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Wildlife Services Program Highlights

Fiscal Year 1997

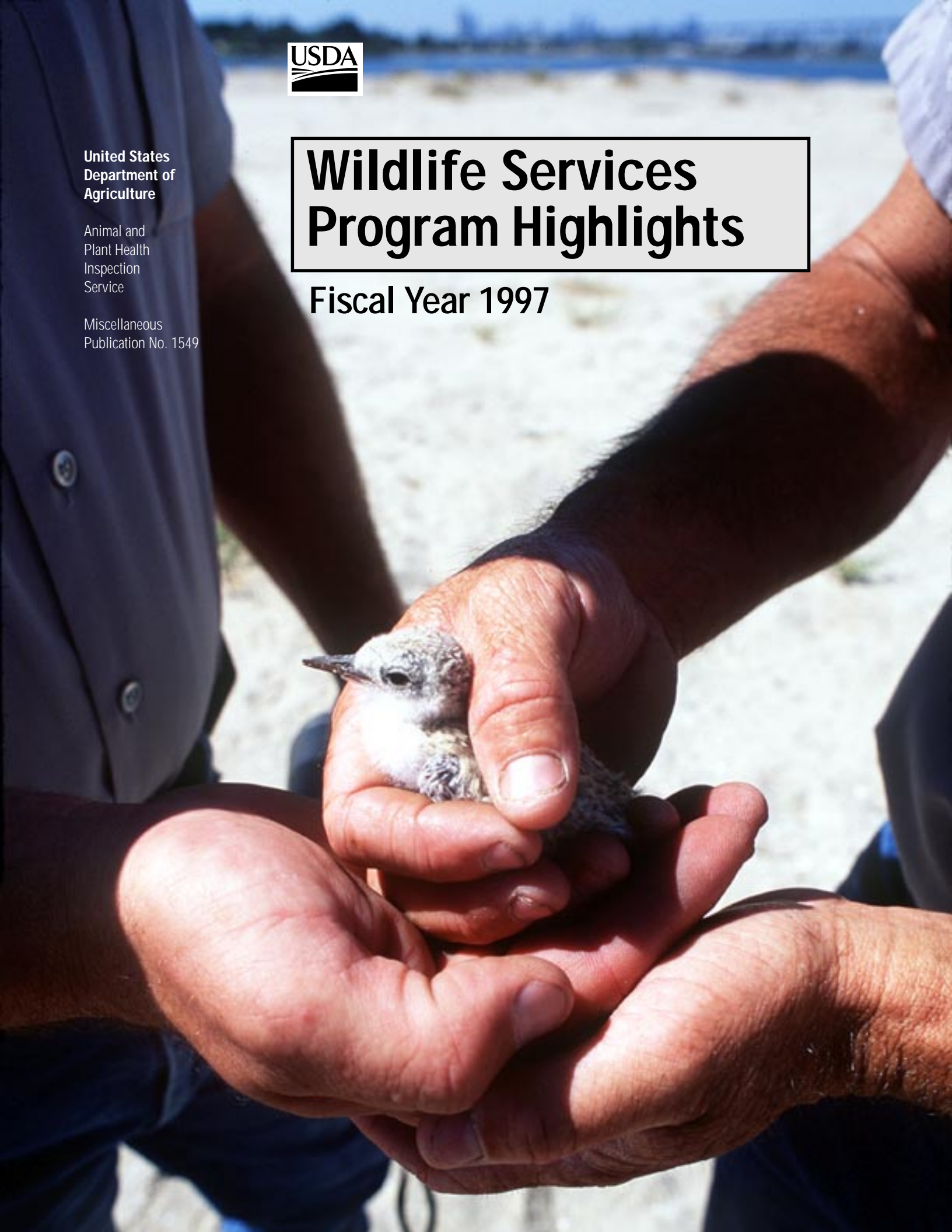


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INTRODUCTION

Since 1985, the Federal Government's efforts to manage wildlife damage to agricultural and other resources have been centralized in the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS). APHIS' Wildlife Services (WS) program (formerly Animal Damage Control) works to minimize the effects of wildlife on livestock and crops and to protect human health and safety and threatened and endangered wildlife species from wildlife damage as well.

This report documents WS' accomplishments during fiscal year (FY) 1997. Preparing the 1997 highlights report is one way we are working to keep the public and our State and local cooperators better informed about WS activities. To learn more about our research activities, you are encouraged to request a copy of the National Wildlife Research Center Highlights Report, Fiscal Year 1997. Write to USDA–APHIS–NWRC, 1201 Oakridge Drive, Fort Collins, CO 80525. For more details about the overall WS program, please write to:

Director, WS
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You may also visit WS on the Internet: point your Web browser to the WS home page at www.aphis.usda.gov/ws

PROGRAM HIGHLIGHTS

Name Change

On August 1, 1997, Animal Damage Control officially changed its name to Wildlife Services. The new name captures the essence of the program's current mission of balancing the needs of humans and wildlife in many different

situations, including protecting agriculture, safeguarding private property, protecting threatened and endangered species, and protecting human health and safety. The change also reflects the program's vision of "living with wildlife" and, most importantly, acknowledges the program's standing in the wildlife profession and with the program's customers.

Strategic Planning

Since 1993, WS has been implementing a new strategic vision for the program, a vision focused on improving the coexistence of people and wildlife. Since that time, WS has continued to move strategically toward a future in which damage by wildlife is reduced to lowest possible levels, while at the same time reducing wildlife mortality.

In FY 1997, WS continued to focus on four programwide goals established in 1996 to support the strategic plan: (1) providing wildlife services, (2) developing methods, (3) valuing and investing in people (i.e., our workforce), and (4) providing enhanced information and communication to our publics. Management and administrative systems and processes have been aligned with and are being driven by these goals, including leadership performance management,

management team meetings, and program accomplishment reporting. Employees across the Nation continue to participate in workshops to identify how they may contribute to these goals.

Additionally, WS' strategic management process has simplified the program's preparation to comply with the requirements of the Government Performance and Results Act (GPRA). The GPRA requires government agencies to have a strategic plan and to report annually to Congress accomplishments toward program goals supporting that plan. In 1997, six State programs pilot-tested methods to gather data to evaluate the effectiveness of their efforts, positioning WS ahead of the curve in meeting the requirements of the GPRA. Measurement areas included protection of (1) humans from wildlife–aircraft collisions and from rabies, (2) livestock, (3) sunflowers, (4) threatened and endangered species, and (5) roads from beaver flooding.



Workforce Planning Initiatives

In 1996, Deputy Administrator Bobby Acord assigned a team to evaluate the most significant current and future needs of the WS workforce and to develop strategies to meet those needs. In 1997, the WS Workforce Plan was completed and Management Team members selected priority areas of the plan to champion. These priority areas included (1) maintaining a broad base of technical skills, (2) enhancing public outreach and public involvement skills, (3) applying innovative research tools in the

field, (4) building leadership skills, and (5) increasing diversity of the workforce and leadership. The WS Workforce Plan will ensure that, despite the changing and complex nature of wildlife damage management, WS will continue to have the right people at the right place with the right skills to meet the needs of its customers. While WS' strategic plan provides a road map to a successful future, the Workforce Plan ensures the availability of our most important resource, prepared employees.

In support of the Workforce Plan, WS graduated the first class of the Leadership Excellence Program (LEP). The class consisted of diverse individuals from different areas within the program. Both operations and research were represented. The LEP is an 18-month development program designed to help WS meet anticipated vacancies in some of its top leadership positions in the near future. Participation in the LEP gave graduates an opportunity for leadership skills assessment, exposure to individually and

group-tailored learning curricula, developmental work details, mentoring from a senior-level leader, small- and large-group work projects, and networking with agency leaders in and outside of the WS program.

In addition, WS provided continual learning opportunities for five administrative personnel through APHIS' ExCel Program. ExCel is a flexible, competency-based training program that offers a variety of training opportunities that can be tailored to individual developmental and training needs.

National Agricultural Statistics Service

WS continued its agreement with USDA's National Agricultural Statistics Service (NASS) to determine the extent of wildlife damage to agricultural resources. In January 1997, NASS surveyed 1,465 catfish producers. Results indicated that 68 percent of the respondents spent some effort to avoid wildlife-related losses to their catfish crops. Of all losses reported, 67 percent of the catfish were depredated by wildlife, primarily birds. In Mississippi, where 81 percent of damage was due to wildlife, cormorants were cited as the cause 53 percent of the time. Other birds causing damage included egrets, pelicans, gulls, and other waterfowl.

Wildlife-related damage and prevention of further damage were projected to have cost catfish producers \$17 million in 1996.

The survey also included questions about WS. Of the producers surveyed, 44 percent were familiar with WS. In that group, 51 percent had contacted WS. Of the producers who requested service, 55 percent used the methods suggested by WS to reduce the losses themselves, while 40 percent received direct assistance from WS.

Program Development Activities

During FY 1997, total funding supplied to WS cooperators increased by approximately \$3.5 million. Much of this funding was allocated for projects on predator and beaver damage-management and human health and safety. Examples follow.

- Cooperative funding of \$80,000 from the North Dakota Fish and Game Department. Of that total, \$40,000 was reserved for general wildlife damage management activities, \$10,000 for technical education in wildlife damage management, \$20,000 for cost-sharing with cooperators on aerial hunting activities, and \$10,000 for cost-sharing with producers on the purchase of guard animals and/or electronic guard devices.

- Cooperative funding of \$300,000 from the Washington State Department of Fish and Wildlife for predator damage-management activities. The funding is appropriated for a 2-year time period.

- Cooperative funding of \$50,000 from general funds through the Iowa Department of Natural Resources for wildlife damage management.

- Additional cooperative funding of \$150,000 from general funds through the Alabama Department of Agriculture to be used for wildlife-related damage to aquaculture and for other wildlife problems, especially beaver damage.



- Cooperative funding of \$131,500 from the North Dakota Department of Agriculture for wildlife damage-management activities.

The West Virginia Integrated Predation Management Program, a cooperative arrangement between WS and the State of West Virginia, was established in 1996 to assist livestock producers in managing livestock losses to predators. Under this new program, WS reduced livestock losses by 91 percent in three eastern mountain counties. In FY 1997, the State has provided additional funding for WS to expand its predation management services into Greenbrier, Grant, Hardy, and Monroe counties.

WS entered into a cooperative program with the Department of Energy to manage deer damage at the Fermi National Accelerator Laboratory near Chicago. An environmental assessment was developed to evaluate alternatives for reducing environmental damage caused by the overpopulated deer herd before implementing a management plan. About 400 white-tailed deer occupy the 10 square miles of laboratory property.

WS will be a key player in the reintroduction of the Mexican wolf in New Mexico and Arizona. In cooperation with the U.S. Fish and Wildlife Service (FWS), the WS western regional office negotiated an agreement for a wolf specialist to be based in Springerville, AZ.

The specialist will develop and carry out individual wolf damage-management programs and assist cooperating agencies with other aspects of monitoring and managing the reintroduced population of Mexican wolves.

WS personnel from Oregon and Washington participated in a meeting in Oregon with State and Federal officials to review information regarding conflicts between Canada geese and people. Numbers of geese in the Willamette Valley of Oregon are 300 percent above target levels, and their damage to agriculture is increasing annually. WS provided technical and operational assistance to the farmers, but the high numbers of geese remain

difficult to manage. Participants at the meeting discussed short- and long-term plans to deal with the problem.

Beaver damage in Oklahoma and Texas has resulted in millions of dollars' worth of property loss each year. Beaver populations have multiplied in both States' water drainage systems. The beavers' burrowing activities weaken earthen dams, highway foundations, dikes, and railroad trackbeds. Dam-building activities cause the flooding of roadways, pastures, and crop and timber lands by blocking water systems, plugging culverts, and stopping up drain pipes. The beavers' feeding activities result in the loss of trees and shrubs in





urban, suburban, and rural locations from girdling and cutting. Annual damage from beavers in Oklahoma has increased exponentially, along with their populations. WS has documented more than \$500,000 worth of damage annually since 1984, increasing to nearly \$1 million annually. The WS Western Region expects an increase in the beaver population and increased requests for technical assistance or direct control.

The WS cooperative beaver damage management program in North Carolina proved to be popular among State highway officials, soil and water conservation districts, municipalities, and private landholders, who collectively funded 97 percent of the 1997

program. WS' beaver management activities saved an estimated \$3.8 million in damage to forest and agricultural resources, waterways, highway infrastructure, and other property. Comparing the resources saved to expenditures, the benefit-to-cost ratio of WS work in North Carolina was 5.8 to 1, or \$5.80 saved for every \$1.00 spent.

Recent technology has enabled WS specialists to use global positioning system (GPS) units for the purpose of mapping equipment placements. Fixed-wing aircraft have been equipped with GPS units and are being used to record equipment placement. This technology has potential to help WS become even more proficient.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) process has become a management and planning tool for WS State programs. NEPA environmental assessments (EA's) are routinely developed by Federal agencies to analyze the impacts of proposed actions and to provide the best environmental information available for planning and decisionmaking. A growing need for these EA documents outside of

Federal agencies is emerging. In Virginia, WS has developed 10 EA's for various municipalities. The documents are used by city governments to make informed decisions about wildlife conflict management and to inform the public. During FY 1997, a total of 25 supervisors and managers received training on applying the NEPA process.

Brown Tree Snake Control Program

The brown tree snake (BTS) program in Guam continues to expand. In 1997, the FWS augmented WS' budget to expand training services to surrounding islands. The military bases rely on WS to train military personnel on inspecting shipments of personal belongings prior to leaving the island. To further reduce the spread of the BTS onto neighboring islands, WS hired two additional wildlife specialists and trained two additional snake-detector dogs (Jack Russell terriers) in 1997.

In cooperation with Department of Defense (DoD) and the State of Hawaii, WS has produced two training videos to aid this effort. Guam WS personnel attended a "Safety Stand Down Day" hosted by the Commander-in-Chief of Guam's naval facilities. A major change in base personnel prompted the 4-hour event, which centered on educating more than 500 newcomers and their families on base operations and procedures. WS demonstrated the use of snake-detector dogs and techniques for identifying hiding places for the BTS.



Public Information and Activities

WS continued its "Living With Wildlife" public information campaign during 1997. WS started this outreach program in January 1994 to better inform the general public, especially young people, about wildlife, wildlife damage, and the goals, mission, and objectives of the WS program. An active campaign to place WS educational materials in classrooms has also continued.

During 1997, more than 100 positive news items were placed in national and regional publications, as well as on national and regional TV news shows. *Inside Edition* did a story on the BTS program, and *National Geographic TV* did a story on crow roost problems. Other articles ran on bird-aircraft

strike work at airports; beaver damage management in the South; the rabies program in Texas, New England, and Ohio; urban wildlife problems; new research initiatives; and wolf damage management in Minnesota and the Greater Yellowstone area. Major news organizations picking up our story included the Associated Press, the *Los Angeles Times*, *The New York Times*, the *Wall Street Journal*, the *Washington Post*, the *Chicago Tribune*, the *Miami Herald*, *Smithsonian Magazine*, *People Magazine*, *National Geographic*, the Discovery Channel, CBS News, and CNN.

North Dakota WS specialists presented information to 200 people at the North Dakota State

University research-extension field day on reducing or preventing damage caused by predators, waterfowl, and blackbirds. In addition, a seminar entitled "Hooked on Wildlife—Not Drugs" was presented to 70 young people ranging from 12 to 16 years of age.

A public television film crew from Weisbaden, Germany, accompanied WS personnel as they investigated a wolf predation incident on a northern Minnesota farm. WS personnel were filmed performing damage management activities to reduce wolf depredation on livestock and were interviewed about the cooperative WS wolf management program in Minnesota. The film crew is

producing a television documentary about the eastern timber wolf that will include the wolf's natural history, research studies, depredation management, and wolf conservation education programs in Minnesota. The documentary will air on public television stations throughout Germany.

WS personnel provided training in wildlife damage management to 32 Mississippi Department of Wildlife, Fisheries and Parks conservation officers. This annual 3-day seminar is one of several training programs that make up the Department's continuing education curriculum. Course participants consistently rate the wildlife damage-management

training as the best part of the entire curriculum.

Arizona WS personnel were involved in field demonstrations for The Humane Society of the United States during a wildlife exposition in Phoenix in February 1997. WS provided a classroom lecture and field demonstrations on techniques used in capturing, handling, and deterring urban wildlife.

Wyoming WS personnel participated in the annual "Ag in the Classroom" program at Casper College. Over 3 days, more than 1,200 third-, fourth-, and fifth-grade students and their teachers visited the WS display. The children viewed the "Living With Wildlife" video and learned about the damage wildlife causes to American agriculture.

The Colorado Foundation for Agriculture invited Colorado WS employees to staff a booth for 4 days at the National Western Stock Show in Denver. Thousands of visitors from across the country attend the show, billed as the largest stock show in the Nation. WS personnel had many opportunities to visit with the public, describe the WS program, and answer questions about wildlife damage management.

Specific information regarding WS' "Living With Wildlife" campaign can also be found on the WS home page. Point your Web browser to <http://www.aphis.usda.gov/ws/wsmain.htm>

NWRC Activities

On August 4, 1997, the Denver Wildlife Research Center in Lakewood, CO, was officially closed and the National Wildlife Research Center (NWRC) in Fort Collins, CO, was opened. As of that date, all NWRC headquarters personnel began working out of a combination of permanent and GSA-leased facilities in Fort Collins. Work on the new headquarters office and laboratory building on the Foothills Research Campus of Colorado State University began in 1997, and occupancy of that building is expected in late 1998. At that time, all headquarters personnel will finally be located at one site after 4 years in transition.

During 1997, NWRC personnel began new and continued ongoing work on existing cooperative

agreements. For more comprehensive information about NWRC's strategic planning and the scope of its research activities, request a copy of the Center's annual highlights report (USDA Miscellaneous Publication No. 1547) from the NWRC Library. See the introduction on p. 3 for ordering information.

The following bullets describe a few of NWRC's cooperative agreements.

- An agreement with the Texas Sheep and Goat Commodities Board to study the immunological and behavioral effects of immunocontraceptive technology on coyotes in facilities at Utah State University.
- An agreement with DoD to continue research into the development of chemical control methods for BTS management on

Guam. Work in 1997 emphasized evaluating toxicant delivery devices and attractants.

- An agreement with the California Department of Food and Agriculture to evaluate potential new chemicals to reduce rodent damage to agricultural resources.
- An agreement with the Washington Forest Protection Association to support research to help alleviate wildlife damage to forest resources. Recent research has delineated many of the variables associated with black bear damage to Douglas-fir. Researchers are now trying to assess the effectiveness of various methods to reduce black bear damage.
- An agreement with the U.S. Army to conduct research on reducing waterfowl deaths caused by white phosphorus at Eagle





River Flats, AK. Telemetry studies were conducted to determine mortality rates and to evaluate the effectiveness of Alaska's WS hazing program. AquaBlok®, a sediment barrier, was also shown to be effective in reducing white phosphorus-caused waterfowl mortality.

Wildlife strikes to aircraft are a serious economic and safety problem for civilian aircraft in the United States. Bird strikes are reported to the Federal Aviation Administration (FAA). However, until now, this information has not been entered into a computerized

data base so that the wildlife strike data can be analyzed. Through an agreement with the FAA, NWRC took over management of the FAA wildlife strike reporting system in 1995. More than 17,000 strike reports from 1989 through 1997 have been edited and accurately entered into the National Wildlife Strike Database. The data base helps biologists to define problems by species, time of year, and other factors so that science-based management and preventive plans can be developed. NWRC has already handled more than 140 requests for information on wildlife strikes nationwide.

As part of this data-base entry process, NWRC, again in cooperation with the FAA, recently completed the first multiyear analysis of reported wildlife strikes to civilian aircraft in the United States. In 1993, 1994, and 1995, an average of 2,200 strikes to civilian aircraft was reported annually. Gulls (30 percent) and waterfowl (13 percent) were the most commonly struck wildlife. Mammal strikes included 123 deer and 24 coyotes. It is estimated that less than 20 percent of strikes were reported to FAA, indicating that the nationwide economic losses from strikes to civilian

aircraft in 1993–95 exceeded \$150 million/year. Other researchers have estimated losses from wildlife strikes to U.S. military aircraft to average \$112 million/year.

Several species of blackbirds congregate near Louisiana rice fields in winter roosts that may exceed 15 million birds. These birds cause extensive damage to sprouting and ripening rice, with losses to rice growers estimated up to \$11.5 million annually. Repellants, such as anthraquinone and methiocarb (Mesuro1™), were tested for repellancy in a series of



trials to identify treatment levels appropriate for field evaluations on newly seeded rice. In one series of tests, consistent, effective repellancy with no adverse effects on seed germination and growth was obtained when the compounds were applied to soaked rice seed. In other cage tests with anthraquinone, blackbird consumption of treated rice seed was reduced an average of 92 percent. In field evaluations conducted in Louisiana, a formulation of anthraquinone significantly reduced sprout losses to birds.

Research by NWRC scientists and cooperators has resulted in the registration of an oral tranquilizer trap device. The drug, propio-promazine hydrochloride, has been authorized by the U.S. Food and Drug Administration (FDA) for investigational–operational use by WS for coyotes, wolves, and other predatory species to reduce injuries associated with restraint traps. WS personnel have developed training materials and protocols for implementation of the tranquilizer trap device. Field use will include WS personnel and university researchers certified by

WS. Full field implementation is expected in late FY 1998.

WS manages wildlife–human conflicts by using an integrated approach that employs some vertebrate pesticides. NWRC was responsible for helping to maintain existing product registrations for APHIS, for applying for a new registration for an end-use product with a new active ingredient (MesuroI), and for obtaining two Investigational New Animal Drug (INAD) authorizations for vaccines used as immunocontraceptives.

For 17 consecutive years, NWRC has cooperated with the FWS in trapping cowbirds in Michigan to protect the endangered Kirtland's warbler from nest parasitism. About 100,000 cowbirds have been removed from warbler nesting areas since the trapping program began. During this time, nest parasitism by cowbirds decreased from more than 50 percent to less than 5 percent of nests, and the nesting populations of warblers has increased from 180 nesting pairs to more than 600.

PROTECTION OF AGRICULTURAL RESOURCES

West Virginia sheep producers estimated that they lost 3,917 lambs to coyotes in 1995. In 1996, a cooperative agreement was signed between the West Virginia Department of Agriculture and WS to conduct operational and educational assistance to sheep producers in Pendleton, Pocahontas, and Randolph counties. In the 12 months prior to the agreement, 40 sheep producers in that 3-county area lost a total of 1,111 goats and sheep to coyotes. In the 6 months after WS began operational activities to reduce coyote predation on goats and sheep, only 101 goats and sheep were lost to coyotes. This represents a

91-percent decrease in coyote predation on goats and sheep on the 40 ranches that participated in the program. In 1997, the WS program was expanded into seven eastern mountain counties, where 66 percent of the State's sheep producers are located.

Over several years, unseasonably cool, wet weather stunted cotton crops in Alabama. The small plant size resulted in a dramatic increase in wildlife damage. Some producers reported up to 40 percent of their crop damaged, primarily by deer. WS coordinated with the Alabama Game and Fish Commission and provided frightening devices and other

technical assistance to producers. Producers reported a reduction in damage after implementing the WS recommendations.

In FY 1997, the livestock protection collar (LPC) was successfully used in Texas and California to reduce coyote depredations to sheep, lambs, and goats. The LPC is a control method that selectively removes depredating coyotes by focusing on the coyote's behavior of killing by crushing an animal's windpipe. In Texas, 43 LPC projects were conducted by WS personnel. Of the 43 projects, 25 (58 percent) were successful. The immediate predation stopped on 18 LPC

projects as a direct result of coyotes puncturing collars. In California, 14 LPC projects were conducted in 1997; 7 of the 14 projects (50 percent) netted results with 9 coyotes taken.

Del Monte Fresh Produce, one of Hawaii's largest producers of pineapples, requested WS' assistance in controlling feral swine in its Oahu fields. The swine were consuming plants, resulting in damages in excess of \$35,000. WS personnel used leg snares to capture and remove five swine from a 65-acre field to stop the damage.



PROTECTION OF ENDANGERED SPECIES AND OTHER NATURAL AND CULTURAL RESOURCES

Specific Endangered Species Protection Efforts

WS work for the protection of threatened and endangered wildlife species is expanding throughout the Nation. California WS personnel negotiated an annual agreement with DoD to protect the endangered loggerhead shrike on San Clemente Island. This species is one of the most endangered birds in the United States. Also in FY 1997, new projects were started and annual projects were renewed in a number of States to protect animals such as black-footed ferrets, California least

terns, California clapper rails, light-footed clapper rails, western snowy plovers, Utah prairie dogs, Aleutian Canada geese, salt marsh harvest mice, California red-legged frogs, least Bell's vireos, and numerous species of birds on the Hawaiian Islands.

In response to a request from the Florida Department of Environmental Protection and the FWS, assistance was provided in protecting endangered and threatened sea turtles and the



St. Andrews beach mouse from coyote predation at the St. Joseph State Park in western Florida. Four coyotes were removed from the park. Predation of sea turtle eggs decreased from 52 percent in FY 1996 to less than 5 percent in FY 1997.

Damage to commercial beehives in southwestern Mississippi from Louisiana black bears, a federally protected threatened species, has been severe in recent years. WS organized a multi-agency taskforce of employees from Federal, State, and university conservationists to implement a successful damage management strategy. The taskforce formed patrols and used frequent site visits to hives, harassment, and electric fencing to disperse the bears and protect 38,000 beehives. Hive damage was reduced by 80 percent compared to previous years. The project received favorable press from newspapers around the State and convinced producers that this type of damage can be managed without harming or relocating animals.

South Dakota WS personnel recently completed a 3-month predator control project to protect newly released black-footed ferrets, another endangered species. This is the fourth year of introducing black-footed ferrets on the Badlands National Park and Buffalo Gap National Grasslands. In the previous 3 years, ferret deaths during the initial release ranged from 62 percent to 78 percent. Most if not all of this mortality was attributed to predators, both terrestrial and avian. WS was asked to provide predator management for 63 newly released ferrets in FY 1997. In the 3 months after initial release, only three losses (5 percent) have been documented. Two released ferrets were apparently killed by coyotes, and one was believed taken by an eagle. Predator management will likely be a key factor in the successful reintroduction of black-footed ferrets.

A WS wolf specialist in Wyoming responded to a complaint of wolves killing lambs and ewes on property leased from the Bridger-

Teton National Forest. WS verified that a single wolf had killed 38 lambs and 3 ewes, and injured 5 additional lambs that later died. The wolf was captured the first morning after traps were set around the depredation site. The radiocollared female was relocated within Yellowstone National Park.

WS continues to participate in the gray wolf reintroduction program in the Northern Rockies, and wolf damage-management in the State of Minnesota. Not surprisingly, complaints about wolf depredation in Idaho, Montana, Wyoming, and Minnesota increased as a result of the expanding wolf population.

WS personnel spent more than 1,700 hours responding to more than 75 incidents of wolves damaging livestock in Idaho, Wyoming, and Montana. The WS program in Minnesota expended more than 2,300 hours responding to more than 65 incidents involving wolf damage. By controlling depredation by individual animals, the majority of the reintroduced wolves are able to coexist with livestock operations in the area. Wolf numbers in the Northern Rockies now total about 160 animals as a result of the reintroduction program. The wolf population in Minnesota is estimated to be 2,400 animals.

Other Natural and Cultural Resources Protected

WS cooperated with Kershaw County, SC, officials to control beaver-induced flooding that threatened two historically significant Indian burial mounds. The mounds entomb King Haigler of the Wateree Tribe and his queen and have been featured in a

documentary by the National Geographic Society. WS removed several beaver dams and problem beavers to restore natural water drainage and alleviate flood damage to the mounds and adjacent timber and agricultural land.

PROTECTION OF PROPERTY

During the summer of 1997, Wisconsin WS personnel responded to 203 complaints involving beaver damage. A total of 140 beaver dams causing damage to roads, 472 dams damaging 750 miles of trout streams, and 23 dams affecting wild-rice production in natural lakes were removed. These activities were conducted in two national forests (Chequamegon

and Nicolet), and encompassed 8 counties and 45 townships.

County commissioners requested assistance from WS in dealing with beaver damage in the towns of Pitcher and Cardin, OK. The aquatic rodents had built several dams that caused the flooding of 25 homes with an estimated \$20,000 damage to property. WS specialists used a variety of

methods to remove the beavers and prevent further damage.

Eastern woodrats caused more than \$34,000 in damage to several new cars parked in a grass lot at a vehicle dealership in Manhattan, KS. The rats damaged the cars by chewing on wiring and building nests in the cars' engines. The most severely damaged vehicle, a 1997 Toyota Celica GT convertible,

was totally destroyed when a rat's nest ignited after the car was started. Fire, smoke, and fire suppressant spray damaged the car beyond repair. A private pest-control operator, acting on behalf of the dealership, contacted WS and was provided technical assistance on controlling woodrats.

PROTECTION OF HUMAN HEALTH AND SAFETY

Recent attacks on pets and a growing concern for human health and safety has prompted State, county, and local government officials to ask for WS' assistance. Wildlife-human conflicts relating to human health and safety, including problems at airports, are on the increase.

Public Safety

During the summer of 1997, Canada geese posed potential health problems at Tennessee Valley Authority (TVA) recreation areas and at the Watts Bar Nuclear

Plant in Tennessee. Goose droppings created unsanitary conditions on swimming beaches at three TVA reservoirs, on sidewalks, and in other public-use areas. The landscape around the nuclear plant administration building complex was covered with goose droppings. In

cooperation with the State wildlife agency, WS relocated more than 500 geese and used harassment techniques to disperse remaining birds from the problem sites. Sanitation problems were virtually eliminated.



An 86-year-old woman contacted WS in Mariposa County, CA, after she had been attacked at her home by a gray fox. She kept the fox at bay by hitting it with her cane. On arrival at the residence, the WS specialist was shown the cane, which had numerous bite marks. The WS representative located the fox, was immediately attacked, and quickly removed the animal. It tested positive for rabies.

In September 1997, a boy swimming at Jordan Lake State Park near Raleigh, NC, was attacked and bitten by a rabid beaver. This incident prompted Park officials to close the swimming areas and seek assistance from WS. State Park personnel and WS staff conducted intensive day and night searches and removed several beaver, one of which tested positive for rabies. This was the second case of a rabid beaver attacking a person in the Park. Earlier in the summer, a rabid beaver attempted to climb into a boat with several fishermen. Rabies in beaver is extremely unusual: only 14 cases nationwide have been reported to the Centers for Disease Control and Prevention over the past 40 years.

The Texas WS program helped the Texas Department of Health complete the third year of an oral rabies vaccination program to control canine rabies in coyotes. In January of 1997, 2.6 million baits were dropped from aircraft. The expansion of the rabies outbreak has been contained, and cases of canine rabies have been dramatically reduced throughout the primary vaccination zone. In March 1997, 87 percent of the coyotes tested from the target area had shown evidence of exposure to at least one bait from the aerial drop. In addition, 82 percent of the coyotes tested showed evidence of an immune response. Since the completion of the 1997 program, only two cases of rabid coyotes have been identified in South Texas.

During 1997, WS participated in a multi-agency effort to stop the

advance of raccoon strain rabies into northeastern Ohio. A coalition of State and local agencies, APHIS Wildlife Services, APHIS Veterinary Services, the Centers for Disease Control and Prevention, and Cornell University distributed more than 99,000 oral rabies vaccine baits aerially and by ground placement. The vaccine baits were spread over a three-county area to create a barrier to stop the westward spread of the virus. WS biologists are conducting surveillance trapping in the barrier zone to measure the success of the project through the collection of raccoon blood samples.

Heavy rains in California caused a number of levee breaks in Yuba, Sutter, and Colusa counties during FY 1997. The levee breaks resulted in serious floods that led to the evacuation of hundreds of

homes and threatened human safety. A number of the levee breaks were attributed to the burrowing activities of beavers. Damage costs from the levees that failed due to beaver activity were estimated at \$130,000. Damage included costs to repair the levees, remove the trees that had been cut down by beavers, and unblock clogged drainages, and construction of emergency levees to protect homes and businesses from flooding. The damage estimates did not include the damage caused to private residences, crops, or cropland. WS personnel continue to be involved in those counties to reduce beaver damage to levees by implementing a variety of nonlethal and lethal control methods.



Airport Safety

Wildlife that loiter in and around airports present a threat to public safety when they collide with aircraft or get pulled into the powerful aircraft engines on runways. FAA regulations require airports experiencing wildlife-aircraft conflicts to develop and implement wildlife management plans. WS has entered into new cooperative agreements and has continued agreements in place since 1989 to resolve wildlife hazards at airports. WS is currently working on wildlife hazard management projects for 50 airports and military installations. Personnel are working continuously to upgrade methods and techniques for wildlife hazard reduction.

Virginia's Norfolk and Richmond international airports requested proposals for conducting ecological studies and developing wildlife hazard-management plans. During 1997, the two major airports serving Washington

DC—Dulles International Airport and National Airport—requested that WS extend their wildlife hazard management programs for 3 additional years. Other airports and military airfields in Virginia requesting WS assistance were Roanoke Regional Airport, Quantico Marine Base, Langley Air Force Base, and Richmond Air National Guard Base.

About 300 participants attended the Seventh Annual meeting of the Bird Strike Committee—USA (BSC—USA) at Boston's Logan International Airport August 12–14, 1997. The meeting, which received local and national newspaper and TV coverage, was sponsored by WS, FAA, and DoD, and the Wildlife Hazards Working Group in cooperation with Logan International Airport. The goal of BSC—USA is to increase communication and professionalism among the diverse groups dealing with wildlife issues on airports and the 1997 meeting appeared to be highly successful in this regard. A total of 42 technical papers and poster sessions were presented on

topics related to reducing wildlife collisions with aircraft.

In 1997, WS personnel developed a software package to assist biologists at airports in designing wildlife hazard-management plan and reporting bird strikes. The computer program was presented at the BSC—USA meeting, and was received with great interest.

In California, WS personnel assisted various civilian and military airports. The San Francisco International Airport provided funding for a WS biologist to give a 1-day training program to 40 airport employees. The training covered the use of management techniques to reduce the threat of wildlife-aircraft strikes. The San Francisco Airport is located in a wildlife-rich environment, close to the coast and San Francisco Bay. Shore- and waterbirds abound. WS personnel also provided training to personnel at Edwards Air Force Base. WS personnel conducted wildlife hazard-management work at Sacramento International Airport, Oakland International Airport, Monterey

Airport, Santa Barbara Airport, Humboldt County Airport, Beale Air Force Base, McClellan Air Force Base, and North Island Naval Air Station.

During 1996, Whiteman Air Force Base entered into a cooperative agreement with WS for a biologist to provide technical and operational assistance to reduce bird strikes to the B-2 Stealth bomber. WS activities during FY 1997 have been successful in reducing the birdstrike rate at the Base. To date, 34 Whiteman personnel, including airfield operations employees, civil engineers, pilots, and flying safety officers, have received training in bird identification, hazard assessment, and harassment techniques from WS.

In August 1997, the New Jersey WS program successfully completed its seventh year of assistance to the Port Authority of New York and New Jersey at John F. Kennedy International Airport, in a program that has reduced gull collisions with aircraft by 75 percent to 90 percent.

CUSTOMER SERVICE AND PROGRAM EVALUATION

In 1993, WS established an evaluation committee to better assist customers and improve services provided. The purpose of the committee is to conduct yearly evaluations of individual State programs in regard to program operation and other key areas, including procurement, service delivery, customer satisfaction,

and cooperative relations with State and Federal regulatory and non regulatory agencies. During 1997, about six Statewide evaluations were conducted. These evaluations increase proficiency and maintain a high standard of customer service throughout the program.

AWARDS AND PUBLIC RECOGNITION

USDA Secretary Dan Glickman honored several WS employees for their outstanding achievements in FY 1997.

The WS wildlife hazard management staff at Chicago's O'Hare International Airport received the USDA Award for Superior Service for "personal and professional excellence" in protecting public safety at the world's busiest airport. The group included Mark Jensen, Kirk Gustad, Todd Grim, Andy Montoney, Maury Bedford, and Ed Hartin. The award recognized WS' implementation of an effective wildlife hazard-management program. Management plans went into effect in 1993 to reduce the number of strikes from ring-billed gulls, waterfowl, and deer. Gull problems have been reduced by 77 percent and waterfowl strikes, by 88 percent. Deer caused five strikes and several near misses from 1982 to 1993. In 1993, the deer management program removed 101 deer, and the airport has not had any deer-caused problems since then. In addition, WS personnel began a capture-and-release program for hazardous raptors in 1996 that led to a 68-percent reduction in raptor-caused damage in the first year.

Secretary Glickman presented USDA Honor Awards to NWRC's Richard Dolbeer for "personal and professional excellence" and to

Richard Wadleigh for "environmental protection."

In August 1997, the Black Bear Conservation Committee gave the Louisiana and Mississippi WS programs its Chairman's Award for their contribution to the restoration of the Louisiana black bear, a threatened species in Louisiana, Mississippi, and Texas. Louisiana WS personnel were recognized primarily for their contribution to the Committee's conflict management team, and for their role in setting up a system for responding quickly to bear complaints throughout the geographic range of the subspecies. Mississippi WS personnel were recognized for their role in establishing and conducting a harassment program for marauding black bears to prevent damage to beehives in Wilkinson County. The harassment program resulted in a near zero loss in beehives belonging to the largest commercial beekeeper in North America. With WS' assistance, the efforts of both State and Federal agencies have increased the likelihood of the general public to report bear conflicts instead of killing the problem bears, a common practice in the past.

During spring 1997, flooding in North Dakota left thousands of livestock dead and decomposing in waterways. All 18 employees of the North Dakota-South Dakota WS program helped victims of the



flood and assisted with carcass removal. A total of 123,000 cattle and other livestock were killed, and millions of dollars' worth of buildings, machinery, and stored crops were destroyed by the floods. WS employees took the lead in using small boats to remove more than 1,000 cattle carcasses from streams and water impoundments. WS employees helped answer phones at the Agricultural Disaster Response Center in Bismarck, ND. In total, WS personnel worked 965 hours of regular time and 578 hours of overtime and flew 34 hours of aerial reconnaissance during the livestock-disposal project. The State recognized the WS employees for their assistance and

ingenuity in keeping sometimes temperamental equipment operating under difficult conditions.

This year, the Western Region created a special award honoring Bill Spalsbury. This annual award is open to any WS employee in the Western Region and also to employees of our cooperators. The first recipient of the award was Mel Anderson, a Nevada WS State employee since 1973. Mel exemplifies the high degree of professionalism, dedication, and personal integrity represented by the award.