

Downlisting of Nēnē: The Outcome of Research Based Management

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Introduction

Nēnē (*Branta sandvicensis*, Hawaiian goose) were on the brink of extinction in the 1940s and was listed as *Endangered* under the authority of the Endangered Species Act of 1973, as amended. With the help of collaborative, international effort and management guided by research, Nēnē were downlisted to *Threatened* in December 2019. This effort between researchers, managers and field staff continues as the populations throughout the State struggle to survive.

RESEARCH

- Pre-1950s**
 - Wild nēnē known with certainty only on Hawai'i Island since the late 1700s.
 - Declines in numbers from habitat loss, over harvest, and effects of introduced species starts in early 1900s.
- 1950s**
 - World population estimated at less than 30 individuals, 13 in captivity in 1949.
 - Propagation as a viable means of management, after adjustments to propagation techniques.
- 1960s**
 - Field investigations and monitoring of released nēnē begin.
 - Case is made by researchers for intensive involvement by Federal government.
- 1970s**
 - Field investigations and monitoring of released nēnē show some success.
 - Releases begin to slow down in late 1970s to examine population trajectory.
 - Production of nēnē in the wild is low.
 - Vigorous, well-planned management to reduce predation at nests, habitat degradation by feral goats and the continued spread of exotic plants is strongly recommended.
 - Careful effort to monitor Nene productivity to assess the effectiveness of management programs is necessary.
- 1980s**
 - Field investigations confirm that nēnē productivity in the wild is low.
 - Predator control, habitat management, and propagation are important for population viability.
 - Mongoose and feral cats are major predators.
 - Roadkills occur.
- 1990s**
 - Drought reduces wild nēnē population at Hawai'i Volcanoes NP by 50%.
 - Rats identified as predators on eggs.
 - Absence of mongoose on Kaua'i show promise for population growth.
 - DOFAW and NPS nēnē monitoring programs well-established on Hawai'i Island, Maui and Kaua'i.
 - Telemetry studies indicate that gosling mortality is high at Hawai'i Volcanoes NP and Haleakalā NP.
 - Gosling mortality at Hawai'i Volcanoes NP found to be from insufficient forage.
 - Lower elevation sites with abundant grass and pooled water are more desirable for higher production, although predation still a concern.
 - Field investigations indicate grasslands and shrubland management is important.
 - Roadkills continue.
- 2000s**
 - Habitat management and control of introduced predators increases adult nēnē survival.
 - Drought, severe storms and freezing temperatures continues to limit gosling survival at higher elevations.
 - Field investigations reveals that Kaua'i population increase due to demise of sugar industry freeing up thousands of acres of pasture lands and diversified agriculture.
 - Nēnē interactions with people start to become problematic.
- 2010s**
 - Population flourishing on Kaua'i and stable on other islands, except Moloka'i. Nēnē on Moloka'i decreasing.
 - Nēnē interactions with people increases throughout the State.
 - Nēnē are attracted to areas with maintained grass and large water sources.
 - Movement of nēnē occurs across vast distances, including to other islands. Nēnē found on Ni'ihau are likely from Kaua'i.
 - Nēnē translocated from Kaua'i move away from release sites.
 - Intensive predator control and habitat management continue to be important.
 - Goslings placed with parent in "rescue" pens survive post release to wild.
 - Small numbers of "stock" nēnē from Kaua'i translocation, release pens, and "rescue" pens are important for populations on Maui and Hawai'i.
 - Lowland nest flooding occurs on Kaua'i indicating nēnē ma be at risk from climate change.

MANAGEMENT

- Nene Restoration Project** begins in 1949.
 - Much work on review of field notes and documentation of nēnē observations occur.
 - Small, private propagation of small number of nēnē.
 - Biologists alerted government agencies of low numbers and reach out for help.
 - Propagation programs on Hawai'i Island and in Slimbridge, England are essential source of nēnē for releases throughout the State.
 - Releases of propagated nēnē made on Hawai'i Island.
 - Propagation continues with main program at Pōhakuloa, Hawai'i.
 - Releases continue on Hawai'i Island, and begin at Haleakalā NP, Maui with nēnē from Slimbridge and Hawai'i Island stocks.
 - Cooperative involvement by Federal government strongly suggested by biologists.
- #### Listed as *Endangered*
- Support from Federal government occurs.
 - Propagation at Pōhakuloa continues with together with releases on Hawai'i Island and Haleakalā NP.
 - Nēnē reintroduced to lowlands at Hawai'i Volcanoes NP.
 - Small propagation programs initiated at Hawai'i Volcanoes (from mainland facilities) and Haleakalā NP.
 - Rancher at Kipu Kai maintains small flock on Kaua'i.
 - Propagation moves from Pōhakuloa, Hawai'i Island to Olinda, Maui.
 - Intensive habitat management (feral ungulate and invasive plant control) and predator control begins.
 - Nēnē from Kipu Kai migrate outside of ranch on Kaua'i.
- #### Nene Recovery Initiative Program
- begins with multi-agency formation of Nēnē Recovery Action Group.
 - Intensive habitat management and predator control continues.
 - Propagation program at Olinda changes management from DOFAW to HEBCP-a partnership with the DOFAW, FWS, The Peregrine Fund and San Diego Zoo Wildlife Alliance.
 - Eggs salvaged from Haleakalā Crater for propagation at Olinda and subsequent release on Kaua'i.
 - Release of approximately 100 nēnē occur on Kaua'i. New release sites established on Maui, Moloka'i, and Hakalau NWR (Hawai'i Island).
 - Nēnē management at Hawai'i Volcanoes NP focuses on improving recruitment of wild-breeding birds.
 - Agencies explore methods to reduce roadkills.
 - Intensive habitat management, predator control and monitoring programs continues.
 - Populations on Kaua'i increasing dramatically, stable on Maui and Hawai'i Island
 - Additional release sites established at lower elevations on Maui and Hawai'i Island, and on Moloka'i
 - Novel, "predator proof" opened-topped release pen built and used at Hawai'i Volcanoes NP.
 - HEBCP nēnē propagation program ends in 2011 after releasing over 400 nēnē into the wild.
 - Intensive habitat management, predator control and monitoring programs continues.
 - Nēnē are translocated from Kaua'i to Hawai'i Island, Maui and Moloka'i to avoid collision at Lihue airport.
 - Nēnē with families with young goslings are placed into "rescue" pens to increase gosling survival and mitigate mortalities from roadkills at Haleakalā NP.
 - "Predator proof" open-topped release pens built and used in several locations on Hawai'i Island.

Mahalo to all people, past and present, who have worked to keep nēnē from going extinct.

Downlisted to *Threatened*

Downlisting is not the end

Based on past and present research and management, the continued survival of nēnē is dependent on:

- Continuous, intensive management and monitoring;
- Multi-agency support;
- Continued research to evaluate management, habitat preference and effects of climate change;
- Adaptive management;
- Long term, dedicated staff and support.

"We are moving the bird from the intensive care unit, but it's still in the hospital. We still need to be protective of it and thoughtful of it."



U.S. Secretary of the Interior David Bernhardt
Downlisting Announcement, December 8, 2019
Pearl Harbor National Wildlife Refuge

State of Hawai'i Nēnē Population

