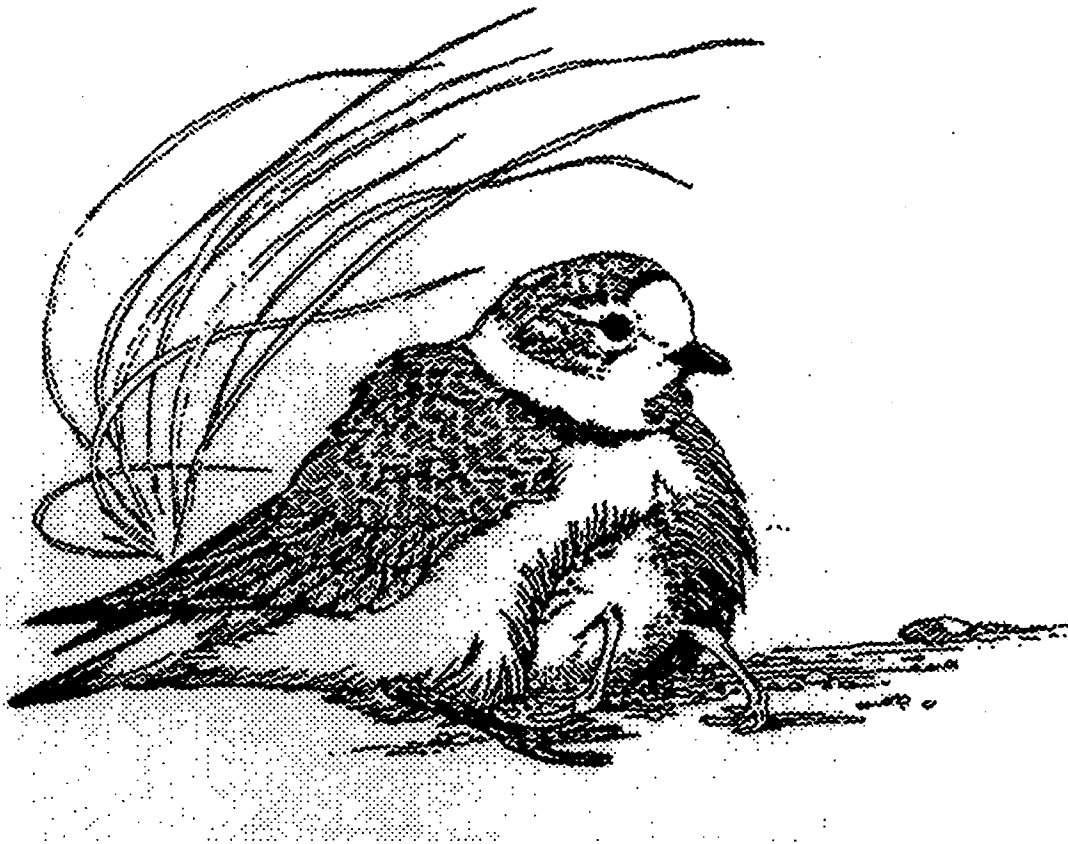


**NORTHERN GREAT PLAINS PIPING PLOVER RECOVERY
IMPLEMENTATION CONDUCTED BY THE FISH AND WILDLIFE
SERVICE IN REGION 6 (MT, ND, SD, NE, KS, CO) 1986-1997**



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EXECUTIVE SUMMARY

Recovery efforts for the Northern Great Plains Population of the piping plover (Charadrius melodus) focus on achieving recovery goals established by the Great Lakes and Northern Great Plains Piping Plover Recovery Plan (1988). The recovery goals established by the 1988 plan called for birds in the Northern Great Plains to increase to 1,300 pairs and remain stable for 15 years. Recommended recovery actions to reach those goals included determining population trends and habitat requirements; protect, enhance, and increase populations during breeding, migration, and wintering periods; develop management plans for use and protection of various habitat types and develop public education and awareness programs about the piping plover.

In response to these recommended actions the Fish and Wildlife Service Mountain-Prairie Region (Region 6) has moved forward with management efforts directed at recovery of the Northern Great Plains Population of the piping plover.

Twenty Service field offices (including the Divisions of Refuges, Law Enforcement, and Ecological Services) have participated in annual surveys and monitoring efforts for piping plovers and/or the 1991 and 1995 International Piping Plover Census (the most extensive census of any North American endangered species). Often fledge rates for piping plovers have been monitored to evaluate productivity on nesting grounds.

Thirteen Service field offices (including the Divisions of Refuges, Law Enforcement, and Ecological Services) have participated in on the ground management efforts directed toward the conservation and recovery of piping plovers. These efforts included placing predator cages on plover nests (including monitoring and surveillance of nests), habitat enhancement and creation, livestock exclusion fences, water control manipulation, vegetative control, private landowner agreements to manage for plovers, predator removal and use of predator exclusion devices (electric fences and strobe systems), posting and patrol of nesting sites, investigation of violations of the Endangered Species Act that involved plovers, coordination and participation in plover salvage efforts on the Missouri River, coordination and participation with the zoo community through the American Zoological and Aquarium Association on developing husbandry techniques for plovers, and development of management plans for nesting areas. Scientific, technical and internal reports were prepared for many of the above actions.

Ten Service field offices (including the Divisions of Refuges and Ecological Services) participated in research efforts aimed at the continued conservation and recovery of the piping plover. Research efforts included contaminant and genetic analysis on addled plover eggs or salvaged chicks and adults in Montana, North Dakota, South Dakota, and Nebraska. Contaminant analysis was also conducted on plover food items. The effectiveness of predator management techniques on prairie wetland plovers was also researched. Studies were conducted using Geographic Information Systems to identify and predict wetlands used by plovers. Other efforts include facilitating, funding, or coordinating research efforts by the University of Missouri, University of Wisconsin, South Dakota Cooperative Fish and Wildlife Research Unit at South Dakota State University, National Ecology Research Center, and Caesar Kleburg Institute at Texas A&M University in areas of plover diets and ecology, videography, predator exclusion techniques, predator ecology, plover winter movements and ecology. Much of the Service's involvement in these research efforts has resulted in professional publications and presentations either authored or coauthored by Service personnel.

Section 6 projects were funded for a total of \$315,800 in five States. Projects included surveys; monitoring; measuring reproductive success; habitat management, enhancement, and protection; law enforcement and surveillance; information and education; identifying food sources and feeding habits; and development of management or recovery plans.

Conducted over 6,000 Section 7 consultations in five states. Through formal and informal consultations changes have been made to projects to eliminate and minimize project impacts and to benefit plovers. Implementing actions include flow and level manipulations, habitat creation and enhancement, public information and education, pesticide protection, reservoir management plans, nesting habitat protection, and predation control and protection.

Standard conditions are applied to all plover subpermits issued through this Region to deal with sensitive impacts for plovers including banding, disturbance, behavior, survey distance and restrictions, etc.

Partnership efforts are ongoing at all Service field stations throughout the plover range. The largest partnership effort has been the International Piping Plover Census, which in 1996 involved 1,200 biologists and volunteers throughout Canada, the United States, Mexico, the Bahamas, and Nations of the Greater Antilles. Other partnership efforts are with private landowners in the prairie wetlands including habitat creation and enhancement, monitoring and maintenance of electric fencing, nest exclosures and cattle exclosure

fences. Other management efforts are partnered with Ducks Unlimited, The Nature Conservancy, tribes, State and Federal agencies, universities, and zoos.

Public information and education efforts are also ongoing at all Service field stations throughout the plover range. These efforts have resulted in many media (television, radio, and newspaper) events and coverage, news releases, production of brochures, posters, kiosks, signs, educational school trunks, television specials, video productions, booths at sport shows, and home page development.

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Surveys and Monitoring Efforts

North Dakota

- North Dakota Field Office - Surveyed up to 160 sites every year since 1987, including the Missouri and Yellowstone Rivers and Lake Sakakawea (See attached Plover Survey Results). Participated in 1991 and 1996 International Piping Plover Census.
- Des Lacs National Wildlife Refuge Complex - Annually monitored piping plover nesting success on School Section Lake, Lostwood National Wildlife Refuge (LNWR)(1980-83). Annually monitored piping plover pair/nest distribution and reproductive success at 7 alkali lakes at LNWR (1984-86). Annually monitored piping plover pair/nest distribution and reproductive success at 7 alkali lakes at LNWR, and breeding plover distribution on 20 alkali lakes on Wetland Management Districts (WMD)(1987-89). Annually monitored piping plover pair/nest distribution and reproductive success at 7 alkali lakes at LNWR, and breeding plover distribution on 20 alkali lakes on Lostwood Wetland Management District and Cosby Wetland Management District (1990-92). Annually monitored piping plover pair/nest distribution and reproductive success at 7 alkali lakes at LNWR, and expanded monitoring of breeding plover distribution on 23 alkali lakes on WMDs (total, >100 miles of alkali beach shoreline checked for nesting plovers) (1993). Expanded annual monitoring to include determination of fledging rates on LNWR and most plovers on WMDs (100-200 pairs annually)(1994-1997).
- Arrowwood National Wildlife Refuge Complex - Monitored piping plover use areas (1989-1997). Participated in 1991 and 1996 International Piping Plover Census.
- J. Clark Salyer National Wildlife Refuge Complex - Participated in surveys in McHenry, Pierce, Benson, and Sheridan Counties (1986-1987). Conducted annual surveys within J. Clark Salyer Wetland Management District (1991-1997).
- Upper Souris National Wildlife Refuge - Conducted surveys at Lake Darling (1987-1997).
- Audubon National Wildlife Refuge Complex - Surveys complex lands (1986-1997).
- Kulm Wetland Management District - Surveyed District lands (1988-1997). Participated in 1991 and 1996 International Piping Plover Census.

- Tewaukon National Wildlife Refuge Complex - Conducted surveys on Wetland Management District and Refuge lands (1990 and 1994).

Montana

- Montana Field Office - Initiated piping plover surveys and nest monitoring on public lands east of Malta, north of Missouri River, and Fort Peck Reservoir (1986). Survey efforts expanded on areas searched during 1986 to include areas on potential habitat on lands of Fort Peck Assiniboine and Sioux Tribes (Fort Peck Indian Reservation), Missouri River above Fort Peck Reservoir, Alkali Lake, Phillips County wetlands, Valley County Reservoirs, Fresno Reservoir, Tiber Reservoir, Big Lake, and Berniece Wetland in Jefferson County (1987). In 1988 all areas in Montana previously surveyed were surveyed. In addition, survey effort was expanded to include Clark Canyon Reservoir, Tiber Reservoir, Yellowstone River and 43 saline ponds in southeast Montana, and an aerial survey of piping plover nesting habitat on the Missouri River from North Dakota border to Fort Peck Reservoir was completed. Potential habitat was mapped and the river was surveyed for piping plovers. In 1989 all areas in Montana previously surveyed were surveyed with the addition of a search at Canyon Ferry Reservoir. In 1990 aerial survey was used successfully to located piping plover nesting habitat on Missouri River. In 1990 all areas previously surveyed that have piping plover nesting potential were surveyed with the addition of Alkali Lake, Pondera County. Intense piping plover surveys conducted from June 1-9, 1991, as part of 1991 International Survey. All known piping plover habitats were surveyed. Intense piping plover surveys conducted from June 3-14, 1996, as part of 1996 International Survey. All known piping plover habitats were surveyed.
- Medicine Lake National Wildlife Refuge Complex - Conduct census for Sheridan County (1987-1997). Collect nest success and fledging rate information (1988-1991 and 1996-1997). Participated in 1991 and 1996 International Piping Plover Census.
- Bowdoin National Wildlife Refuge - Surveyed and monitored Bowdoin NWR, Nelson Reservoir (BR), and Hewitt Lake NWR (1986-1997). Participated in 1991 and 1996 International Piping Plover Census.
- Benton Lake National Wildlife Refuge - Participated in 1991 and 1996 International Piping Plover Census. Participated in Montana piping plover surveys in 1990.

- National Bison Range - Conducted shorebird surveys within the National Bison Range and Wetland Management District (1982-1997).

Nebraska

- Nebraska Field Office - Participated in annual census and nesting surveys on Nebraska riverine habitats (Platte, Niobrara, Loup, and Missouri Rivers) (1986-present). Participated in 1991 and 1996 International Piping Plover Census.

South Dakota

- South Dakota Field Office - Conducted or participated in joint survey efforts with the Corps of Engineers on the Missouri River (1986-1997). Participated in surveys on the Cheyenne River (1986-1997). Participated in 1991 and 1996 International Piping Plover Census on Missouri River and all other South Dakota sites.
- Waubay National Wildlife Refuge - Participated in 1991 and 1996 International Piping Plover Census.
- Law Enforcement Division - Participated in annual surveys on the Missouri River at various times from 1989-1997.

Kansas

- Kansas Field Office - Surveyed and documented nesting on the Kansas River (1996-1997).
- Kirwin National Wildlife Refuge - Participated in 1991 International Piping Plover Census.

Colorado

- Colorado Field Office - Participated in 1991 International Piping Plover Census.

Management Programs

North Dakota

- North Dakota Field Office - Performed intensive plover management on 10 River sandbars in 1990-1994 and 50 prairie wetlands 1986-1997 including predator cages, sandbar habitat creation through snowfence construction, vegetation control, predator control, livestock exclusion fences, plover beach creation and water control manipulation for plover benefit. Coordinated with Falkirk and Couteau Coal Mines to monitor

pipng plover production on reclaimed mine property. Worked with private landowners on 10 year easement for plover predator fence on Lake Williams. Purchased waterfowl production area in northwestern North Dakota which will protect plover habitat and benefit waterfowl. Coordinated cattle exclusion fence with private landowner and North Dakota State School Land Department on Lake Williams. Worked with The Nature Conservancy to improve management for piping plovers at the John E. Williams Nature Preserve in McLean County.

- Des Lacs National Wildlife Refuge Complex - Assessed impacts of livestock grazing on plovers on School Section Lake (1980-1983). Conducted prescribed burn to improve plover habitat, LNWR (1982, 1985). Erected 2.3 miles of permanent fence at LNWR to exclude predators from plover nesting beaches. Conducted 11 prescribed burns to enhance piping plover breeding habitat at LNWR (1986-1997). Applied salt and gravel to 1.1 miles of alkali lakeshore to improve or create breeding habitat at LNWR. Acquired 158-acre fee title area primarily for piping plover conservation, LWMD. Cut off three peninsulas and constructed two islands to create predator-free nesting habitat benefitting plovers and other migratory birds on LWMD and CWMD. Purchased and installed temporary electric mesh fence to exclude predators from 3 nesting beaches on LNWR (1992). Most of 25-40 nesting pairs given special protection at LNWR. Conducted predator removal on plover breeding habitat, LNWR and LWMD. Two to four seasonal technicians hired annually for implementing plover management on Complex and funded and hired through cooperative partnerships involving grant-writing and cooperative agreements. Facilitated graduate research (University of Missouri) on plover habitat management (1994-97). Two miles of additional temporary electric mesh fence purchased and installed on LNWR and WMDs. Another 0.9 miles of permanent predator exclusion fence added on LNWR beaches. Two hundred wire mesh predator exclosures constructed and placed over plover nests annually. Increased plover fledging rates from mean of 0.8 to 1.6-2.3 with intensive habitat management and predation exclusion.
- J. Clark Salyer National Wildlife Refuge Complex - Constructed livestock exclosure fences on private land to protect plover habitat in Benson and Peirce counties (1992-1997).
- Audubon National Wildlife Refuge Complex - Experimented with fire, salt, and built a cobble beach to control vegetation on Audubon refuge beaches for nesting habitat (1987). Wetland water level manipulation to create exposed beaches on Audubon Refuge, Wildlife Development Areas, WPAs, and

Lake Ilo Refuge (1990-1997). Mammalian predator control on six created islands with nesting plovers (Bluehill WPA, Orlien WPA, Weltikol WPA, Galusha WPA, Danielson WPA, and Lake Ilo) and on 100+ islands on the Refuge (1992-1997). Creation of 35 islands and beaches in alkali wetlands in the Audubon complex (1990-1997). Electric fences constructed on peninsulas and beaches on private lands and Service lands (1985-1997). Vegetation clearing efforts on beaches created at Weltikol WPA (1997). Managing grazing systems on all lands to benefit plover habitat. Placing predator nest exclosures at all plover nests (1998).

- Kulm Wetland Management District - Constructed cutoff fences at Turkey Island Waterfowl Production Area (WPA)(1985-1997) to reduce predation at nesting sites. Constructed cutoff fences at Schweigert WPA (1988-1997). Trapped for predator control at Turkey Island (1985-1990) and Schweigert WPAs (1986-1997).

Montana

- Montana Field Office - Workshop on piping plover habitat and survey techniques held at Bowdoin NWR on May 12-13, 1987. Prepared list of piping plover management recommendations prepared and included in Montana Recovery Team annual report (fencing of selected beaches, ATV restrictions, water level management, restriction on public use, maintain survey effort, and educate public). Workshop to organize 1988 surveys and to discuss piping plover survey techniques held on May 10-11, 1988. Montana Piping Plover Working Group established as a result of workshop (1988). Warning signs erected at Nelson Reservoir to warn public of nesting piping plover (1990-1997). Provided testimony on effects ground water withdrawal would have on piping plover habitat in Sheridan County at Montana Board of Natural Resources Water Reservation Hearing - September 1994. Piping plover nests were moved to avoid inundation by rising water levels of Nelson Reservoir - 1992, 1993, 1995, and 1997; Fort Peck Reservoir - 1995 and Missouri River during 1996. A sandbag berm was constructed around a nest on the Missouri River to protect the nest from inundation (1995).
- Medicine Lake National Wildlife Refuge Complex - Electric fence erected to exclude livestock from beach used by piping plovers on Medicine Lake NWR (1987). Coyotes were removed from island at Medicine Lake NWR to help reduce predation on piping plover nests (1991-1992). Higher security nesting habitat was created on Dog Leg Waterfowl Production Area, Medicine Lake NWR by excavating across the base of a sandbar. Gravel areas were created on Ducks Unlimited island project on Parry WPA (1991). Wire mesh predator cages were used on Medicine Lake NWR

(1991-1997). Residual vegetation was burned on a 25-acre beach on Fort Peck Reservoir to provide nesting habitat for piping plovers in 1992, and a prescribed burn was completed on Medicine Lake NWR in 1993. Two graveled points were constructed on a 20-acre wetland near Gaffney Lake, Medicine Lake NWR, during February 1993. Used a combination of temporary electric fence and nest cages to protect nests (1996-1997). Construct, operate, and maintain permanent predator exclosure fences across Gopher Point and Briderman Point peninsulas on refuge (1988-1997). Manipulate water levels at Refuge to provide nesting habitat and prevent flooding of nests.

- Bowdoin National Wildlife Refuge - Implemented a Predator Management Plan on Bowdoin in 1990 which allowed for trapping of mammalian predators on islands on the Lakeside Unit any time that piping plovers are nesting there. Member of the Montana Piping Plover Recovery Committee 1986-1997. Compiled the annual report for Montana during two years. Completed two beach enhancement projects on Nelson Reservoir in 1997. Completed one beach enhancement project on Bowdoin NWR (Dry Lake Unit) in 1997. Released 16 captive-reared piping plovers from Corps of Engineers Salvage and Captive rearing program on Bowdoin NWR in 1997, and monitored birds until migration. Released birds were salvaged as eggs from flood flows on the Missouri River in North Dakota.

Nebraska

- Nebraska Field Office - Participated on the Piping Plover Recovery Team for the Northern Great Plains and Great Lakes (1988-1997). Provided funding cooperatively with Nebraska Game and Parks Commission for signs to post plover nesting areas. Initiated questionnaire and evaluation of piping plover banding. Assisted Law Enforcement personnel on investigations.
- Rainwater Basin Project Office - Cleared trees on Platte River islands for plover nesting sites. Continued annual removal of invading tree species. Law enforcement actions provided to protect nests on Platte River.

South Dakota

- South Dakota Field Office - Provided funding for signs to be placed on the Missouri River identifying plover nesting area and posting sites as off-limits to human disturbance. Posted colonies on Lake Oahe, Missouri River (1988-1993). Developed prototype strobe system to deter night predators at plover nesting colonies. Funded development of Piping Plover Bibliography for Recovery Plan update (1996). Coordinate piping

plover recovery calls with State and Federal agencies and other plover expertise throughout the Northern Great Plains and Great Lakes (1996-present). Initiated and Coordinated Northern Great Plains and Great Lakes Piping Plover Coordination Meeting in Omaha, Nebraska (1996). Initiated and participate in International Piping Plover Coordination Group now chaired by Biological Resources Division of USGS (1997). Coordinate Service activities with plovers placed in zoos. Lead office for Northern Great Plains Piping Plover Recovery (1996-present). Coordinated and developed Northern Great Plains Piping Plover Recovery Implementation Team. Working on Piping Plover Recovery Plan revision. Assisted Corps of Engineers on developing and implementing a salvage, captive rearing program, release and monitoring program for Missouri River piping plovers (1995-1997).

- Law Enforcement Division - Law enforcement patrols of Missouri River in Nebraska, South Dakota, and North Dakota conducted at plover nesting areas. Public contact made in all States to ensure compliance with posted areas. Investigated all known complaints of violations relating to take of plovers, destruction of nests and/or trespassing on/or into posted plover nesting areas. Provided technical assistance to field biologists on monitoring and protection of plover nesting areas.

Colorado

- Colorado Field Office - Assisted Colorado Division of Wildlife in developing management plan for plovers in Southeast Colorado and development of recovery plan.

Research

North Dakota

- North Dakota Field Office - Performed environmental contaminant analysis on addled piping plover eggs from North Dakota from 1991-1994. Presented approximately 20 scientific papers to groups ranging from The North Dakota Chapter of The Wildlife Society to the U.S. Committee on Irrigation and Drainage on plover issues ranging from contaminants to habitat management. Compiled database for all known piping plover surveys in North Dakota.
- Des Lacs National Wildlife Refuge Complex - Facilitated several graduate research studies by University of Missouri and University of Wisconsin on LNWR. Wrote grant proposals to support expanded plover conservation efforts on Complex. Published paper on results of management efforts on

LNWR. An experimental evaluation of predator exclusion techniques was developed with Northern Prairie Wildlife Research Center and implemented on Service lands in North Dakota and Montana.

- North Dakota wetland Habitat office - Working on project using Geographic Information System to identify wetlands used by piping plovers and to predict piping plover use of wetlands (1997).
- Audubon National Wildlife Refuge Complex - Researching and implementing gull control efforts on Refuge. Assisting in other Service research projects on predator control.

Montana

- Montana Field Office - Survey results including data on effort expended and data on management actions compiled in annual reports 1985-1996. Piping plover eggs were salvaged for contaminant analysis (1993-1994).
- Bowdoin National Wildlife Refuge - Published papers on range extension (Prairie Naturalist) and nest translocation (Wildlife Society Bulletin).
- Medicine Lake National Wildlife Refuge Complex - Working cooperatively with DeLacs NWR Complex and The Nature Conservancy to evaluate the effectiveness of nest cages and electric fences to increase plover recruitment (1996-1997).

Nebraska

- Nebraska Field Office - Technical assistance and funding for Piping Plover diet Research conducted by Janelle Corn. Conducted an effort to evaluate sandbar development and channel changes that occurred on the Platte River using aerial videography. Has a repository and conducts contaminant analysis on addled plover eggs collected by researchers. Results from analysis between 1989-1993 were published in Piping Plover and Least Tern on the Missouri River and its Tributaries Symposium proceedings.
- National Ecology Research Center (Ft. Collins) - Funded several plover studies on the Platte River.

South Dakota

- South Dakota Field Office - Staff have authored or coauthored many technical papers and given professional presentations on plover recovery activities in South Dakota and on the Missouri River. Performed environmental contaminant analysis on addled piping plover eggs, on

plover food items and sediments from Missouri River, South Dakota. Coordinated effort and sent tissue, organ and blood samples from salvaged plovers to Dr. Susan Haig with the Biological Resources Division of the U.S. Geological Survey for genetic plover research. Coordinated with piping plover research conducted under three graduate studies conducted through the South Dakota Cooperative Fish and Wildlife Research Unit, one through the University of Wisconsin, and two through Caesar Kleburg Institute at Texas A&M University.

Section 6 projects

North Dakota

- Funded in FY 1986-1990 and 1992-1997 (\$191k). Funded efforts to survey breeding biology and population areas; measure reproductive success; determine quality of habitats; improve habitat; enhance and protect river flows and sandbars on the Missouri river; control or eliminate human disturbance through law enforcement and surveillance, public education, and posting colonies; coordination of habitat management with State and Federal agencies, land-holding conservation organizations, and private landowners.

Montana

- Funded in FY 1990 (\$10k). Funded efforts included documenting plover populations and breeding distributions and developing management plans to protect nesting sites.

Nebraska

- Funded in FY 1987, 1989, 1990, 1992 (\$90.4). Funded efforts to survey breeding populations; measure breeding success; determine quantity of desired distribution of suitable breeding habitat on Platte, Niobrara, and Loup Rivers; enhance and protect river flows and suitable sandbar habitats, control or eliminate human intrusion and disturbance; post colonies, law enforcement and surveillance, public education; and coordination of habitat management with State and Federal agencies, land-holding conservation organizations, and private landowners.

South Dakota

- Funded in FY1986, 1988-1990 (\$49.1). Funded efforts included monitoring, patrolling, posting, and protecting nesting sites; conducting habitat and reproductive surveys along Missouri River and tributaries; conducting information and education activities; identifying food sources and feeding habitats, coordinating habitat management with Corps of Engineers.

Colorado

- Funded in FY 1990 and 1992 (\$21.3k). Funded efforts included survey work to determine the status, distribution, and success of breeding plovers; evaluation of habitat needs and negative impacts of human disturbance; and development of a recovery plan.

Section 7 consultations

North Dakota

- North Dakota Field Office - Worked with the Bureau of Reclamation to construct two "plover beaches" on waterfowl nesting islands on Galusha and Weltikol Waterfowl Production Areas. Monitored plover success and performed vegetation control on these sites since 1992. Worked with the North Dakota National Guard to insure operations at their Lake Coe Camp and their Missouri River bridge operations was not detrimental to plovers. Conducted approximately 2,000 informal Section 7 Consultations (1986-1997) and six formal consultations related to piping plovers since 1987. Two of the formal consultations with the Corps of Engineers resulted in jeopardy opinions on piping plovers. This office participated in the jeopardy opinion issued to the Corps of Engineers in 1990 on Operation of the Missouri River and wrote a 1994 biological opinion on Corps of Engineers North Dakota Missouri River Bank Stabilization. Worked with the Bureau of Reclamation to manipulate the water levels through the Chain of Lakes region to benefit piping plover production. Worked with the Bureau of Land Management to transfer property interests in tracts with possible piping plover habitat. Represented North Dakota on the Least Tern/Piping Plover Technical Committee to provide comments on the annual operating plans for the Corps of Engineers on the Missouri River. Worked with the Bureau of Reclamation in conjunction with our private lands program on Island cutoff projects to benefit piping plovers. Developed in coordination with North Dakota Department of Agriculture, North Dakota Game and Fish Department, North Dakota Extension Service, and North Dakota Geological Survey the first Endangered Species Pesticide Management Plan in the Nation. The plan includes protection measures related to over 30 toxic pesticides and over 50 plover sites located throughout North Dakota. The plan has been in place since 1991. Coordinated and was lead for a Section 7 consultation team for the Corps of Engineers Missouri River Operations Master Manual review process draft biological opinion for the draft EIS (preferred alternative); resulted in jeopardy for plovers with alternatives measures, and recommendations provided.

Montana

- Montana Field Office - Formal consultation with the Bureau of Reclamation on Milk River Irrigation Project was completed during November 1990. Numerous other informal Section 7 consultations regarding piping plovers have been conducted. Worked with Corps to reduce discharges from Fort Peck Dam to compensate for abnormal inflow into the Missouri River from the Milk River during the first two weeks of July 1991.
- Bowdoin National Wildlife Refuge - Assisted with Section 7 consultation between ES and BR over management of water levels on Nelson Reservoir. Participated in Piping Plover Management Plan and operational agreement with BR and local irrigation districts for Nelson Reservoir. Completed one endangered species clearance for BLM concerning a natural gas well installation on the north side of Nelson Reservoir.

Nebraska

- Nebraska field office - Represented Nebraska on the Least Tern/Piping Plover Technical Committee to provide comments on the annual operating plans for the Corps of Engineers on the Missouri River. Conducted Formal consultation on the Kingsley and North Platte/Keystone Dam FERC relicensing. Three riverine islands were created and managed at sandpit complexes as a condition of annual FERC relicensing and the following conditions were required by the biological opinion upon completion in 1997:
 - Development of at least one additional riverine nesting area for plovers.
 - Active promotion of plover conservation through continued participation in public outreach and education programs.
 - Development and implementation of a plan to protect and maintain nesting habitat on existing habitat currently managed in coordination with the Service and the Nebraska Game and Parks Commission.
 - Development and implementation of land and shoreline management plans for the protection of nesting sites at Lake McConaughy, including fencing and posting efforts.Handle approximately 150 informal consultations and 2 informal consultations annually.

South Dakota

- South Dakota Field Office - Lead office for Section 7 consultation on Operations of the Missouri River Mainstem System. Wrote jeopardy opinion for piping plovers with reasonable and prudent alternatives.

reasonable and prudent measures, and conservation recommendations. These collective actions called for management of Missouri River piping plovers by the Corps. However, jeopardy to this species continues despite the Corps efforts at implementing alternatives and measures. Take continues above the jeopardy threshold. Negotiations with the Corps continue. This office works with and coordinates flows with the Corps during the nesting season. Additionally, this office participates on the Tern and Plover Management Team which was established by the biological opinion and is made up of Service and State representatives from seven Missouri River States. This office chairs the Team (1996-1998). Participated in Section 7 consultation team for Corps of Engineers Missouri River Operations Master Manual Review which also involved a jeopardy for piping plovers. Conducted approximately 2,000-3,000 informal consultations involving piping plovers (1987-1997). Many impacts avoided and conservation recommendations for piping plovers were implemented. At least four additional formal consultations were conducted and impacts to piping plovers were avoided or minimized.

Kansas

- Kansas Field Office - Continuing discussions with Corps of Engineers on Kansas River releases, formal consultation expected (1997).

Permit monitoring

All subpermits issued through this Region are specifically conditioned to deal with sensitive impacts for the plover including banding, disturbance, behavior, survey distances and restrictions, etc. Most conditions are considered standard. All permits are reviewed by State Field Offices, the Piping Plover Coordinator at the South Dakota Field Office, and then are issued through the specific Geographic Assistant Regional Directors.

Partnership efforts (see Management Actions above)

The largest partnership effort has been the International Piping Plover Census (1991 and 1996). Just about all field and project offices throughout this Region participate in the census plus coordinate and recruit other volunteers for this immense effort. This effort is spearheaded by the Biological Resources Division of the USGS.

North Dakota

- Many management actions defined above involving North Dakota project offices are partnership efforts (see details above).

Montana

- Montana Field Office - Participate in Montana Piping Plover Working Group (1988-1997). Group addresses piping plover survey and management issues. Working with Benton Lake National Wildlife Refuge one strand barb wire fence was purchased and constructed around nests on Nelson Reservoir and organizers of a "bowhunter carp shoot" cooperated in signing and policing piping plover nest sites during the event. To protect plover nesting areas, Grazing Allotment Habitat Management Plans on Charles M. Russell NWR that contain suitable piping plover nesting habitat were written to specify turn-in dates of June 15 (1988). Contour maps of piping plover nesting islands on the Missouri River were completed and the effects of various reservoir releases on available piping plover habitat were identified (1989).
- Benton Lake National Wildlife Refuge - Provided technical assistance to the Black Feet Reservation in cooperation with USFWS Wildlife Assistance Office, Bozeman, Montana (1996). Cooperated with a local bowhunter club during most years so that a carp shooting tournament on Nelson Reservoir would not impact nesting piping plovers.
- Medicine Lake National Wildlife Refuge Complex - Provide northeast Montana plover nesting locations to Montana Department of agriculture and Sheridan County Weed District to facilitate compliance with pesticide labeling restrictions.

Nebraska

- Since 1991 the Service's Partners for Wildlife Program has been actively working with conservation organizations and private landowners to improve riverine habitats for many species, including the plover. Partnerships have been developed with the Platte River Whooping Crane Critical Habitat Maintenance Trust, National Audubon Society, The Nature Conservancy, and numerous private landowners along the Platte River to restore habitats. The Service has also entered numerous Wildlife Extension Agreements, third party landowner agreements, and Cooperative agreements to conduct habitat enhancement and creation activities on the Platte River. Coordinated with Sand and Gravel Operators to alleviate potential conflicts between nesting plovers and mining operations.

South Dakota

- South Dakota Field Office - Coordinate efforts with the American Aquarium and Zoo Association and with several zoos that now hold piping plovers. Coordinated Tern and Plover Survey Workshop with the Corps of Engineers and the Cheyenne River Sioux Tribe (1988-1990).
- Law Enforcement Division - Coordinated efforts with State law enforcement officials to ensure patrols were conducted during public high use days, including holidays and weekends, on the Missouri River.

Public Education and Information

North Dakota

- North Dakota Field Office - Constructed three zoo informational kiosks at Dakota Zoo in Bismarck, Chahinkapa Zoo, Whapeton, and Roosevelt Zoo in Minot featuring information on the piping plover. Over 250,000 visitors per year visit these three zoos. Creation and distribution of over 7,000 endangered species posters in North Dakota about piping plover biology. Distributed Endangered Species trucks containing information on piping plovers to schools approximately 50 times per year. This effort has reached over 10,000 school age children since 1992. Worked with North Dakota Game and Fish Department on publishing and distribution of over 2,500 brochures related to protection of piping plovers on the Missouri River. Worked with Earth Wave Productions on Documentary (A Vanishing Melody: The Call of The Piping Plover) for nationwide distribution. Published approximately 50 human interest stories in North Dakota daily newspapers since 1986. Presented at least three interviews yearly since 1986 on piping plovers to public radio. Hosted plover survey workshops at Lostwood National Wildlife Refuge for four years. Presented information on piping plovers with informational booths related to endangered species at the North Dakota State Fair 1995-1996, Bismarck Sport show 1991-1996, Fargo Outdoor Show 1995-1996, and Williston Sport show 1993.

Nebraska

- Nebraska Field Office - Presentations on plovers are given to schools, local conservation groups, and industry (mining) conferences. Developed slide presentation and group activity for elementary schools and youth groups. Color posters developed about terns and plovers nesting on Nebraska Rivers for placement in public places. Provided funding and technical assistance for the development of signs to be used to post plover nesting areas. Sponsored and helped organize a 1993 symposium on

Least Tern and Piping Plovers on the Missouri River and its tributaries.

South Dakota

- South Dakota Field Office - Coordinated development and distribution of Missouri River tern and plover brochures and posters (1989-1993). This effort was coordinated with Missouri River posting efforts. Provided funding and technical assistance for the development of signs to be used to post plover nesting areas. Coordinated effort and activities for Missouri River Tern and Plover Awareness Week (1989-1990). Developed fact sheet on South Dakota Piping Plovers which are distributed to developers and educators. News releases on Missouri River terns and plovers are sent out on a regular basis during the nesting season. Dozens of interviews have been given to various media (radio, television, newspaper) over the years. Presently working on a homepage to include a site for plovers (1998-ongoing).
- Law Enforcement Division - Involved in public awareness campaigns including media releases (newspaper, radio, television interviews), Tern and Plover Awareness Week, and coordinated efforts with State law enforcement agents.