

Charles Darwin Research Station Fact Sheet

Galapagos Penguin (*Spheniscus mendiculus*)

The endemic Galapagos penguin is the one of the smallest penguin species. It is the only penguin species that is found in the northern hemisphere and breeds in the tropics. Scientists working with the Charles Darwin Research Station (CDRS) regularly monitor Galapagos penguin populations and their vulnerability, working to minimize threats to their survival.

Unique to Galapagos

The endemic Galapagos penguin is believed to have evolved from the larger Humboldt penguin found on the western coast of South America. The Galapagos species is unique, as it has adapted to tropical land temperatures and cooler water temperatures. They control body temperature on land by:

- holding their wings away from the body, allowing air to reach less feathered parts
- shading feet from the sun
- swimming in cool water

Body fat and waterproof plumage insulate them in the water. The birds are most sensitive to temperature changes during molting.

Adult Galapagos penguins have black wings and backs and white bellies. This camouflages penguins when nesting on black lava rocks or fishing. Distinctive features include a black band across the breast and a white mark between the eye and the chin. Immature birds are grey. Galapagos penguin beaks are more slender than those of Humboldt penguins.

Breeding is limited to Isabela and Fernandina Islands where the waters are cooler. Galapagos penguins can sometimes be seen on other islands, including Isabela, Fernandina, Bartolomé, Santiago, Floreana, and sometimes on Santa Cruz and Rábida. Breeding is dependent on the availability of food, which in turn depends on lower water temperatures. Galapagos penguins feed on small fish and some crustaceans. They feed in larger groups when fish are abundant or alone or in small groups when food is scarce.

Vulnerability

The Galapagos penguin is officially listed as Endangered on the IUCN Red List. It is estimated that there are only approximately 2,100 Galapagos penguins (September 2006 census). The population was much higher but was affected by El Niño events during the early 1980's and in 1998. Water temperatures rose and availability of food for the penguins was low. After the strong 1997-1998 El Niño event, populations declined by 65%. Since then, penguin numbers have been fairly stable with a slight tendency to increase suggesting the populations are recovering, mostly on

CDF FOCUS: RESTORATION



Key Facts

Species: *Spheniscus mendiculus*

Common name: Galapagos penguin

Class: Endemic

Size: 4-5 pounds in weight, up to 20 inches (50 centimeters) in length; the third smallest penguin species

Habitat: Open sea, rocky shores/coastline

Diet: Fish, crustaceans

Range: Breed on Isabela and Fernandina, Floreana, Santiago, Bartolomé sometimes seen on Santa Cruz, Rábida, and Sombrero Chiono

Status: Only penguin species listed as Endangered

Threatened by: El Niño, habitat loss, illegal fishing, increased tourism, introduced species, oil spills, waste dumped in the sea.

Isabela. However, this recovery should be interpreted with caution, as future El Niño events could reduce the population again.

Scientists believe the population can recover from natural events as long as unnatural threats are controlled. Global warming may place the remaining population in increased danger as populations struggle to recover between frequent climatic variations. Penguins are more vulnerable to predators, such as feral cats, dogs and black rats. They can also more affected by direct or indirect interactions with fisheries, and other threats, including:

- Habitat degradation
- Disturbance through tourism
- Oil spills and water pollution

CDRS research activities

Each year, the Charles Darwin Foundation (CDF) works with visiting scientists and the Galapagos National Park Service (GNPS) to perform a census of Galapagos penguin populations, such as that performed at the end of 2005. These censuses serve to evaluate their vulnerability and to measure associated population changes.

A recent study conducted in collaboration with the CDF and the GNPS indicated that the Galapagos penguin faces a 30% probability of extinction in the next 100 years due to the effect of increasing El Niño events. The probability of extinction is increased by threats related to human presence, such as entanglement in fishing nets or from predation by introduced species.

Eradication of black rats is a high priority for CDF, generally contributing to the restoration of Galapagos ecosystems. Studies are underway to determine whether nest predation by black rats has a negative impact on penguins. Eradication and control programs targeting feral cats will also improve the survival of Galapagos penguins, in particular on Isabela Island.

Penguins with PIT (Personal Identification Transponders) tags provide information on individual breeding output, movements and dispersal. Biological data is being correlated with sea surface temperatures and precipitation, which are El Niño and climate change indicators.

The combination of physical and biological information, the effects of black rats, and the locations of fisheries will improve our understanding of the risks affecting Galapagos penguins. From this, we will be more able to act to preserve the populations of this species, which is an iconic representation of life in the Galapagos Islands.