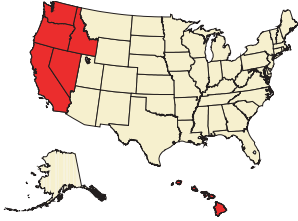


Endangered Species in Pacific and Western Parks

by Loyal A. Mehrhoff and Jonathan Bayless



Mission blue butterfly

Photo by Dr. Edward S. Ross/USFWS

Mojave tui chub habitat

NPS photo



The Pacific West Region of the National Park System encompasses our western coast and Pacific island national parks. With this vast area of states and territories comes a complex set of endangered species issues, ranging from old-growth forests to desert springs to sea turtle nesting beaches and Samoan rain forests. Here are a few examples of our many activities that benefit endangered and threatened species:

Mojave Tui Chub (*Gila bicolor mohavensis*) This fish originally occurred in Nevada's Mojave River and its adjacent natural lakes. During the late Pleistocene Epoch about 10,000 years ago, the climate became drier and these interconnected lakes disappeared. The tui chub survived by adapting to life in deep pools and slow-moving portions of the Mojave River.

In the 1930s, anglers introduced nonnative fish into the headwaters of the Mojave River when they used arroyo chub (*Gila orcutti*) for live bait. Hybridization and competition with the arroyo chub caused populations of the tui chub to decline dramatically. By 1968, genetically pure tui chub had been virtually eliminated from the Mojave River system.

Today, pure tui chub are found in only four locations. The largest population is at the artificial Lake Tuenedae in California's Mojave National Preserve. This lake holds a population of approximately 3,500 chubs—over half of all known individuals.

The Mojave tui chub is listed as endangered, and a recovery plan was

issued in 1984. Last fall, the Preserve began improving the habitat of Lake Tuenedae by removing aquatic vegetation and deepening the lake. This expensive maintenance needs to be completed every 10 years or the lake will become increasingly unsuitable habitat for this chub. With these actions, the Preserve is maintaining the population until suitable natural habitat is restored.

Mission Blue Butterfly (*Icaricia icarioides missionensis*) This endangered butterfly is restricted to four small areas in the greater San Francisco Bay, California, region, two of which are within Golden Gate National Recreation Area. The butterfly's host plant, the silver-leafed lupine (*Lupinus albifrons* var. *collinus*), is threatened by nonnative plants, particularly thoroughwort (*Agertina adenophora*). Golden Gate's staff are restoring the habitat by removing thoroughwort and replanting these areas with local lupine seeds. They will continue to monitor the butterfly, its host plant, and the invading plants.

Restoration of Hawaiian Ecosystems. The Hawaiian Islands are among the world's most imperiled ecosystems. A quarter of all the listed species in the United States (312 of 1,244) occur in Hawaii, and 101 listed, proposed, or candidate plants and animals occur on National Park Service lands in Hawaii. These species and their unique ecosystems are threatened by wildfires, development, and nonnative species. The recovery strategy for Hawaiian parks has primarily focused on controlling nonnative goats, pigs, deer, sheep, and key ecosystem-altering plants. If left unchecked, these species will eventually eliminate native ecosystems. Monitoring indicates that controlling these nonna-

tives has benefitted some rare plant species such as the Haleakala silversword (*Argyroxiphium sandwicense* ssp. *macrocephalum*), a Maui endemic that now numbers in the tens of thousands.

Because the Hawaiian parks face many of the same challenges, they have often shared resources and expertise. Together, these parks are coordinating new efforts to:

- Inventory and monitor vital natural resources, such as endangered species, to improve the management of park ecosystems.
- Propagate, reestablish, and stabilize extremely endangered plants. The parks have identified 50 endangered plant species for special conservation efforts. Thirty of these species currently have fewer than 25 individuals remaining in the wild. This project will propagate and reestablish these species in Hawaiian national parks with significant native habitat. The goal is to stabilize populations of these species so that we have a base upon which to reestablish species as other ecosystem restoration projects mature in the future.
- Control nonnative animals. The parks are continuing their efforts to reduce the effects of feral goats, pigs, sheep, and deer and to expand efforts to control rats, mongooses, and feral cats. Rats, cats, and mongooses can decimate resident bird populations. Ground-nesting birds such as the endangered nene or Hawaiian goose (*Branta sandwicensis*) and Hawaiian dark-rumped petrel (*Pterodroma phaeopygia sandwichensis*) are particularly vulnerable. Both Hawaii Volcanoes National Park and Haleakala National Park are expanding efforts to protect remote areas of the park that harbor key habitat for native endangered birds.
- Protect and restore plant communities. The Hawaiian National Parks have teamed together to host a multipark Exotic Plant Management Team that focuses on finding new infestations of nonnative plants and

controlling them before they become serious threats to the parks or other natural areas. This team and other park efforts also target long-established nonnatives such as grasses, gingers (*Hedychium* spp.), miconia (*Miconia calvescens*), and fire tree (*Myrica faya*) that can overrun and replace native ecosystems. The parks are beginning to actively restore invaded areas through the use of prescribed fire or herbicides and then planting a new community of native species.

Conservation of unique island and inland ecosystems with their endemic species are priorities in the Pacific West Region. We are able to provide protection for many populations of federally listed species that are otherwise threatened by habitat loss due to development, disturbance from recreation, and invasion by nonnative species.

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Ground-nesting birds such as the dark-rumped petrel are especially vulnerable to nonnative predators.

Photo by Robert Shallenberger/USFWS

This critically endangered *Cyanea glabra* is being smothered by the invasive weed kahili ginger (*Hedychium gardnerianum*).

NPS photo

