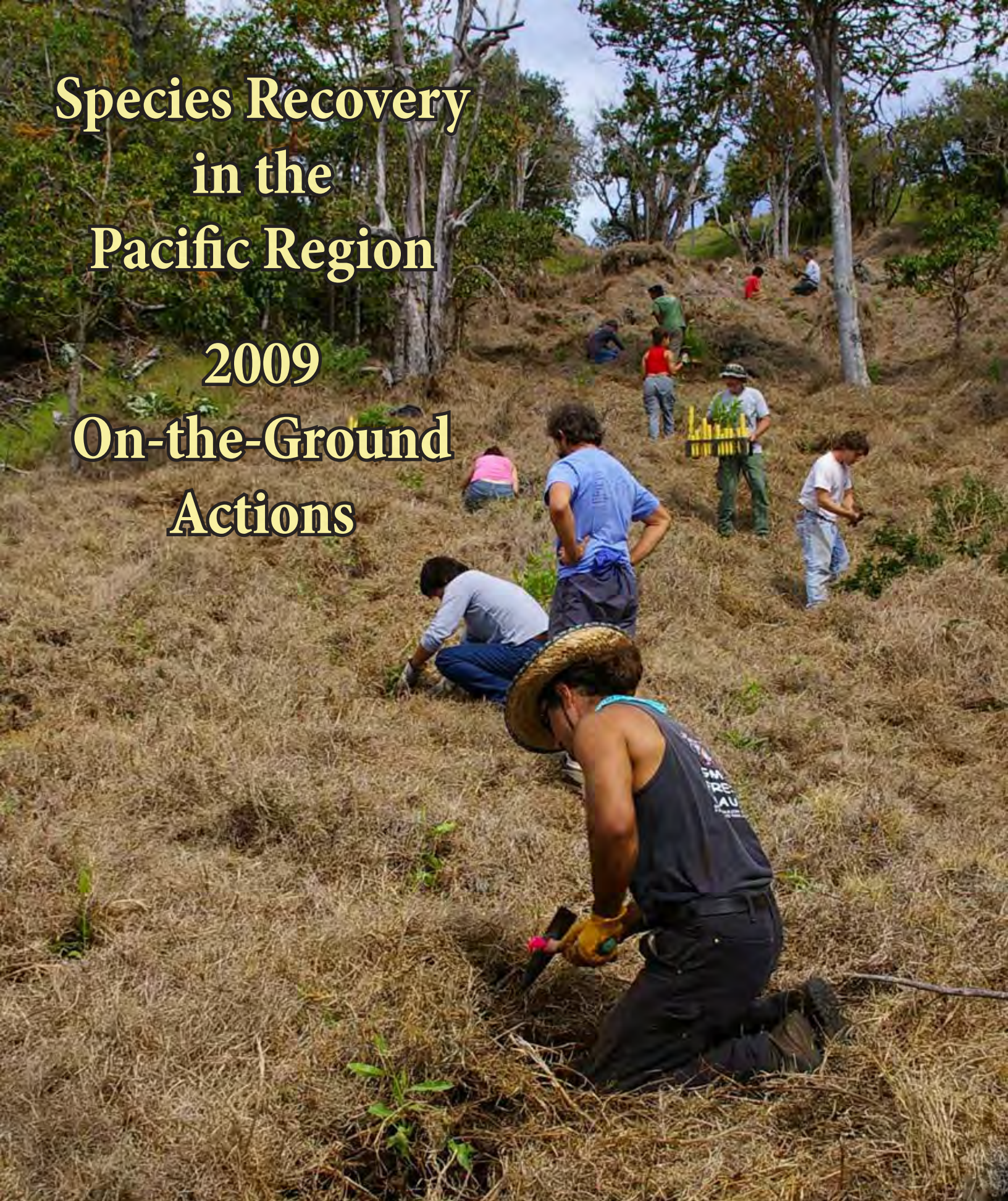


Species Recovery in the Pacific Region

2009 On-the-Ground Actions



U.S. Fish and Wildlife Service
Pacific Region

Endangered Species Recovery Program

Fiscal Year 2009

Message from the Assistant Regional Director

Recovery of threatened, endangered, and other at-risk species lies at the very heart of the mission of the Ecological Services Program in the Pacific Region. At the center of our recovery efforts is the myriad of on-the-ground conservation activities that we implement with the assistance of numerous dedicated partners. These on-the-ground actions directly contribute to the recovery of listed species and conservation of our nation's diverse natural resources.

From the high desert of southwest Idaho, where we are working to expand partnerships with private landowners to conserve the Columbia spotted frog, to cold-water streams throughout the Pacific Northwest where we are removing barriers to fish passage to increase habitat availability for bull trout and salmon, to coastal wetlands on the island of Kauai, where we are working to recover the endemic Hawaiian duck, to the Mariana Islands where we are increasing education and outreach efforts to benefit the Mariana fruit bat, our staff collaborate with a broad community of Federal, State, county, tribal, academic, and non-governmental organizations and individuals to identify threats to rare species and to provide technical and financial assistance to reduce these threats.

This report highlights a select group of the more than 140 on-the-ground projects that we funded during fiscal year 2009. In total, more than \$3.7 million was spent by field offices for on-the-ground projects throughout the Pacific Region. These projects emphasize the richness of the resources held in trust by the U. S. Fish and Wildlife Service, as well as the diversity of approaches that we take to ensure their survival and recovery. Our conservation work continues – and we will share more of our challenges and successes with you in the coming years.

Terry Rabot
Assistant Regional Director

USFWS Mission

“Working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.”

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Front Cover Photo: Volunteers planting native species at the Auwahi Dryland Forest on the island of Maui. Photo courtesy of the Maui Restoration Group.

Inside Spread: Huleia National Wildlife Refuge, island of Kauai. Photo courtesy of Adonia Henry.

About the Pacific Region

The Pacific Region of the U. S. Fish and Wildlife Service encompasses an extraordinary diversity of ecosystems, ranging from tropical forests and coral reefs at Palmyra Atoll National Wildlife Refuge, to old-growth rainforests west of the Cascades in Oregon and Washington, to remote coastal and Pacific islands teeming with millions of seabirds, to glacial lakes and streams in Washington's Northern Cascades, to arid shrub-steppe habitat in southern Idaho.

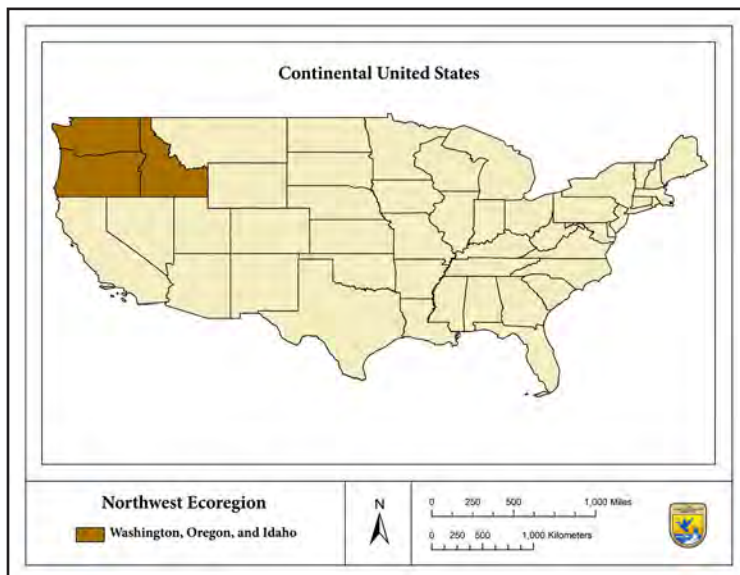
These ecosystems support over 400 threatened and endangered species, many of which occur nowhere else on Earth.



Rose Atoll. USFWS photo.

The Region's land ownership patterns are equally diverse and range from the largest contiguous wilderness area in the lower 48 States, the Frank Church-River of No Return Wilderness, to the unique land tenure systems in the Pacific Island territories, to other important areas of biological diversity, such as Oregon's Willamette Valley, with 96% private ownership.

The Region includes the States of Hawaii, Idaho, Oregon, and Washington and Pacific island Territories and U.S. affiliated States. This includes the Territories of American Samoa and Guam; the Commonwealth of the Northern Mariana Islands; and the Freely Associated States of the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau, all of which have entered into Compacts of Free Association with the United States.



Grizzly bears (*Ursus arctos horribilis*). Photo courtesy of C. Servheen, USFWS.

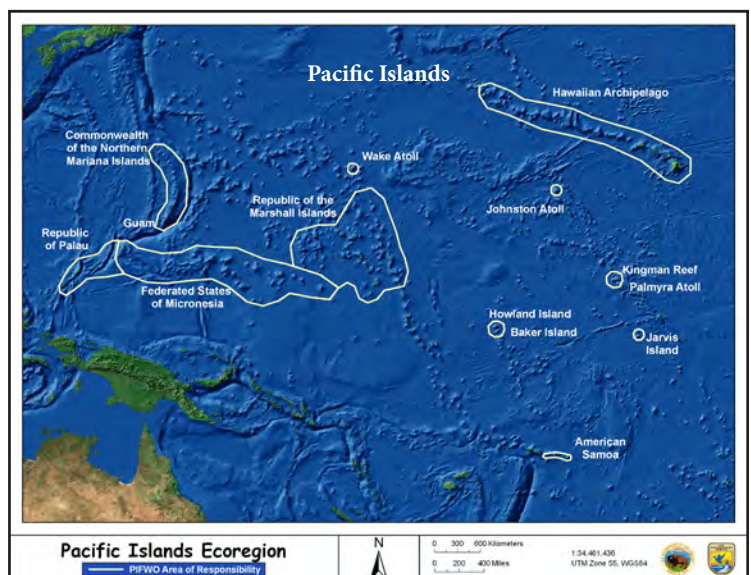
These states and territories encompass over 158 million acres of land, 4.9 million square miles of ocean, and span 5 time zones and the International Date Line.

The species and ecosystems in the Pacific Region are confronted with multiple threats and diverse conservation needs. Therefore, our recovery efforts are tailored to specific ecosystems or species, from landscape-scale recovery planning for grizzly bears, bull trout, and spotted owls, to site specific conservation actions to protect endangered springsnails and desert fish in the Columbia Basin, to propagation and planting of rare plants in the Pacific Islands. By matching recovery actions to specific threats we are able to accomplish our conservation mission more efficiently and effectively.



Propagation of Mauna Loa silversword (*Argyroxiphium kauense*). Photo courtesy of the Silversword Foundation.

We in the Pacific Region recognize that the residents of diverse landscapes perceive, value, and manage their natural resources in ways unique to their respective regions and cultures. Our mission is therefore best accomplished by



working with our partners - agricultural and natural resource dependent communities, rural and urban landowners, Native American tribal governments and indigenous island communities, watershed councils, coral reef advisory groups, universities, land trusts, State and Federal agencies, and many others.



Christ's Indian paintbrush (*Castilleja christii*) habitat. USFWS photo.

Through these partnerships we strive to serve as conservation problem-solvers, developing and implementing collaborative species and habitat recovery strategies in fulfillment of the Endangered Species Act goal "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of international treaties and conventions regarding species conservation."



Bald eagle (*Haliaeetus leucocephalus*). USFWS photo.

Fish and Wildlife Offices

Pacific Islands Fish and Wildlife Office

Honolulu, Hawaii

<http://www.fws.gov/pacificislands/>

Idaho Fish and Wildlife Office

Boise, Idaho

<http://www.fws.gov/idaho/>

Oregon Fish and Wildlife Office

Portland, Oregon

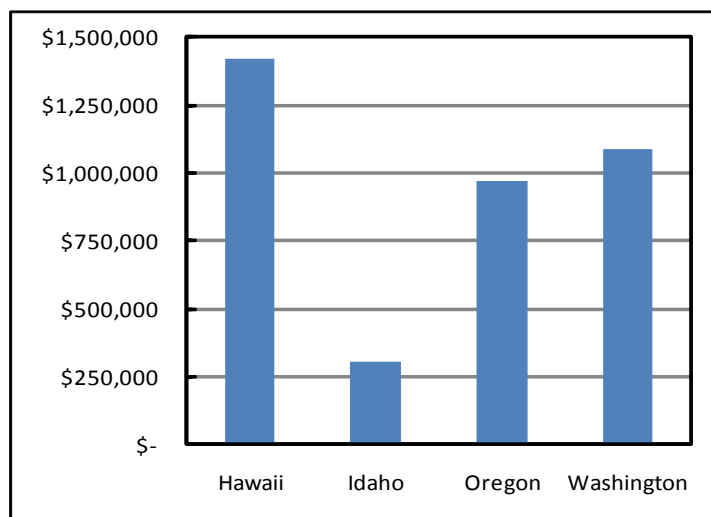
<http://www.fws.gov/oregonfwo/>

Washington Fish and Wildlife Office

Lacey, Washington

<http://www.fws.gov/wafwo/>

Recovery Funding 2009 On-the-Ground Projects



Pacific Islands At-Risk Species*

Endangered	367
Threatened	13
Proposed	50
Candidate	80
TOTAL	510



Idaho At-Risk Species*

Endangered	7
Threatened	12
Proposed	0
Candidate	5
TOTAL	24



Oregon At-Risk Species*

Endangered	27
Threatened	35
Proposed	0
Candidate	11
TOTAL	73



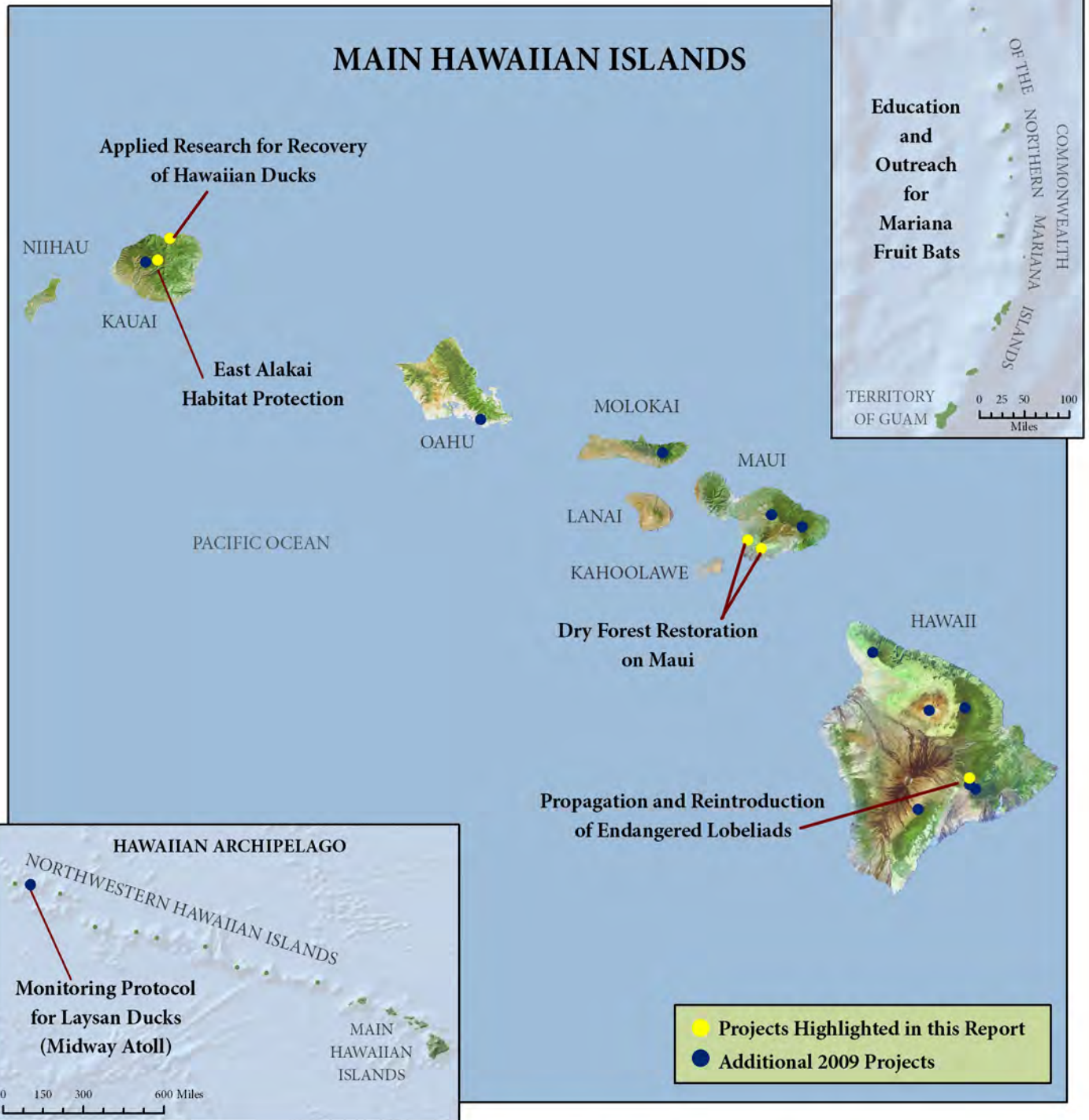
Washington At-Risk Species*

Endangered	17
Threatened	30
Proposed	3
Candidate	12
TOTAL	62

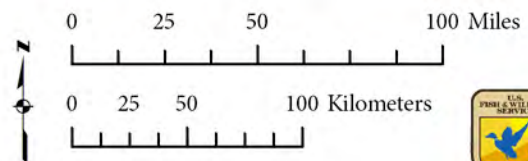


*Numbers current as of March 2010.

USFWS PACIFIC REGION ON-THE-GROUND RECOVERY 2009 PACIFIC ISLANDS PROJECTS



TNC photo.



NAD 83, UTM Zone 4



Applied Research for Recovery of Hawaiian Ducks

The Hawaiian duck (*Anas wyvilliana*), endemic to the Hawaiian Islands, is threatened by habitat loss and degradation, predation by introduced mammals, and hybridization with introduced feral mallards. This applied research project will answer key questions about Hawaiian ducks to benefit recovery actions and set the stage for a larger project on the biology and population demographics of the species. The main objectives of this project are to establish trapping techniques, radio transmitter attachment methods, and tracking protocols to further study daily and seasonal movements, habitat use, and population demographics. Hawaiian ducks and Hawaiian duck-mallard hybrids will be captured and banded to initiate data collection on daily, seasonal, and regional movement patterns. This project will also field test the recently-developed identification key for Hawaiian ducks and Hawaiian duck-mallard hybrids to determine the prevalence of hybrids at Hanalei National Wildlife Refuge.

USFWS Contact: Annie Marshall



Cyanea stictophylla at the South Kona Forest Reserve. Photo courtesy of the State of Hawaii DLNR DOFAW.

Propagation and Reintroduction of Endangered Lobeliads

The purpose of this project is to collect, propagate, and reintroduce six endangered species of plants into the wild. *Clermontia peleana*, *Clermontia pyrularia*, *Clermontia lindseyana*, *Cyanea shipmanii*, *Cyanea stictophylla*, and *Cyanea hamatiflora* ssp. *carlsonii* all have very small remnant natural populations and are imminently threatened with extinction by a combination of deterministic and stochastic factors. This project will reduce the threat of extinction for these species, all of which have less than 50 individuals remaining in the wild. The Volcano Rare Plant Facility will propagate endangered plants for reintroduction into suitable protected and managed habitat on the island of Hawaii. Some species will be maintained in small enclosures of suitable habitat as a short- to mid-term method of maintaining the species' genetic integrity *inter-situ* before eventual reintroduction at large-scale habitat protection and restoration sites.

USFWS Contact: Marie Bruegmann



Hawaiian duck (*Anas wyvilliana*). Photo © Jim Denny.

Dry Forest Restoration on Maui

Two projects on the island of Maui will protect and restore nearly 2,000 acres of native dry forest habitats. Deer-proof fencing will be constructed at Kanaio Natural Area Reserve and adjacent state and private lands to protect 1,700 acres of dry forest habitat from feral and domestic ungulates. The project will benefit recovery of 12 species of listed plants and Blackburn's sphinx moth (*Manduca blackburni*). The objectives of the second dry forest restoration project, Auwahi III, include removing invasive, non-native plants and planting native dryland species within 190 acres of habitat previously fenced to exclude ungulates. Habitat restoration at Auwahi III will connect two areas of previously restored habitat. The Auwahi Dryland Forest protects a significant portion of the known habitat for nine endangered species and two candidate species.

USFWS Contact: Jennifer Higashino



Volunteers working to restore Auwahi Dryland Forest (above), photo courtesy of the Maui Restoration Group. *Dubautia linearis* at Kanaio Natural Area Reserve (left), photo courtesy of Forest and Kim Starr. Blackburn's sphinx moth (*Manduca blackburni*; top right), USFWS photo.

Monitoring Protocol for Laysan Ducks

The goal of this project is to develop a statistically valid population monitoring protocol for Laysan ducks (*Anas laysanensis*) at Midway Atoll National Wildlife Refuge. Results from pilot surveys will be used to develop recommendations for field methods to monitor the status, abundance, and population trend of Laysan ducks. In addition, resight histories and detection probabilities will provide a population size estimate for Midway Atoll. The USGS Biological Resources Discipline will provide long-term monitoring recommendations for Midway Atoll National Wildlife Refuge given funding and staff constraints. Carcasses of Laysan ducks discovered incidental to population monitoring will be collected and sent to the USGS National Wildlife Health Lab to determine causes of mortality and screened for disease.

USFWS Contact: Holly Freifeld



Laysan duck (*Anas laysanensis*). Photo courtesy of Jimmy Breeden, USGS.

Education and Outreach for the Mariana Fruit Bat

The purpose of this project is to raise awareness of the ecological and cultural importance of the Mariana fruit bat (*Pteropus marianus marianus*; fanihi) in an effort to curb the illegal hunting that is the main threat to this species. This outreach project includes renting the film “Flying Foresters” from the BBC for 50 showings over one year, and creating a locally-filmed documentary to be shown with the BBC video. “Flying Foresters” is a 30-minute BBC film about the importance of fruit bats to humans and local forests, narrated by David Attenborough. It is entertaining and educational and features a series of stories illustrating the ecological role of fruit bats in tropical forests. “Flying Foresters” and the locally filmed companion piece, “Fanihi: a cultural digest”, which includes interviews with local hunters and community members from Rota, will be shown on television throughout the Commonwealth of the Northern Mariana Islands (CNMI). Special showings for schools throughout the CNMI and on Guam will also be organized.

USFWS Contact: Holly Freifeld

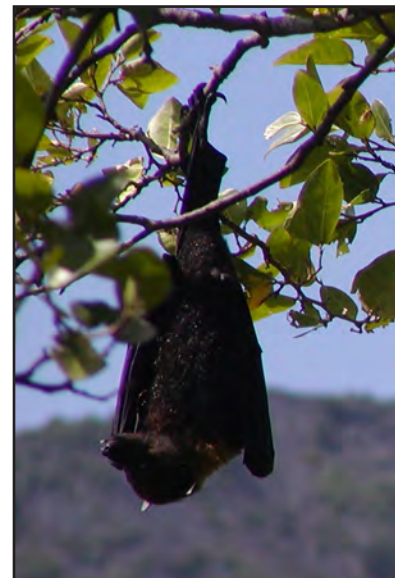


Alakai Plateau on the island of Kauai. USFWS photo.

East Alakai Habitat Protection

The degradation of native habitats by feral ungulates is considered a major threat to listed species that occur in the Alakai Swamp, the largest system of high elevation bogs in the Hawaiian Islands. By constructing 26,429 linear feet of fence that excludes feral ungulates, this project will protect and restore 1,405 acres of privately owned land and 595 acres of State-owned land in the Alakai Swamp. By excluding ungulates, it is expected that growth and natural regeneration of native plants will increase. This habitat protection will benefit seabirds, forest birds, and invertebrates. This project will protect 780 acres of existing critical habitat for listed plants and 1,770 acres of proposed critical habitat for 2 species of forest birds, 18 species of plants, and 1 invertebrate.

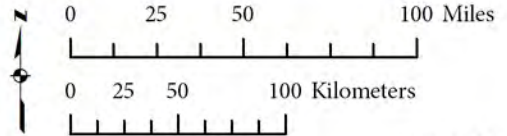
USFWS Contact: Michelle Clark



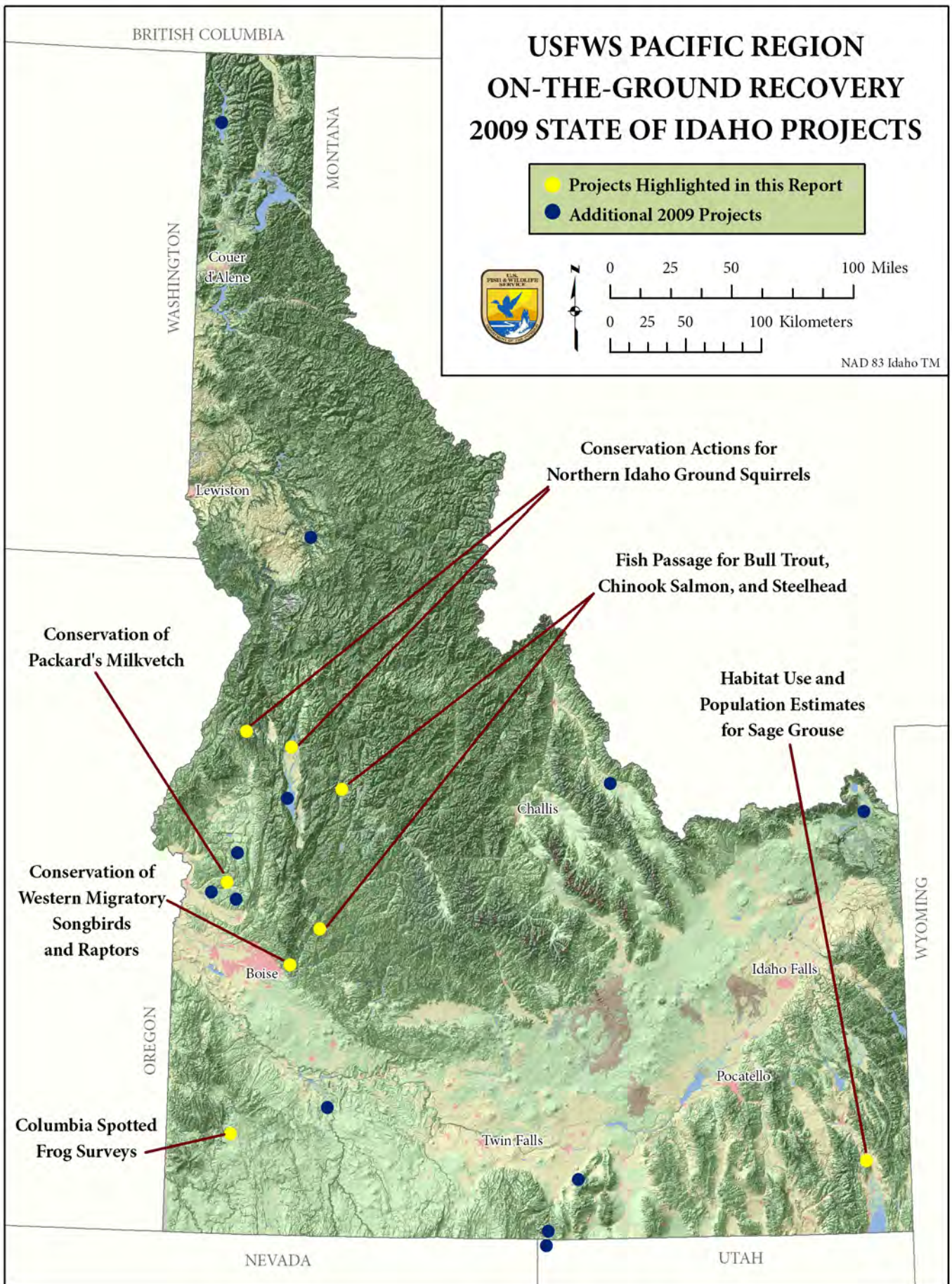
Mariana fruit bat (*Pteropus marianus marianus*). USFWS photo.

USFWS PACIFIC REGION ON-THE-GROUND RECOVERY 2009 STATE OF IDAHO PROJECTS

- Projects Highlighted in this Report
- Additional 2009 Projects



NAD 83 Idaho TM



Fish Passage for Bull Trout, Chinook Salmon, and Steelhead

Two fish passage projects that benefit the recovery of bull trout (*Salvelinus confluentus*) and other fish species will be implemented on the Boise National Forest in southwestern Idaho. The objective of the first project is to remove a culvert at Fir Creek in the Lowman Ranger District that acts as a fish barrier. The culvert will be replaced with an 18-foot wooden bridge, which will accommodate the bank full channel of the stream and will be designed to incorporate stream simulation with respect to channel alignment, gradient, substrates, and 100-year flood events. This project will restore fish passage to approximately six miles of stream designated as critical habitat for chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*). In addition, this project will restore fish passage to 20% of the suitable spawning and rearing habitat for bull trout in the Bear Valley. The objective of the second project is to remove five culverts along Curtis Creek and replace them with structures that allow fish passage. These culvert replacements will restore fish passage to approximately 11 miles of suitable spawning and rearing habitat for bull trout and steelhead in Curtis Creek of the Upper South Fork Salmon River drainage in the Cascade Ranger District.

USFWS Contact: Mark Robertson

Conservation of Packard's Milkvetch

Packard's milkvetch (*Astragalus cusickii* var. *packardiae*) is considered one of the rarest plants in Idaho. This striking perennial forb, endemic to sedimentary outcrops along tributaries of Big and Little Willow Creeks in northeastern Payette County, was rediscovered in the wild during 1997. Only known to occur in a small 10 square mile area, Packard's milkvetch is threatened by habitat alterations from wildfires, livestock grazing, and non-native species. The objective of this project is to develop a long-term monitoring program to collect quantitative information on species abundance, community composition, and impacts from ground disturbing activities. Preliminary results from baseline monitoring indicate that the sedimentary outcrops are being impacted by non-native invasive species, as well as new threats from increased off-road recreational motorcycle use. The information gained from this monitoring will be used to develop range-wide and site-specific conservation priorities.



Packard's milkvetch (*Astragalus cusickii* var. *packardiae*). USFWS photo.

USFWS Contact:
Kendra Womack



Chinook salmon (*Oncorhynchus tshawytscha*) spawning (above), USFWS photo. Bull trout (*Salvelinus confluentus*) spawning (right), photo courtesy of USFS.

Habitat Use and Population Estimates for Greater Sage Grouse

Greater sage-grouse (*Centrocercus urophasianus*) occupy approximately 56 percent of their historical range in western North America. Evidence suggests that habitat fragmentation and destruction across much of the species' range has contributed to significant population declines over the past century. The goal of this project is to obtain population and seasonal habitat use data for isolated sage grouse populations in the Eastern Idaho Uplands Planning Area. Fifty sage grouse will be captured, radio-marked, and monitored for the duration of the project. Radio-telemetry data will be analyzed to determine seasonal habitat use and movement patterns. Understanding the distribution and seasonal habitat use of sage grouse is essential to effective conservation planning. This information will be used to prioritize habitat enhancement projects and increase the success of conservation efforts.

USFWS Contact: Sandi Arena



Sage grouse (*Centrocercus urophasianus*). USFWS photo.

Conservation Actions for Northern Idaho Ground Squirrels

Multiple projects contributing to the recovery of the northern Idaho ground squirrel (*Spermophilus brunneus brunneus*) will be implemented in western Idaho. The northern Idaho ground squirrel is threatened by habitat loss and fragmentation, development, non-native plant invasions, and fire management practices. Found only in Adam and Valley counties of western Idaho, the northern Idaho ground squirrel occurs in dry meadows surrounded by ponderosa pine and Douglas-fir forests. The objectives of these projects include developing an interpretive area at Lost Valley Reservoir, an important squirrel colony, restoring suitable habitat at multiple locations, and monitoring the response of northern Idaho ground squirrels to habitat restoration and enhancement actions. The Lost Valley Reservoir interpretive site will have an informational kiosk and pedestrian-only interpretive trail. Results of systematic research projects and on-going population monitoring will be used to assess habitat treatment efficacy, evaluate habitat characteristics important to the species (e.g., nutrients, structure), and assess population response of northern Idaho ground squirrels to habitat treatments.

USFWS Contact:
Kendra Womack



Northern Idaho ground squirrel (*Spermophilus brunneus brunneus*). USFWS photo.

Columbia Spotted Frog Surveys

An isolated subpopulation of Columbia spotted frogs (*Rana luteiventris*) occupies aquatic habitats at the Owyhee Uplands in southwest Idaho. These aquatic habitats, including streams, riparian areas, and wet meadows, have been negatively impacted by habitat loss, conversion of wetlands to irrigated pastures, de-watering of streams and rivers for irrigation uses, and irregular drought. The objective of this project is to expand surveys for Columbia spotted frogs on privately-owned riparian and wet meadow habitats. Increasing the area of surveys included in annual population monitoring will increase our knowledge of the distribution and population status of Columbia spotted frogs in southwest Idaho. Through increased partnerships with private landowners the USFWS is committed to building new and positive relationships with landowners to further conservation of Columbia spotted frogs.

USFWS Contact: Kendra Womack



Columbia spotted frog (*Rana luteiventris*). USFWS photo.

Conservation of Western Migratory Songbirds and Raptors

The purpose of this project is to support cooperative research and public education of western migratory landbirds at the Idaho Bird Observatory (IBO), a non-profit research unit of Boise State University. The IBO's longest-running research and education effort is a fall migration project located on the Boise Ridge in the Boise Foothills southeast of the City of Boise. The Boise Ridge is one of only a few known sites in the western U.S. where large numbers of diurnal raptors, songbirds, and forest owls concentrate during fall migration. This area presents a unique opportunity to study the migration biology of many different kinds of birds in one locality. Studies have identified important habitats used by migrants, breeding and wintering areas, and contribute to long-term population monitoring. Information gained from the IBO, as well as other regional bird observatories, provides essential baseline information used to establish conservation priorities throughout North America, including the Partners in Flight conservation priority-setting at the continental North American scale.

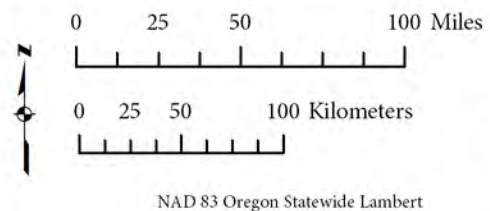
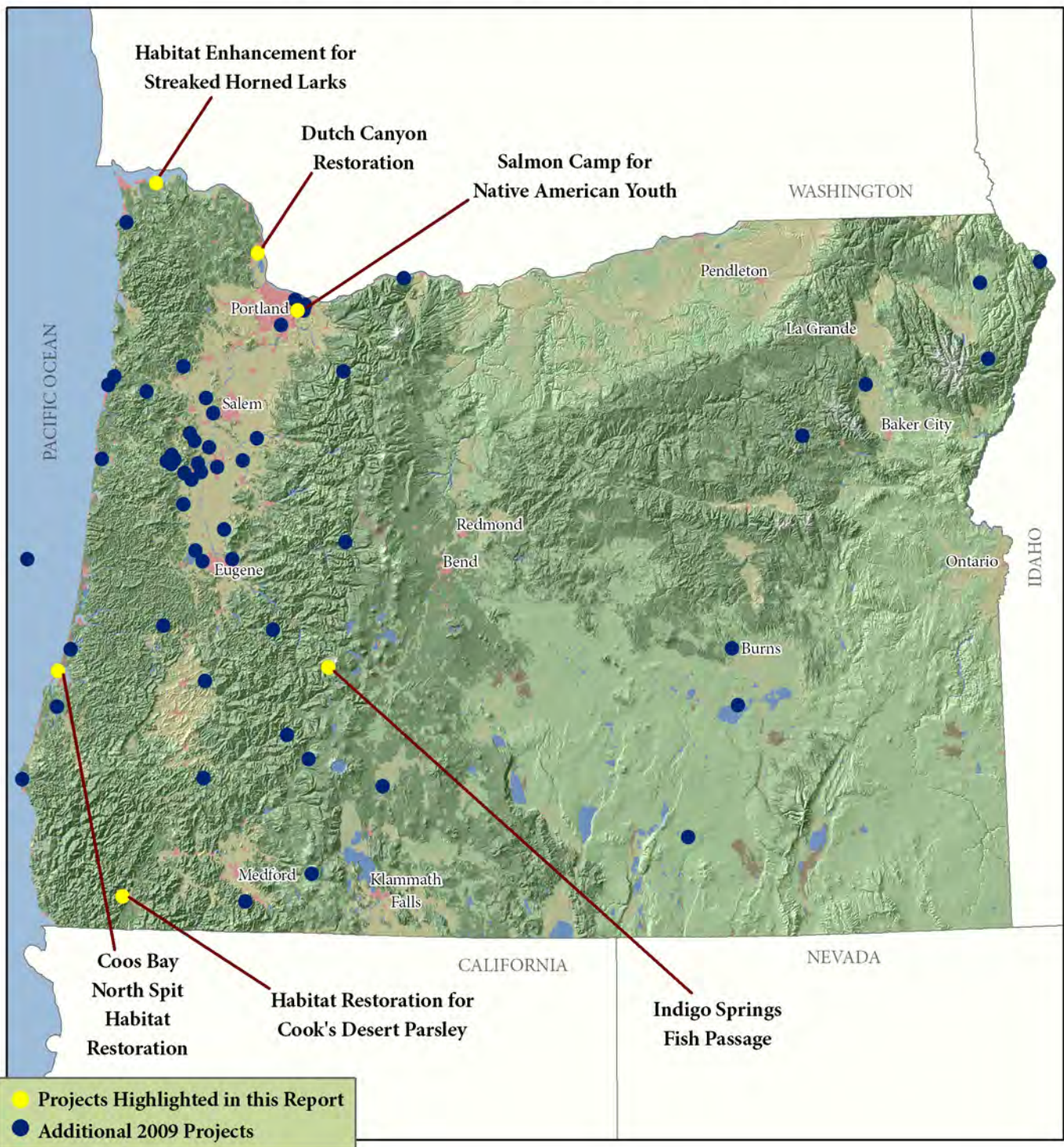
USFWS Contact: Steve Duke



Sharp-shinned hawk (*Accipiter striatus*) banded at Boise Ridge (above), photo courtesy of IBO. Nesting yellow warbler (*Dendroica petechia*), USFWS photo. Both species are designated as high priority breeding bird species by the Idaho Partners in Flight.



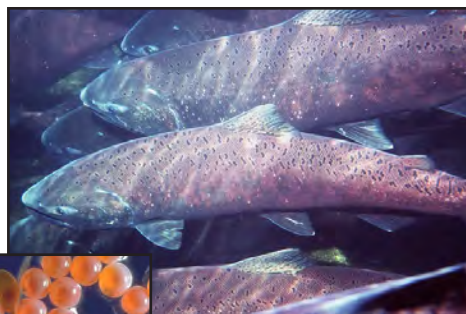
USFWS PACIFIC REGION ON-THE-GROUND RECOVERY 2009 STATE OF OREGON PROJECTS



Dutch Canyon Restoration

Downcutting at South Scappoose Creek, one of the main salmon-bearing creeks in the Scappoose Bay Watershed, has reduced the quality of salmonid habitat due to siltation and loss of habitat diversity. Severe erosion has increased sedimentation and deepened the stream channel resulting in a lost connection with the floodplain at normal high water. The goals of this project include reestablishing the historical floodplain connection, enhancing in-stream habitat, reducing sediment inputs, and restoring ecological function of riparian and wetland habitats. Restoration actions include excavating the active floodplain, reducing stream bank angles, installing engineered log jams to improve in-channel habitat complexity, controlling non-native invasive vegetation, and planting native shrubs and trees. Restoring the natural function of South Scappoose Creek and the adjacent floodplain will improve stream habitat for coho salmon (*Oncorhynchus kisutch*), chinook salmon (*Oncorhynchus tshawytscha*), and steelhead (*Oncorhynchus mykiss*).

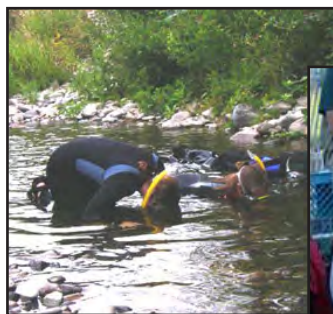
USFWS Contact: Amy Horstman



Chinook salmon (*Oncorhynchus tshawytscha*) adults and eggs. Photo courtesy of U.S. Army Corps of Engineers.



Downcutting at South Scappoose Creek that has degraded stream habitat for native salmonids. USFWS photo.



Students work with researchers during stream surveys (above) and help biologist measure salmon (left). Photos courtesy of the OMSI Salmon Camp.



Salmon Camp for Native American Youth

In cooperation with the National Science Foundation ITEST program and the Lightfoot Foundation, the USFWS supports the Salmon Camp and Salmon Camp Research Team programs. The Oregon Museum of Science and Industry (OMSI) offers these programs free to middle school and high school students of Native American affiliation. Salmon Camp links real world career experience with cultural knowledge by educating Native American youths on salmon conservation and promoting interest in the pursuit of natural resource careers. Students work in the field with Federal, State, and tribal resource managers and university researchers

who provide training in the newest technologies that are revolutionizing the field of resource management. Students are connected with tribal elders to learn about their traditional cultural heritage. A new after-school science program, coordinated by OMSI and the Native American Youth and Family Center, has been created as part of Salmon Camp. The goal of the program is to increase student interest in science through hands-on activities and field trips.

USFWS Contact: Nancy Pollot

Habitat Restoration for Cook's Desert Parsley

Cook's desert parsley (*Lomatium cookii*) is a small perennial plant threatened by development, off-road vehicle use, and habitat alteration resulting from changes in historical fire regimes. The goal of this project is to protect 100 acres of habitat and restore 10 acres of habitat at French Flat and Rough and Ready Creek, designated as Areas of Critical Environmental Concern by the Bureau of Land Management. These areas are prone to disturbance from illegal off-road vehicle use and garbage dumping, and have suffered forest vegetation encroachment from a break in historical fire intervals. Trees and brush will be removed to restore open meadow habitats and fencing will be used to reduce or deter off-road vehicle use. Other restoration actions include removing illegally-dumped trash, mowing, burning, and planting native seedlings.

USFWS Contact: Sam Friedman



Cook's desert parsley (*Lomatium cookii*). Photo by Ian Silvernail.

Habitat Enhancement for Streaked Horned Larks

This project builds on previous planning efforts to evaluate the potential for creating suitable nesting habitat for streaked horned larks (*Eremophila alpestris strigata*) by managing dredge spoil islands in the lower Columbia River. The availability of suitable nesting habitat is one of the limiting factors for streaked horned larks and sparsely vegetated spoil islands have the potential to support large breeding populations of larks. Experimental approaches will be used to assess the optimal disposal timing and the quantity and placement of spoils to create and maintain nesting habitat for streaked horned larks. Successful habitat enhancement methods resulting from this study will be compiled as management guidelines for the Army Corps of Engineers' dredge spoil deposition program.

USFWS Contact: Cat Brown

Male streaked horned lark.
Photo courtesy of WDFW.



Spoil island in the lower
Columbia River. USFWS photo.



Female streaked horned lark. Photo
courtesy of Russell Rogers, WDFW.

Indigo Springs Fish Passage

Successful spawning and early juvenile rearing of bull trout (*Salvelinus confluentus*) is dependent on cold, clear, and complex streams such as Indigo Springs. This type of habitat in the Middle Fork Willamette River is extremely limited, and as a result, bull trout were likely extirpated from the Middle Fork during the early 1990s. Habitat restoration within the Willamette River and translocation of wild bull trout from an adjacent sub-basin were initiated during 1997 and continue today. The objective of this project is to remove a culvert that prevents fish passage into the upper half of the Indigo Springs Stream. Fish passage will be reestablished by replacing the existing culvert with a natural-bottom boxed culvert. Stream flow will also be returned to part of the old stream channel and a section of new stream channel designed to maximize spawning and rearing of bull trout. This project will provide additional habitat for the small reproducing population of bull trout that now exist in the Middle Fork Willamette River.

USFWS Contact: Chris Allen



Removing non-native beachgrasses to restore sandy beach habitat for western snowy plovers (*Charadrius alexandrinus nivosus*). USFWS photo.

Coos Bay North Spit Habitat Restoration

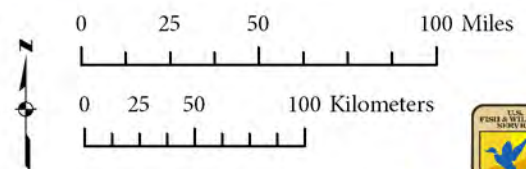
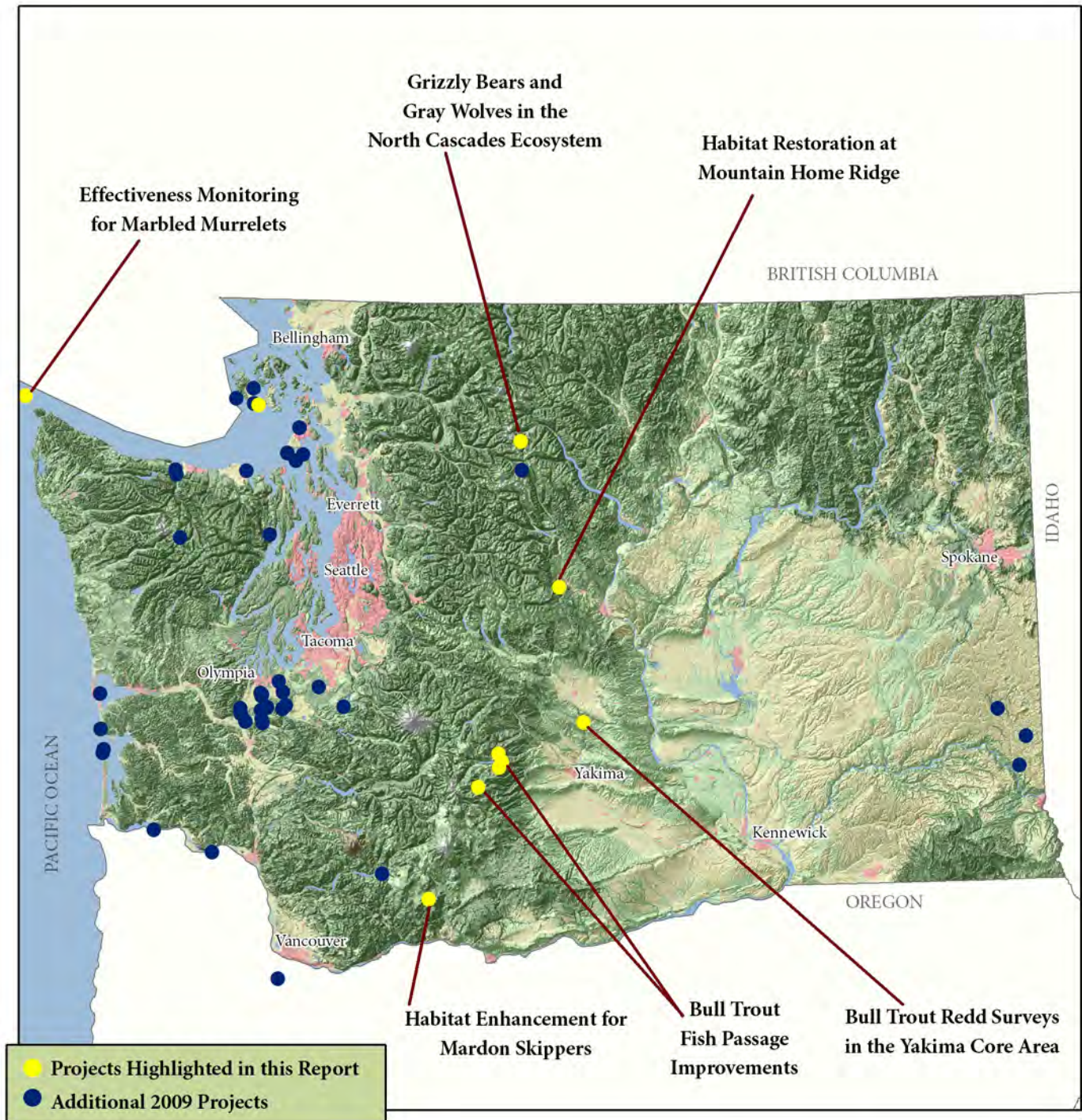
Historically, western snowy plovers (*Charadrius alexandrinus nivosus*) were observed at 29 locations along the Oregon Coast; only eight core breeding areas remain today. Loss and degradation of habitat are the primary causes of population declines for this species. The spread of introduced European beachgrass (*Ammophila arenaria*) in Oregon has reduced the amount of open, sandy habitat preferred by nesting plovers, and increased habitat for predators such as red fox, raccoon, and skunk. On-going habitat restoration and management has resulted in 170 acres of open sand beach habitat at Coos Bay North Spit. Coos Bay North Spit is the most productive plover nest site on the Oregon Coast, accounting for 37 percent of fledglings since intensive monitoring of the population began during 1990. The objectives of this project include clearing introduced beachgrass and other invasive plant species, predator management, installing signs and ropes to protect breeding areas, enforcement of beach restrictions, and outreach and education. Continuing these important habitat restoration and management actions will contribute to the recovery of western snowy plovers.

USFWS Contact: Liz Kelly



A natural-bottom boxed culvert will allow fish passage for bull trout (*Salvelinus confluentus*) into upstream reaches of Indigo Springs Stream. USFWS photo.

USFWS PACIFIC REGION ON-THE-GROUND RECOVERY 2009 STATE OF WASHINGTON PROJECTS



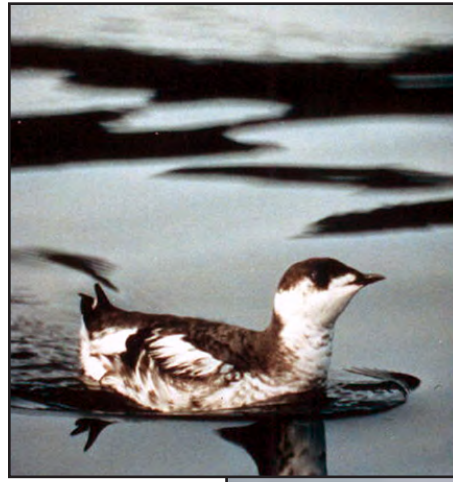
NAD 83 State Plane



Effectiveness Monitoring for Marbled Murrelets

The marbled murrelet (*Brachyramphus marmoratus*) is a small seabird that spends most of its time foraging and roosting in near-shore marine waters. However, during the breeding season, marbled murrelets nest in forests with old-growth characteristics up to 50 miles inland. Loss of old-growth forests and other viable nesting habitats is considered the main reason for the decline of the species. The purpose of this project is to conduct at-sea surveys off the coast of Washington that contribute to long-term monitoring and evaluation of actions implemented under the Northwest Forest Plan to restore and manage suitable nesting habitat. Results from these surveys will assess the status and trends of marbled murrelet populations throughout the Pacific Northwest and determine if land based management actions outlined in the Northwest Forest Plan are contributing to the recovery of the species.

USFWS Contact: Deanna Lynch



Marbled murrelet (*Brachyramphus marmoratus*) at sea (left), USFWS photo. Marbled murrelet nest in old growth forest (bottom left), photo courtesy of N. Hatch, USFS. At-sea surveys to monitor population trends (below), USFWS photo.



Mardon skippers (*Polites mardon*). Photo courtesy of Tom Kogut, USFS.

Habitat Enhancement for Mardon Skippers

The Mardon skipper (*Polites mardon*) is a small tawny-orange butterfly known from 37 sites located in four geographic areas. Habitat loss and degradation of native prairie grasslands are considered the primary reasons for its decline. Cave Creek Meadow supports the western-most population of Mardon skippers documented in the Washington Cascades and a population of pale blue-eyed grass (*Sisyrinchium sarmentosum*), a rare endemic plant. The purpose of this project is to enhance habitat at Cave Creek by removing non-native invasive species that reduce habitat quality for Mardon skippers and pale blue-eyed grass. This project supports efforts to eradicate Hound's tongue (*Cynoglossum officinale*) and control Canada thistle (*Cirsium arvense*) and western tansymustard (*Descurainia pinnata*) from 10 acres of Cave Creek meadow and adjacent habitats.

USFWS Contact: Vince Harke



Pale blue-eyed grass (*Sisyrinchium sarmentosum*). Photo by Lois Kemp, Center for Plant Conservation.

Habitat Restoration at Mountain Home Ridge

The Wenatchee Mountains checker-mallow (*Sidalcea oregano* var. *calva*) is an endemic plant found only in mid-elevation wetlands and met meadows within Chelan County in eastern Washington. Known from only five populations, it is federally listed as endangered and is designated as a spotlight species in the Pacific Region. This project will create a suitable reintroduction site for the checker-mallow by cutting and removing encroaching vegetation and burning to create potential habitat. When habitat at the Mountain Home Ridge reintroduction area is suitable, seeds of the Wenatchee Mountains checker-mallow will be collected and planted at the site. When successfully completed, this project will accomplish multiple recovery goals.

USFWS Contact: Greg Van Stralen



Wenatchee Mountains checker-mallow (*Sidalcea oregano* var. *calva*) habitat in eastern Washington. USFWS photo.

Grizzly Bears and Gray Wolves in the North Cascades Ecosystem

Grizzly bears (*Ursus arctos horribilis*) and gray wolves (*Canis lupus*) in the North Cascades Ecosystem are present only in small numbers, below their historical population levels. Both species are essential for proper functioning of the North Cascades Ecosystem. Understanding the current distribution and status of grizzly bears and gray wolves in the North Cascades is important for determining appropriate recovery actions to increase population numbers. This project increases the capacity of management agencies to document the status and distribution of these carnivores throughout the region. Two field biologists will be hired and trained to identify grizzly bears and gray wolves and their sign. Biologists will use remote cameras to verify species occurrence in locations where reliable sightings are reported, assist with radio-telemetry monitoring of the first fully documented wolf pack in Washington, and provide public education and coordination with volunteers.

USFWS contact: Jodi Bush

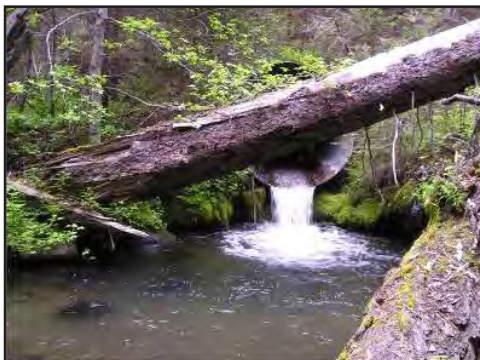


Grizzly bears (*Ursus arctos horribilis*). USFWS photo.

Bull Trout Fish Passage Improvements

The South Fork Tieton River and Spruce Creek provide spawning and rearing habitat for bull trout (*Salvelinus confluentus*), but habitat quality and availability has been negatively impacted by roads and barriers to fish passage. Three culverts will be removed and replaced with wooden jeep-trail bridges to restore unimpeded fish passage to the South Fork Tieton River. In addition, one mile of road along the river will be decommissioned and obliterated; another one mile of road will be converted to a jeep trail. At Spruce Creek, a trail bridge will be constructed to improve the quality of stream habitat by directing traffic out of the stream corridor.

USFWS Contact: Greg Van Stralen



Culvert at the South Fork Tieton River acts as a barrier to fish passage. USFWS photo.



Cascade Pass (above), photo courtesy of NPS. Grizzly bear with cub (top right), photo courtesy of Conservation Northwest. Gray wolf (*Canis lupus*) during winter (right), USFWS photo.

Bull Trout Redd Surveys in the Yakima Core Area

The collection of redd data for bull trout (*Salvelinus confluentus*) is one of the most widely established methods to monitor trends in populations and is key to the recovery of bull trout. The objectives of this project are to continue monitoring bull trout redd index reaches within the Yakima sub-basin to determine population trends and to expand monitoring efforts to stream reaches that have been inconsistently monitored in the past. These surveys will develop a more standardized set of data for establishing population trends. Redd surveys will be conducted in several streams throughout the Yakima Sub-Basin and provide information for 16 subpopulations within the Sub-Basin.

USFWS Contact: Judy DeLaVergne



Collecting redd data for bull trout (*Salvelinus confluentus*). USFWS photo.



Back cover photos: MacFarlane's four-o'clock (*Mirabilis macfarlanei*; above), photo courtesy of Mark Lowry, Idaho BLM. Hells Canyon survey for MacFarlanes four-o'clock (left), photo courtesy of Jesse D'Elia.

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