bass	Summer flounder	Walleye	Weakfish	White bass	White crappie	Yellowfin tuna
Nevada					X	X	X	X			X	X	X			X		X		X	X		X		X		X	X	
New Hampshire	X	X	X		X	X	X			X		X	X			X				X			X	X	X			X	
New Jersey	X	X	X		X	X	X	X	X	X		X	X	X	X	X				X			X	X	X		X		X
New Mexico					X	X	X	X					X			X				X			X		X	X			
New York	X	X	X	X	X	X	X		X	X		X	X	X		X				X			X	X	X		X	X	
North Carolina	X	X		X	X	X	X	X					X	X		X	X	X		X		X	X	X	X			X	
North Dakota				X	X	X	X	X	X			X	X	X	X	X			X	X					X			X	
Ohio				X	X	X	X	X					X	X	X	X			X	X			X		X				
Oklahoma				X	X		X	X					X			X		X	X	X			X	X	X			X	
Oregon		X	X	X	X	X	X	X	X	X		X	X			X				X	X		X		X			X	
Pennsylvania	X	X	X	X	X	X	X	X				X	X	X		X		X	X	X			X		X		X	X	
Puerto Rico		X		X	X			X					X				X												
Rhode Island	X	X	X			X	X						X	X	X	X				X			X	X					
South Carolina		X		X	X	X		X					X			X	X			X		X	X	X	X		X		
South Dakota				X	X	X	X	X	X			X	X	X	X	X			X	X	X				X			X	
Tennessee				X	X	X	X	X				X	X	X		X		X	X	X			X		X			X	
Texas				X	X			X					X			X	X			X		X	X		X	X	X		
Utah				X	X	X	X	X				X	X	X		X				X	X		X		X		X	X	
Vermont	X	X	X			X	X					X	X	X	X	X				X			X		X				
Virgin Islands																													X
Virginia		X		X	X	X	X	X					X	X	X	X	X	X		X			X	X	X	X			
Washington			X	X		X	X	X	X	X			X	X		X				X	X				X				
West Virginia				X	X	X	X	X					X	X	X	X			X	X			X		X		X	X	
Wisconsin	X			X	X	X	X	X	X	X		X	X	X	X	X			X	X					X			X	

Most commonly-targeted fishes addressed with Sport Fish Restoration funds, by State (1987-2012).
Source: Federal Aid Information Management System.

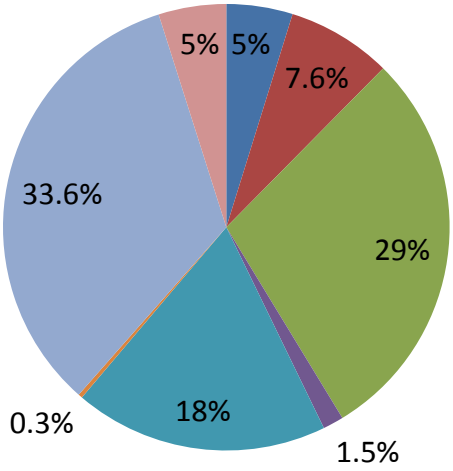


Most commonly-targeted species addressed with Wildlife Restoration funds, by State (1987-2012).
Source: Federal Aid Information Management System



Most commonly-targeted species addressed with Wildlife Restoration funds, by State (1987-2012).
Source: Federal Aid Information Management System

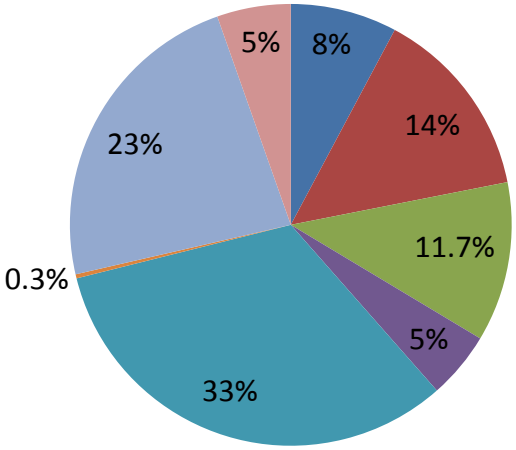
Sport Fish Restoration Accomplishments



Aquatic Education
Coordination & Administration
Development, Improvement, Stocking
Land Acquisition
Operations & Maintenance
Outreach
Research
Technical Assistance

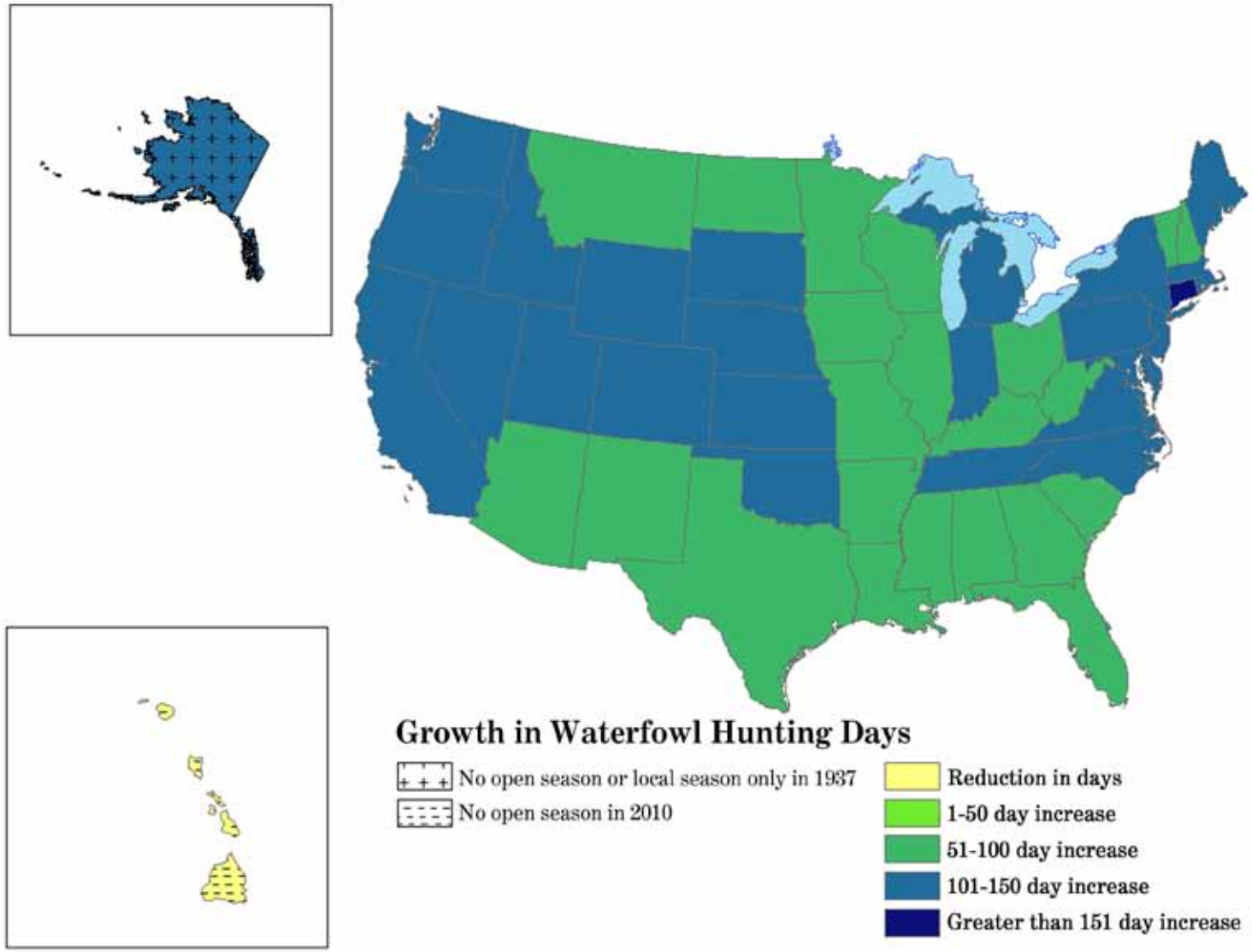
Source: 1986-2011 Federal Aid Information Managment System

Wildlife Restoration Accomplishments



Capital Developments, Major Improvements, and Stocking
Coordination & Administration
Hunter Education
Lands Acquired
Operations & Maintenance, Areas & Facilities
Outreach
Research
Technical Assistance

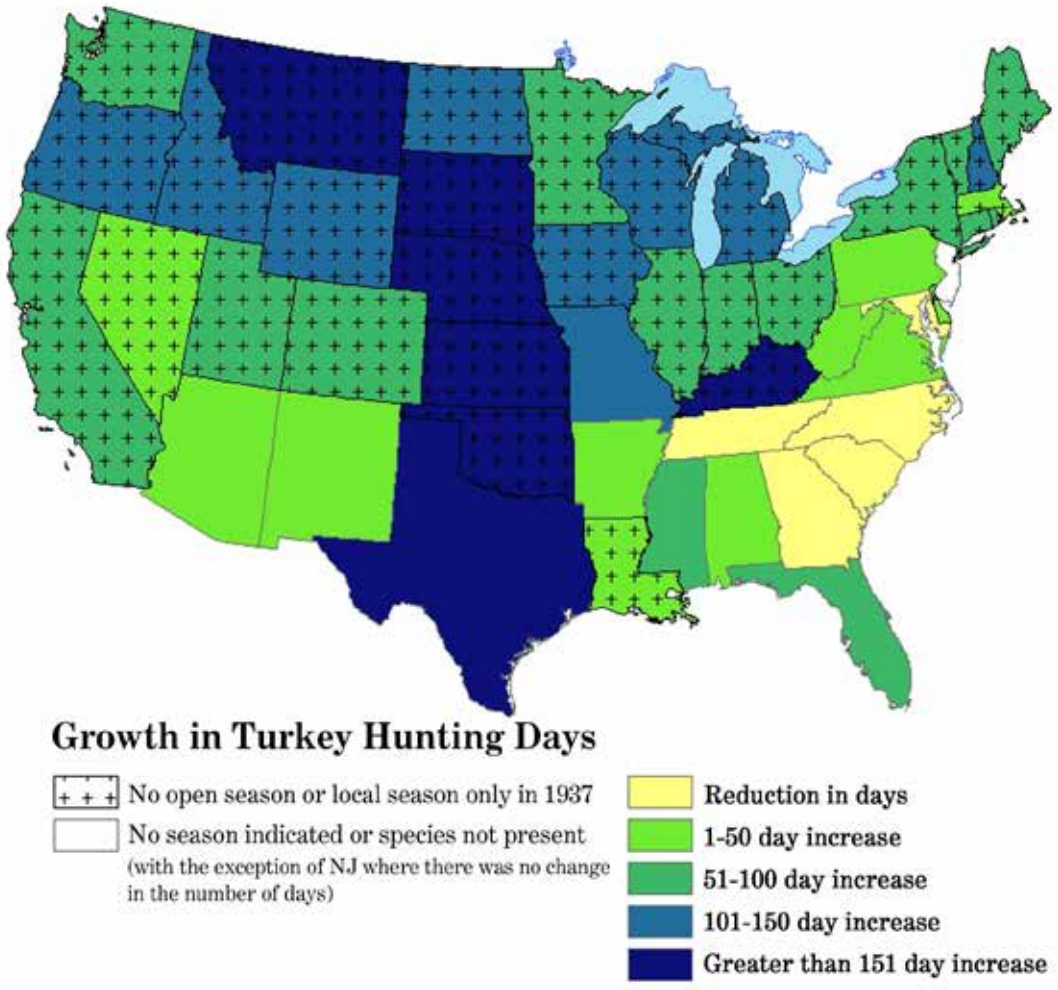
Source: 1986-2011 Federal Aid Information Managment System



Growth in Waterfowl Hunting Opportunities 1937 to 2010

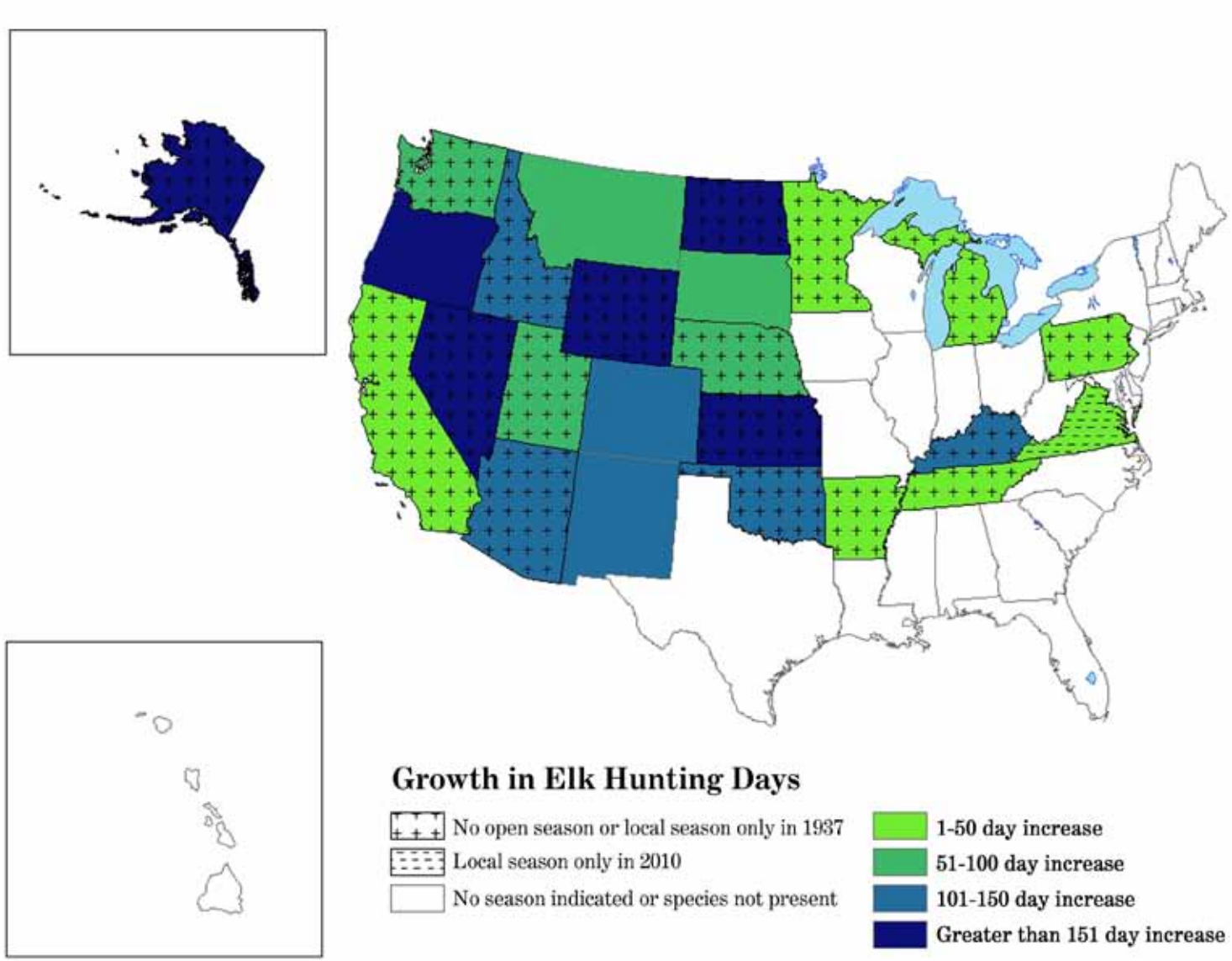
Source: Southwick Associates and Andrew Loftus Consulting. Financial Returns to Industry from the Federal Aid in Wildlife Restoration Program. Produced under a Multi-State Conservation Grant (DC M66R) for the Association of Fish and Wildlife Agencies. February, 2011.

Note: In 1937, turkey hunters in the southeast had liberal fall seasons, but the turkey harvest was relatively low. Under current modern management programs, the turkey populations and hunter harvests have grown substantially in all states, including those in the southeast.



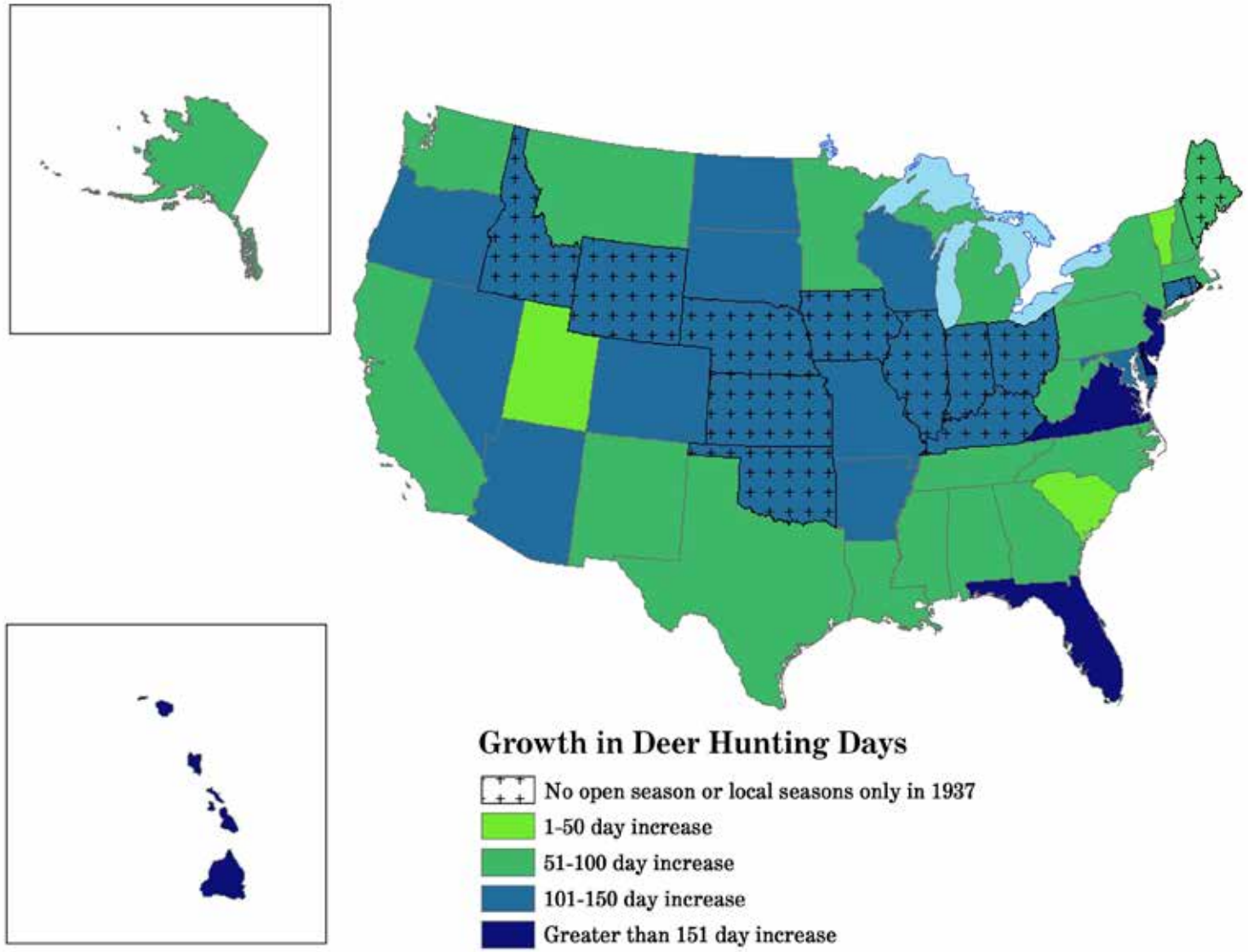
Growth in Turkey Hunting Opportunities 1937 to 2010

Source: Southwick Associates and Andrew Loftus Consulting. Financial Returns to Industry from the Federal Aid in Wildlife Restoration Program. Produced under a Multi-State Conservation Grant (DC M66R) for the Association of Fish and Wildlife Agencies. February, 2011.



Growth in Elk Hunting Opportunities 1937 to 2010

Source: Southwick Associates and Andrew Loftus Consulting. Financial Returns to Industry from the Federal Aid in Wildlife Restoration Program. Produced under a Multi-State Conservation Grant (DC M66R) for the Association of Fish and Wildlife Agencies. February, 2011.



Growth in Deer Hunting Opportunities 1937 to 2010

Source: Southwick Associates and Andrew Loftus Consulting. Financial Returns to Industry from the Federal Aid in Wildlife Restoration Program. Produced under a Multi-State Conservation Grant (DC M66R) for the Association of Fish and Wildlife Agencies. February, 2011.

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