Presidential Migratory Bird Federal Stewardship Award

1. Applicant: National Park Service – Channel Islands National Park
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2. Co-applicant(s): National Oceanic and Atmospheric Administration – NOAA Restoration; U.S. Fish & Wildlife Service; Department of Defense – U.S. Navy; California Department of Fish & Game; The Nature Conservancy; Island Conservation; California Institute for Environmental Sciences; Institute for Wildlife Services

3. Action: Integrated Restoration for Migratory Birds on the Channel Islands

Channel Islands National Park and partners (federal, state, and non-profit organizations) have undertaken a suite of integrated ecological restoration actions that are unprecedented in the United States and are resulting in reestablishment of migratory bird species of concern at the Channel Islands.

Summary of specific restoration actions completed:

a) Elimination of non-native rats from Anacapa Island.
    a. Results: Recovering populations of nesting Xantus's murrelets and Cassin's auklets on Anacapa Island
b) Reestablishment of extirpated nesting bald eagles to the Channel Islands
    a. Results: Over 50 bald eagles are now resident on the Channel Islands. Bald eagles are nesting on 3 of the 8 Channel Islands
c) Reestablishment of extirpated peregrine falcons to the Channel Islands
    a. Results: Over 25 nesting territories of peregrine falcons on 7 of the 8 Channel Islands
d) Elimination of feral cats from San Nicolas Island
    a. Results: Just completed project will result in recovery of federally threatened western snowy plover, Brandt's cormorant, and western gull
e) Restoration of terrestrial habitat to support nesting of rare seabirds on Santa Barbara and Santa Cruz Islands
    a. Results: Increased numbers and distribution of nesting ashy storm-petrels, Cassin's auklets, and Xantus's murrelets

The California Channel Islands provide essential nesting and feeding grounds for approximately 99 percent of seabirds that nest in southern California. The Channel Islands provide rare habitat in this region for bird species of special concern, such as bald eagles and peregrine falcons. The suite of restoration actions that have been undertaken under the joint leadership of Channel Islands National Park, NOAA, DOD, and USFWS (with numerous partners) are resulting in protection of critical habitat, expansion of suitable habitats that had been degraded by non-native species or past land uses, and reestablishment of species that were extirpated or substantially reduced. The restoration projects are intensive and science-based. Funding has come from public and private sources. Natural Resource Damage Assessment funds (particularly American Trader and Montrose Settlements Restoration Program) have been critical to these projects and demonstrate an innovative way to fund stewardship of migratory birds and their habitats. Following are details regarding restoration actions:

Elimination of non-native rats from Anacapa Island: Anacapa Island provides critical habitat for seabirds, pinnipeds such as California sea lions, and endemic plants and animals. The island's steep, lava rock cliffs incorporate numerous caves and crevices that are particularly important for the increasingly rare seabird species, Xantus's murrelet and ashy storm-petrel. The largest breeding colony of the California brown pelican in the United States also occurs on Anacapa Island, and a unique subspecies of deer mouse (*Peromyscus maniculatus anacapae*) occurs only on this island. Unfortunately, the Anacapa ecosystem had been degraded by the nonnative black rat (*Rattus rattus*) that preyed on reptiles, amphibians, marine and terrestrial invertebrates, and the young and eggs of island-nesting seabirds. On Anacapa Island these ravenous predators prevented two rare bird species, the Xantus's murrelet (*Synthliboramphus hypoleucus*) and ashy storm-petrel (*Oceanodroma homochroa*), from nesting successfully.

Anacapa Island presented special challenges to rat eradication. Its extensive steep cliffs would complicate placing rodenticide bait into the territory of every rat. Additionally, there were numerous other sensitive, non-target animals which needed to be protected. In 2002, the NPS and partners completed the eradication of black rats from Anacapa Island. Subsequent monitoring has demonstrated beneficial impacts to the endemic island deer mouse, native reptiles and amphibians, and nesting seabirds. In particular, the Xantus's murrelet nesting population has expanded substantially. Long-term monitoring is documenting that the eradication of rats has essentially eliminated depredation as a cause of nest failure at Anacapa. Nearly half (48%) of all pre-eradication clutches were depredated by rats, but only 3% of clutches were depredated or scavenged post-eradication by endemic deer mice (*Peromyscus maniculatus anacapae*). Hatching success for Xantus's murrelets has doubled since the eradication of rats. The size of the overall colony is growing at Anacapa Island.

Reestablishment of extirpated nesting bald eagles to the Channel Islands: Bald eagles are a very important component of the Channel Islands' ecosystem; however, human harassment, collection of eggs, and DDT resulted in the complete extirpation of the species from the islands. Southern California, once the center for manufacture of DDT, trails the rest of the United States in the recovery of bald eagles because high levels of DDT remain in the surrounding marine ecosystem. A successful federal and state lawsuit against manufacturers and distributors of DDT provided the funds to begin a bald eagle restoration program at Channel Islands National Park in 2002. The bald eagle restoration program was implemented through a partnership among state and federal agencies, including the National Park Service and the Institute for Wildlife Studies. From 2002 to 2006, biologists imported 61 bald eagle chicks from Alaska and the San Francisco Zoo to Santa Cruz Island, one of five islands that make up Channel Islands National Park. All the bald eagle chicks introduced through the restoration program were outfitted with blue wing tags, a conventional radio transmitter, and a satellite Global Positioning System transmitter. These have provided essential data on mortality and movements of the birds following fledging and departure from release sites. Additionally, movement-activated cameras mounted at bait stations help to detect unmarked birds and birds whose radio transmitters are no longer active. Only four years after starting the restoration program, biologists were surprised in 2006 by two successful bald eagle nests on Santa Cruz Island, each fledging one chick. In 2007 one nest with one chick has been documented and the chick fledged in late June.

DDT severely reduced numbers not only of bald eagles but also peregrine falcons (*Falco peregrinus*), California brown pelicans (*Pelecanus occidentalis californicus*), and other seabirds. However, bald eagles, feeding higher on the food chain, have been the slowest to recover. Reestablishing bald eagles has been part of a larger effort to restore and protect the special ecosystem of the Channel Islands. In

recent years the park and partners like The Nature Conservancy, which co-owns Santa Cruz Island with the National Park Service, have eliminated nonnative animals, such as feral pigs, sheep, rats, and cattl- all of which impacted migratory and resident bird populations and habitat. Species once threatened with extinction, like the island foxes, are moving toward recovery. Restoring a healthy bald eagle population is a significant part of bringing back the natural productivity and diversity of the Channel Islands.

Reestablishment of extirpated peregrine falcons to the Channel Islands: Peregrine falcons were extirpated from the Channel Islands in the late 1940s due to high concentrations of DDTs and PCBs which resulted in thinning of egg shells. Populations were reestablished on the islands through a "hacking program". The Montrose Settlements Restoration Program has funded subsequent monitoring of organochlorines in eggs. As of 2007, there were 25 active peregrine falcon territories on 7 of the 8 Channel Islands.

Elimination of feral cats from San Nicolas Island: Introduced predators, particularly feral cats and rats, are one of the greatest threats to seabird populations on islands. Feral cats are directly responsible for a number of extinctions and extirpations on islands across multiple taxa. The last cat was eliminated from San Nicolas Island in June 2010. This culminated a multi-year planning and implementation project. The elimination of cats involved a cooperative agreement with the U.S. Humane Society. Cats that were live-captured were transported to the mainland. The Human Society agreed to take permanent ownership of the cats. The cats are "indoor cats" and will not be permitted to roam outdoors. The Montrose Settlements Restoration Program is funding subsequent monitoring to assess the benefits this project to nesting birds.

Restoration of terrestrial habitat to support nesting of rare seabirds on Santa Barbara and Santa Cruz Islands: Seabird biologists are using a variety of tools (social attraction vocalization playback, artificial nest boxes, removal of non-native vegetation, revegetation with native plants, and reduction of human disturbance) to recreate suitable terrestrial nesting habitat for rare seabirds such as Cassin's auklet, Xantus's murrelet, and ashy storm-petrel. The project is (1) increasing recruitment, (2) increasing reproductive output, and (3) decreasing egg and chick mortality by providing safe breeding habitat for these species. Since the project started over 17,000 plants have been planted in the restoration sites and the bird species of concern are utilizing the project's restored habitats.

4. When was the action initiated?

Restoration activities were initiated in 2001 and have been carried out intensively for a decade. The efforts and partnerships to restore and preserve habitat for migratory birds are continuing.

5. Is the action local, regional, national or international in scale?

The restoration of the migratory birds and their habitats has had international implications and applications. The methods used for the eradication of rats from Anacapa Island have been exported to Mexico. To date, non-native rats have been eliminated from 5 Mexican islands for the protection and restoration of birds and their nesting habitat. Similarly, the elimination of feral cats from San Nicolas Island will guide similar restoration actions in numerous locations where cats are decimating bird populations. The restoration actions at the Channel Islands have demonstrated that bold ecological

restoration actions that are scientifically-based and meticulously planned can survive legal, political, and public scrutiny.

6. How does the action meet or exceed agency mandates or daily activities?

The actions taken by park staff and partners set the model for tackling landscape level activities such as invasive and exotic species control and reestablishment of extirpated species eradication. Non-native predators, such as rats and cats, are generally accepted as a "status-quo" situation which, at best, can be controlled. Anacapa Island was the first successful elimination of rats in the United States. Since this successful project, there have been numerous eliminations of non-native mammals from islands in the U.S. and elsewhere.

7. Explain how the action promotes or results in effective migratory bird conservation.

Please reference the descriptions above of the projects and their conservation results.

8. Provide details that demonstrate how the action is innovative.

Many of these projects were controversial. The eradication of rats sparked widespread media coverage and a lawsuit. The park worked tirelessly with a myriad of partners to overcome the complex challenges, ensure sound science, and move forward to protect migratory birds. The lawsuit, in which the NPS and FWS prevailed, documented that federal laws do support bold conservation actions by federal agencies.

9. Describe the roles and responsibilities of partners

Each partner has played multiple roles, depending on the project.

NOAA, California Department of Fish & Game, and USFWS played a critical role by being the first to apply Natural Resource Damage funds to the eradication of a non-native mammal from an island in order to protect and restore rare seabirds. These agencies have also provided primary scientific and legal support for all aspects of these projects.

The U.S. Navy owns and manages San Nicolas Island. They approved and managed the project to eliminate feral cats from the island.

The Nature Conservancy owns the majority of Santa Cruz Island and has been a critical partner for the reestablishment of bald eagles and scientific expertise for ecological restoration.

The Institute for Wildlife Studies, Island Conservation, and California Institute for Environmental Sciences, as cooperators, provided scientific expertise and species-specific knowledge that has been critical to design, implementation, and assessment of the restoration projects.

10. How might the action be transferrable to other sites managed by this or other federal agencies? How is this being encouraged?

There have been numerous scientific publications and presentations regarding these projects. Additionally, these projects have functioned as "training grounds" for conservationists who have learned at the Channel Islands (as we have learned from ground-breaking restoration work in other countries) and transferred their knowledge to their home base. As an example, the eradication of rats from Anacapa Island included biologists from Mexico who subsequently returned to Mexico and have conducted successful rat eradications using similar techniques. Additionally, biologists from the Alaska Maritime Refuge visited Anacapa Island as they were developing their plan (which has since been successfully completed) to eradicate rats from one of the Aleutian Islands.

11. How does/did the action impact your agency's current migratory bird conservation practices?

These projects have expanded the scope of the restoration actions that we think are both possible and necessary to protect migratory birds and other stewardship resources.

12. How does the action benefit migratory bird species of concern?

The highlighted projects are ecosystem restoration projects which will have broad benefits to a large number of native species. The migratory bird species of concern which were the primary reasons and beneficiaries of the projects include: Ashy Storm-Petrel is IUCN Red-Listed as "Endangered;' Xantus's Murrelet is a state listed threatened species and is IUCN Red-listed as "Vulnerable;" and Peregrine Falcon and Bald Eagle were formerly listed under the federal endangered species act.