



SAVE  
THE

*FLOREANA  
MOCKING  
BIRD*

Charles Darwin Foundation of Canada



CHARLES DARWIN  
FOUNDATION of Canada

### Saving the Floreana Mockingbird from Extinction

The four mockingbird species of Galapagos were among the wildlife described by Charles Darwin during his visit to the archipelago in 1835. Today, three of the four species are on the IUCN Red List for birds. Galapagos Conservancy is working with the Charles Darwin Foundation and the Galapagos National Park to develop an action plan to ensure the survival of the most threatened species – the Floreana mockingbird.

The Floreana mockingbird (*N. trifasciatus*) disappeared from Floreana in the late 1800s, a result, probably, of the introduction of cats and rats, both of which attack birds and their nests, and goats, burros, and pigs, which destroyed the once abundant *Opuntia* cactus forests, the bird's preferred habitat. The species continues to survive on two satellite islets: Champion, where the population fluctuates between 20 and 40 birds, and Gardner-by-Floreana, where the population ranges from 60 to 80 birds. Given a total population of under 100 individuals, the Floreana mockingbird could become the first bird species to reach extinction in Galapagos.



Three areas of activity are needed to protect and restore this species. First, the Charles Darwin Foundation and the Galapagos National Park must continue to monitor the small and vulnerable mockingbird populations on Champion and Gardner-by-Floreana to ensure early detection of any decline in the number of birds or the arrival of invasive species, such as the fire ant, which could ultimately destroy the small remnant populations.

Second, research must be conducted on captive breeding, release, and telemetry methodologies for mockingbirds, beginning with the Galapagos mockingbird on Santa Cruz. Given the small number of Floreana mockingbirds, they cannot be included in any captive program until all methodologies are developed and tested.

Finally, the Floreana mockingbird must be re-introduced to its native island. Although the islets near Floreana are important refuges for this species, they are too small to maintain a larger, sustainable population.

This is a ten year project with a budget that will exceed \$1,000,000. The initial costs will include recruiting staff and building small facilities. Long term costs will include monitoring and data management.



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## Population Assessment of the Galapagos Green Turtle

The green sea turtle has been a species of global concern for decades. Estimated worldwide populations have declined 50-80% due to harvesting of eggs and adult females at nesting beaches and juveniles and adults in foraging areas, incidental mortality related to marine fisheries and degradation of marine and nesting habitat. Its IUCN listing is Endangered. Galapagos is the only significant nesting area for the Pacific green sea turtle outside Mexico, and the algal beds in the western archipelago provide important foraging grounds.

The green turtle is the most common and abundant sea turtle in Galapagos and the only species that nests in the archipelago. The sea turtle program at CDF focuses on nesting and foraging sites. Four key nesting sites are monitored annually. From 2002-05, fewer nesting females were recorded each season. Foraging-ground monitoring also takes place at four study sites and the study is designed to collect data on site fidelity and diet of sea turtles, to assess population health, and to study human impacts.

This project will fulfill the short-term conservation need to determine key dietary elements of green sea turtles in Galapagos. Diet analysis is vital in understanding their interaction with the environment and in identifying, managing, and protecting critical foraging sites. Another short-term conservation need is a better understanding of human impacts on sea turtles, information that will also add to a better zoning system.

In the medium to long term, data on site use and movement patterns between nesting and foraging sites collected over several years will help to build a solid foundation for management. Little is known about seasonal movements of sea turtles within Galapagos or long-term site fidelity, both considered critical for ensuring the protection of key areas and the population.

Community involvement is considered an essential element for sea turtle conservation. Presentations will be given at local schools to both inform and raise awareness of environmental issues. Members of the Galapagos community will be involved in data collection. In addition, a summary of the results will be distributed to naturalist guides, teachers and the local community.

These activities should help to generate interest and long-term support for sea turtles protection.

The cost over a three year period is approximately \$50,000 per year. Costs include the salary of the project leader and boat transportation costs between islands. Costs also include stipends for volunteer students over the data collection period and data analysis and management.



Photo by Galapagos Conservancy Member, Mark Kostich

# THE GALAPAGOS GREEN TURTLE POPULATION ASSESSMENT

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Photo by Galapagos Conservancy Member, Tui de Roy

# The Restoration of *Pinta Island*

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## The Restoration of Pinta Island

One of the conservation success stories in Galapagos has been the removal of feral goats from Pinta Island. Completed in 1999, before any plant species on the island went extinct, the elimination of goats has allowed the rapid regeneration of endemic vegetation. However, with the goats gone, and in the absence of the Pinta tortoise, which is believed to be ecologically extinct since the early 20<sup>th</sup> century, Pinta is experiencing an unbalanced recovery. Plant species most adapted to dense thickets and shade dominate, while those that require open habitat are slowly disappearing.

The complete restoration of Pinta Island and its return to a near prehuman state requires the return of the giant tortoise. These reptiles, more than any other native species in Galapagos, have a major impact on the structure and composition of their environment. Tortoises can maintain open areas within forests and dense vegetation by grazing and by simply moving through their environment. They also play an important role in the dispersal and germination of seeds that they consume and subsequently deposit.

The tortoise population on Pinta Island was decimated by decades of human exploitation and their habitat destroyed by introduced goats. A single tortoise, Lonesome George, was found on Pinta in 1971 and survives in captivity. Exhaustive searches on Pinta and among zoos around the world have not identified another Pinta tortoise. Attempts to breed Lonesome George with females from other populations have failed, and cloning is currently considered unfeasible. However, the genetic similarity of the Española tortoise, and its availability through the National Park's ongoing captive breeding program, make this species a good candidate for introduction to Pinta.

Before a single tortoise can be returned to Pinta, much work must be done. A monitoring plan needs to be put into place to document changes in the Pinta ecosystem. Botanists need to survey the island to determine which invasive plant species remain, and must eliminate those which could be consumed and dispersed by tortoises. Finally, electronic tags and GPS and radio telemetry equipment must be purchased so scientists can closely monitor the tortoises.

Costs associated with these efforts will be distributed between immediate capital costs of equipment, and long term monitoring costs (personnel, data management, field expenses). Costs will run approximately \$250,000 annually for the next five years.