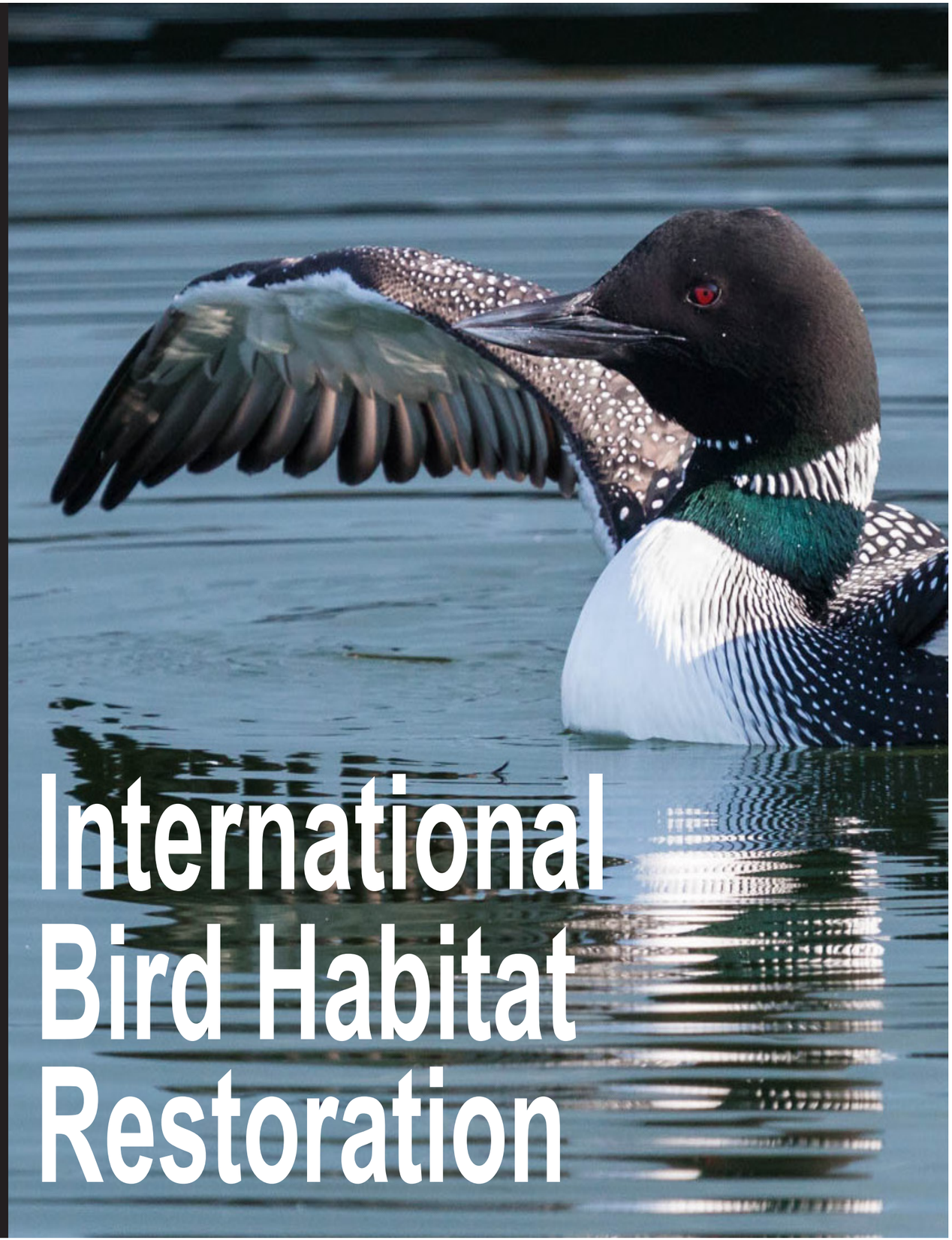


International Bird Habitat Restoration

Natural Resource Damage Assessment and Restoration Program

Restoration Program

Cover Photographed by Andrew A Reding
Designed and Illustrated by Hunter Myers

ADDITIONAL RESOURCES

https://edit.doi.gov/sites/doi.gov/files/uploads/orda_bird_ltr.pdf

TRUSTEES

SURF SCOTER
The California Department of Fish and Wildlife, California State Lands Commission, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, National Park Service.

RUDDY DUCK
The National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, and the Maryland Departments of Natural Resources and Environment.

ANCIENT MURRELET
U.S. Fish and Wildlife Service, National Park Service, National Oceanic and Atmospheric Administration, California Department of Fish and Wildlife.

NEOTROPICAL MIGRATORY BIRDS
The Massachusetts Executive Office of Energy and Environmental Affairs, the U.S. Department of the Interior, acting through U.S. Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration.

SEABIRD COLONIES
The National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, National Park Service, California Department of Fish and Wildlife, California State Lands Commision, and California State Parks.

COMMON LOON and COMMON EIDER
The National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, and the State of Rhode Island Department of Environmental Management.

SOOTY SHEARWATER
U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, the California Department of Fish and Wildlife, the California State Lands Commission, and the California Department of Parks and Recreation.

RED KNOT
The National Oceanic and Atmospheric Administration, the New Jersey Department of Environmental Protection andv U.S. Fish and Wildlife Service.

CONTENTS

NRDAR

Natural Resource Damage Assessment and Restoration Program

When hazardous substances enter the environment or oil spills occur, fish, wildlife and other natural resources can be injured. The U.S. Department of the Interior, along with State, Tribal and other Federal partners, acts as “trustee” for these resources. Trustees seek to identify the natural resources injured and determine the extent of the injuries. Trustees may work with the responsible parties to carry out the restoration activities. These efforts are possible under the Natural Resource Damage Assessment and Restoration Program (NRDAR), the goal of which is to restore natural resources injured by oil spills or the release of hazardous substances.

the shorebirds within the bay are popular tourist destinations receiving more than 250,000 visitors annually. As a means of raising awareness and improving conservation efforts, the project replaced deteriorating, ineffective signage with new, professionally-produced signage. An innovative interpretive center has also been developed to serve local visitors and tourists as well as serving as a training and outreach center for local teachers. In addition to this, an environmental education curriculum was added in all primary schools of the Province to raise awareness and appreciation of the red knots.

Rio Gallegos Estuary, Santa Cruz, Argentina

The Rio Gallegos Estuary comprises two important protected areas for shorebirds: the Provincial Migratory Shorebird Reserve and the Rio Gallegos Urban Coastal Reserve. Unfortunately, the habitats were being destroyed by local individuals who threw trash, construction waste and other rubble into the wetlands. To mitigate these threats, a

permanent program of patrols and monitoring of the protected areas have been instituted. Partners conduct a continuing awareness campaign directed primarily at the people living adjacent to the protected area. Signage, guardhouses and similar capital works have been installed.

Atlantic Coastal Reserve of Tierra del Fuego, Argentina

The coast of the City of Rio Grande is the second critical “wintering” spot for Red Knots in Tierra del Fuego. To raise awareness and promote land use that is compatible with conservation, an interpretive “trail” for locals and visitors to learn about and value the birds has been constructed. Basic equipment such as binoculars and telescopes are available for use.

Bahia Lomas, Tierra del Fuego, Chile

Bahia Lomas has a count of wintering red knots higher than any other site. A lack of recognition from Chilean national and provincial officials, as well as from local citizens, poses a threat to this area. To raise awareness, the Tierra del Fuego Bird Observatory, a center for the study of birds and other wildlife on the north coast of Tierra del Fuego, was established. The observatoryserves as a base of operations for oil spill contingency planning, response, and education. Information generated through the shorebird and ecological research done at the observatory will inform planners on how best to protect the shorebird resources.

RED KNOT

M/V Anitra Crude Oil Spill, New Jersey

On May 10, 1996, the U.S. Coast Guard reported that the Bahamian-flagged M/V Anitra spilled approximately 10,000 gallons of oil. Nine days later the U.S. Coast Guard reported as much as 42,000 gallons of oil were released into Big Stone Anchorage, Delaware Bay—an important stopover point for migratory shorebirds. Within a 2-week period, over 50 miles of beaches were oiled including several state wildlife management areas, two State parks, and the Edwin B. Forsythe National Wildlife Refuge.

The Trustees reached a $1.5 million settlement with the responsible parties and developed a restoration plan that included habitat restoration and protection for migratory shorebirds (particularly red knots) on their wintering grounds in South America. The plan includes four projects: three in Argentina and one in Chile.

San Antonio Bay, Argentina, Rio Negro, Argentina

San Antonio Bay is the single most important stopover site in South America for northbound red knots leaving their wintering area and heading for Delaware Bay. The three major beaches used by

The implementation of restoration efforts in South America will serve to ensure the restoration and continued protection of migratory shorebird species, including those affected by the Anitra spill, during the part of their migratory life cycle when they are over 6,000 miles from the area immediately affected.

The projects

SURF SCOTER

M/V Cosco Busan Oil Spill, California

The San Francisco Bay area is a major wintering site for surf scoters—a diving duck that spends three-quarters of its annual cycle wintering and migrating. In November 2007, the freighter Cosco Busan struck a bridge and spilled around 53,500 gallons of oil into the Bay. As a result of the spill, 1,624 surf scoters and other large diving birds were estimated dead. Some oiled scoters were captured, cleaned and re-released. Unfortunately, only 14% of those released were able to survive.

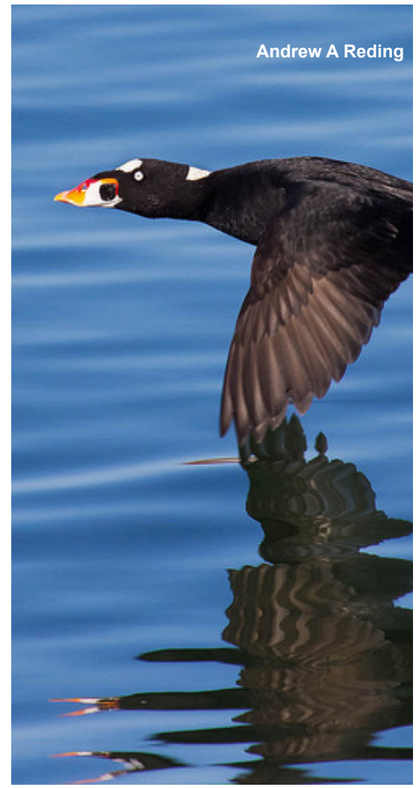
Enhancing reproduction on nesting grounds is often the approach taken to restoring injured bird population; however, due to the remote nesting habitats of the surf scoter, this wasn't a viable option. Instead, the Trustees chose to focus on enhancing survival by removing abandoned fishing nets from marine waters used by wintering surf scoters.

Derelict fishing nets have been identified as a threat to surf scoters and other marine birds and have been removed from a handful of locations. Unfortunately, there are still plenty of nets in the bay areas often frequented by seaducks and other marine life.

A pilot study was conducted in the Salish Sea—recognized internationally as an important bird area that provides wintering and spring stopover habitats for marine birds (including surf scoters). Between August and September of 2015, surveys were performed to locate potential net targets. Following the initial surveys, divers were deployed to verify and remove any derelict nets.

A total of 18 derelict net targets were investigated, and four were identified and removed from the waters of Baynes Sound east of Denman Island, British Columbia. The four nets removed weighed a total of .26 metric tons and had a surface area of 9,420 square-feet. Ninety-nine animals were found entangled in the nets, 17 of which were birds.

Additional surveys were conducted during 2017 in the North Vancouver Straits, an area which is important for salmon and hosts flocks of scoter during the winter and spring migration.


Andrew A Reding

Three derelict nets were found and removed, none with dead birds or mammals. The scarcity of derelict nets located was surprising compared to similar areas in the Washington waters of the Salish Sea. Future efforts in the Salish Sea will focus on responding to and removing newly lost and reported nets. Newly lost nets may be more dangerous to marine birds than derelict nets. Removing nets as soon as possible after they are lost by fishers but before they sink and become derelict, may be a more effective strategy to reduce mortality to scoter and other marine birds.

SOOTY SHEARWATER

T/V Command Oil Spill, California

The number of sooty shearwater off California have significantly declined over the years due to climate change, incidental fisheries take and pollution. The easiest way to increase their population is to eradicate the predators that were introduced to shearwater breeding grounds in New Zealand.


Tom Benson


NOAA

On September 26, 1998, Tank Vessel Command leaked 3,000 gallons of oil off the coast of central California, injuring sooty shearwaters and other seabirds. As most sooty shearwaters that re found off the California coast migrate from New Zealand breeding colonies, a cross-collaborative international project was developed to compensate for the oil spill injury.

The project had four main objectives, all of which have been met: eradication of rats and weka, quarantine from future introduction of these predators, monitoring the success of the project and educating the people in California and New Zealand about the project and the international importance of these birds.

Eradication

Rats and weka (a flightless bird in the rail family) pose a large threat to sooty shearwater nesting grounds, as they prey on the eggs and young chicks hatching there. As part of the restoration, a project was implemented to eliminate the rats and weka on four islands off the New Zealand mainland. Poison pellets were dropped in two phases, eliminating a majority of the rats and some of the weka. Ground-based trapping and hunting was used to eliminate more of the weka. The eradication of the rats was successful, but additional efforts are needed to completely eradicate the weka.

Quarantine

To ensure the nesting sites remain free of rats, New Zealand partners Ka Mate Nga Kiore (KMNK) continued to promote the "Keep the Titi Island Rat Free" message throughout outreach at community meetings, calendars, DVDs and signage. These types of outreach are simple, cost-effective and have a wide impact.

Monitoring

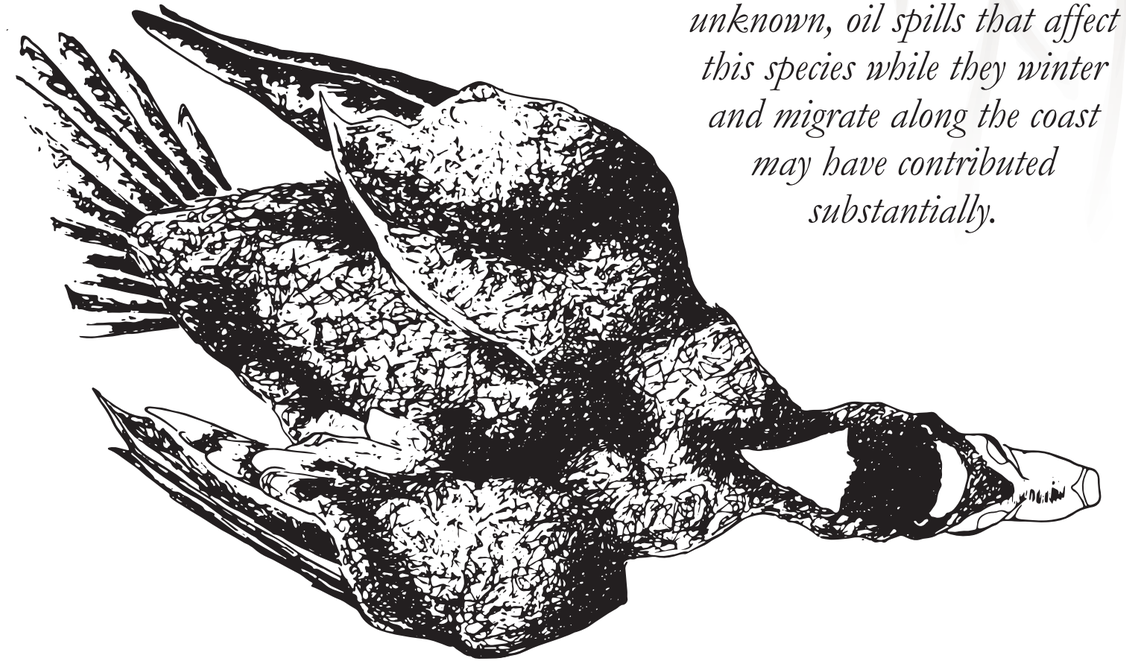
In 2008, the first post-eradication monitoring report indicated a positive beneficial response of vegetation, insects and land birds to the removal of rats. A 2010 survey indicated continued increase in land bird abundance, suggestive that the project is providing benefits to island birds.

Education

In 2008, KMNK worked with South Coast Productions, NZ, to produce the final version of a video, "Restoring Paradise," documenting the story of the shearwaters killed by the Command spill and the unique restoration plan to eradicate rats on shearwater nesting islands in New Zealand. In 2011, outreach videos were distributed.


Jon D. Anderson


Linda Tanner



The continental population of surf scoters has decreased by as much as 50% over the past 50 years. While causes of this decline are largely unknown, oil spills that affect this species while they winter and migrate along the coast may have contributed substantially.


Andrew A. Reding


Dan Streiffert


Common Eider

Ron Knight

Towards the end of winter, ruddy ducks migrate from the Chesapeake Bay area back to their nesting grounds in the Prairie Pothole Region. Over the years these wetland habitats have been seriously reduced, affecting the nesting habits of many North American waterfowl.


Steve Metildi

In January 1996, a 340-foot oil barge, the North Cape, spilled 828,000 gallons of oil. Over 2,000 birds were killed, including numerous loons and sea ducks.

Of the 2,000 killed, 414 were loons. Loon restoration was of particular importance to the Trustees because loons are an iconic, sentinel species, particularly sensitive to development. Trustees focused their efforts on protecting loon nesting habitat to prevent reductions in productivity of chicks and losses of adults in the wild. To do this, the Trustees set out to acquire land surrounding loon nests. Since continued development is a main factor in the loss of loon nesting habitat, project partners chose four areas in northern Maine that had the potential of being developed in the near future and that were currently under consideration for protection by conservation organizations.

The Trustees provided funds (nearly $3 million) at a crucial time to assist four different conservation organizations with a massive fundraising effort of more than $100 million.

As a result of the conservation efforts, nearly 1.5 million acres of Maine forests and lakes that provide nesting habitat for at least 125 loon pairs has been permanently protected.

A similar project (though of a smaller scale) was implemented for seaducks impacted by the spill, with an emphasis on the common eider, since 354 were killed by the spill. The Trustees proposed the purchase of island acreage in Maine to prevent future losses of breeding eider populations due to development. The acquisition of the land to prevent future decreases in eider productivity also benefits other birds injured by the spill by protecting foraging habitat along the shoreline.

Flag Island was chosen as the restoration location and purchased by the Trustees. This 42-acre island in Casco Bay, Maine is home to more than 600 pairs of nesting eiders, all of which are now permanently protected.


Common Loon

USFWS

COMMON LOON & COMMON EIDER

North Cape Heating Oil Spill, Rhode Island


Common Loon
Seney Natural History Association

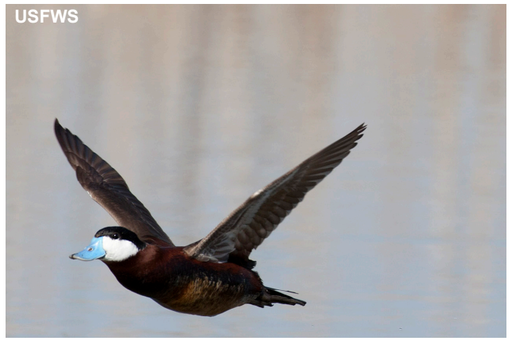
The Common Loon is a highly visible resident in North American waters. Many non-governmental organizations are dedicated to conserving this species, in part due to its great public appeal.

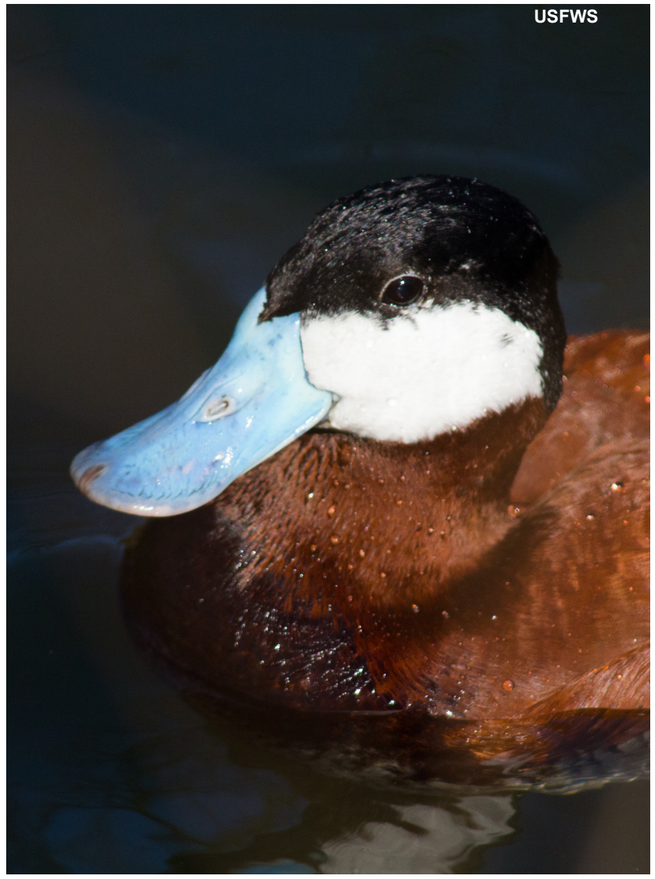

Common Loon
Jim Gain


Common Eider
Ilkka Jukarainenkins

RUDDY DUCK

Potomac Electric Chalk Point Oil Pipeline Rupture, Maryland


USFWS

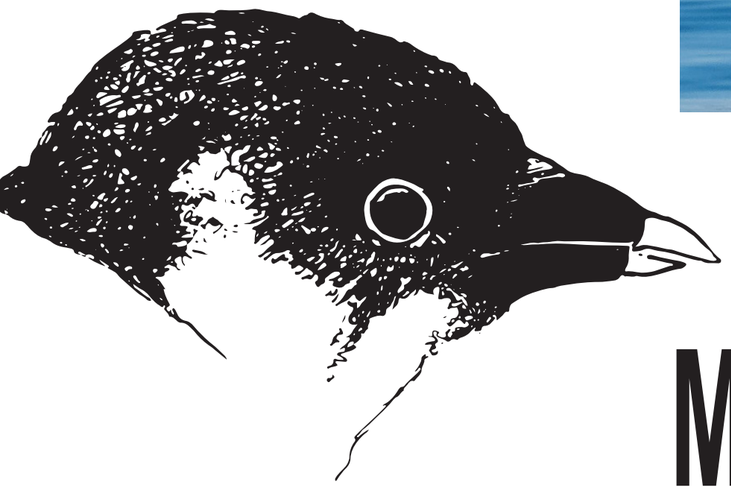

USFWS

In April 2000, a pipeline ruptured spilling more than 140,000 gallons of oil into Maryland's Patuxent River, a tributary of Chesapeake Bay. The spill injured wetlands, beaches, and wildlife, including resident birds and hundreds of ruddy ducks. The waterfowl mortality studies estimated that 553 ruddy ducks were lost due to the spill.

In order to repair the damage to the population caused by the spill, the Trustees agreed on a project that would restore their nesting grounds in the Prairie Pothole Region. They calculated that a total of 1,853 acres of nesting habitat needed to be restored.

As of 2004, 474 acres had already been restored and protected by easements from farmers. The farmers were able to enroll in a program set up by the U.S. Fish and Wildlife Service that allowed them to continue growing hay or graze animals in the farmlands of Prairie Pothole Region while simultaneously protecting and restoring ruddy duck nesting habitat.

All 1,853 acres of land was protected or restored by 2007.

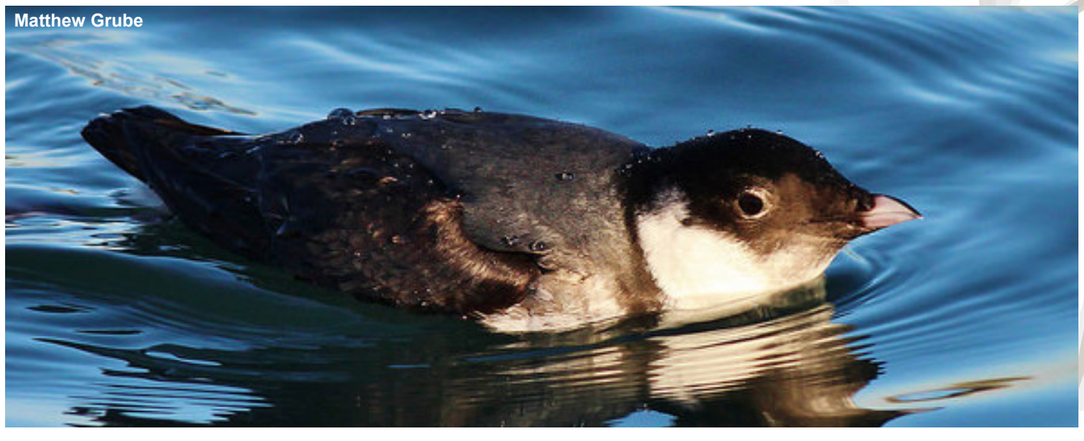



Andrew A Reding

ANCIENT MURRELET

SS Jacob Luckenbach Oil Spill, California

Ancient murrelets are a long-lived, slow-reproducing species that spend much of their lives at sea. They come ashore only to nest, typically on remote offshore islands, where they nest in soil burrows, rock crevices and caves or under structures such as logs.


Matthew Grube

SEABIRD COLONIES

Montrose Chemical Superfund Site & SS Jacob Luckenbach Oil Spill, California


Western Gull Chick
Becky Matsubara

A number of long-term benefits will come from these restoration projects. Invasive plants and mammals will be removed; the islands gain formal protection; and research funds made available will support at least two Ph.D. and four Master's students. Restoration of the nesting Baja California Pacific Islands will create more stable and viable populations of seabirds in both the U.S. and Mexico, and the partnerships forged will strengthen on-going successful conservation projects.

Most North American seabirds nest on islands. Island ecosystems, though threatened by invasive species, habitat loss, human disturbance, climate change, marine pollution, and unsustainable practices, offer opportunities for restoration.


Double-crested Cormorant
Grupo de Ecología y Conservación de Islas

From 1940 to the 1970's the Montrose Chemical Corp. released millions of tons of oil and waste into the Southern California Bight. A lawsuit was filed in 1990, and by 2001 a settlement of $30 million was awarded to help restore the natural resources lost to the pollution. Seabirds, along with bald eagles and peregrine falcons, were among the species injured by the spill.

In 2006, the Trustees began the restoration process for a project off of Baja California— a critical seabird nesting habitat— addressing seabirds injured in the Montrose and Luckenbach (see pages 7 and 8) spills. The ashy storm-petrel, Xantus's murrelet, California brown pelican and the cassin's auklet were the target species for this project.

By 2012, the project was underway with five different restoration techniques: habitat restoration, social attraction, disturbance reduction, educational outreach and monitoring.

Habitat Restoration

Project partners completed a survey of the land and exotic plants, such as the iceplant, and completed removals of the non-native plants from the island shortly after. Additionally, artificial nesting boxes were installed to improve nesting opportunities and facilitate monitoring of reproductive success.


Cassin's Auklet
Grupo de Ecología y Conservación de Islas


USFWS
Brown Pelican

Social Attraction

Teams used decoy birds, mirrors, nest boxes, replica eggs and sound to encourage recolonization of nesting areas, thus increasing the population size of seabird species.

Disturbance Reduction

Project partners established trails and boardwalks and installed signs to limit human interference with nesting areas. During nesting season, access is further restricted.

Educational Outreach

The project sought to educate the local community about the injured species as well as how they can help protect them. Schools, local communities and fishing cooperatives were among the groups targeted by these programs. In addition to this, education on light reduction was made available.

Light pollution can significantly affect nocturnal seabirds, causing them to collide with various structures. As a means of limiting this access, the San Benito Island started a pilot program to reduce the timing and intensity of the lights there. Similar efforts were planned for all of the target islands.

Monitoring

The areas will be monitored following the completion of each of the projects to check the projects' effectiveness. Recording devices will be used to monitor nocturnal seabirds and other devices will be used for additional observations.

On July 14, 1953, the S.S. Jacob Luckenbach collided with its sister ship and sank in the Gulf of Farallones off the coast of San Francisco. After the ship sank, it began to decay on the ocean floor and leak oil over several years—becoming the source of many oil spills. Between 1990 and 2003, the Luckenbach oil spill killed a total estimate of 51,569 birds, 428 of which were ancient murrelets.

As a means of restoring the lost population, the Trustees selected a restoration project that would remove Norway rats from the Bischof and Archika Islands in Gwaii Haanas National Park Reserve, Canada. Norway rats are predators of ancient murrelet eggs and chicks and have seriously reduced or completely eradicated seabirds on many of their nesting islands.

While the ultimate goal of the project is to restore seabird-breeding habitat, removing rats will also restore ecological balance, reduce pressure on other native wildlife and allow small populations, such as that of the dusky shrew, to recover. The restoration of seabird colonies on the islands will also help to reverse the indirect negative impacts on the entire island ecosystem by restoring the nutrient exchange cycle between marine and terrestrial environments.

On-island rat eradication began in August 2011, followed by several years of monitoring using remote cameras and baited traps. The eradication of Arichika was successful and it was deemed rat-free in 2015. Native species are already responding to the absence of the rats. Sadly, rats appear to have re-invaded the Bischof Islands, possibly arriving on floating debris during an intense storm.

Parks Canada is considering all management options to address the reinvasion of the Bischofs. Parks Canada and the Haida Nation have used the success from this project as a springboard to launch additional rat eradication work at the larger islands.


Eric Ellingson


National Park Service

NEOTROPICAL MIGRATORY BIRDS

Nyanza Chemical Waste Dump Superfund Site, Massachusetts

The Nyanza Chemical Waste Dump Superfund Site is located in Ashland, Massachusetts. Between 1917 and 1978, this 35-acre site was home to companies that produced textile dyes and other substances, releasing large volumes of industrial wastes into the environment.

Mercury contamination of habitats downstream from the Site reduced the quality of the habitat for fish, amphibians, reptiles, other aquatic organisms, birds and mammals. To compensate for the natural resources impacted by this contamination, the Trustees selected a number of projects to restore impacted habitats for various species.

In the case of neotropical migratory birds like warblers, flycatchers and thrushes, the Trustees protected nesting habitat along the river in Sudbury and Framingham, Massachusetts. They also worked to protect overwintering habitat sites in Belize.

The Trustees focused on protecting intact forest and restoring and rehabilitating the degraded tropical forests in Southern Belize. Intensive agriculture—the removal of native plants to make room for crops, as well as the significant use of pesticides and fungicides—has led to this degradation and is what the team is trying to reduce. The Belize Foundation for Research and Environmental Education (BFREE), a Florida-based nongovernmental organization, is working with local farmers to facilitate the transition from this intensive agriculture to a more sustainable agroforestry. This process encourages farmers to help initiate reforestation and plant shade-grown organic cacao or coffee instead of crops like pineapple and banana (that can still be grown in other areas).


Gray Catbird — Michael Klotz


Scarlet Tanager — USFWS

Winter food limitations cause mortality on wintering grounds as well as increase mortality during migration and reduce productivity in breeding areas. Protecting the wintering habitat is vital to restoring the birds affected by the contamination in Massachusetts.

To date, more than 50 acres of land on eight farms has been dedicated to cacao-based agroforestry and more than 30,000 cacao trees have been planted. BFREE has constructed a nursery to provide cacao and other trees to farmers interested in agroforestry. They have also produced The Belize Cacao Agroforestry Handbook, a manual intended to guide farmers interested in growing cacao sustainably.

Annual bird monitoring activities have been conducted since the project began to compare the types and numbers of bird species using the cacao forests to the types and numbers of birds found in citrus and cattle farms. While this data has not yet been fully analyzed, the trustees are encouraged that many of the bird species impacted at the Nyanza site are found utilizing the cacao forests.


Wood Thrush — Kelly Colgan Azar


Yellow Warbler — USFWS