5-YEAR REVIEW

Short Form Summary

Species Reviewed: Laysan Finch (*Telespyza cantans)*

Current Classification: Endangered

FR Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2020. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews for 129 Species in Oregon, Washington, Idaho, Hawaii, Montana, California, and Nevada. Federal Register 85(48):14240–14243.

Lead Region/Field Office:

Region 1/Pacific Islands Fish and Wildlife Office (PIFWO), Honolulu, Hawai‘i

Name of Reviewer(s):

James Breeden, Fish and Wildlife Biologist, PIFWO
John Vetter, Animal Recovery Coordinator, PIFWO
Megan Laut, Recovery Team Manager, PIFWO

Methodology used to complete this 5-year review: This review was conducted by staff of the PIFWO of the U.S. Fish and Wildlife Service (USFWS), beginning on June 1, 2022. The review was based on a review of current, available information since the last 5-year review for the Laysan finch (*Telespyza cantans*) (USFWS 2017, entire). The evaluation by James Breeden, Fish and Wildlife Biologist, was reviewed by John Vetter, the Animal Recovery Coordinator, and Megan Laut, the Recovery Team Manager, before review and approval by the Regional Office.

Background:

For information regarding the species' listing history and other facts, please refer to the USFWS Environmental Conservation Online System database for threatened and endangered species at: https://ecos.fws.gov.

Review Analysis:

Please refer to the previous 5-year reviews for the Laysan finch published on January 18, 2008 (available at https://ecos.fws.gov/docs/tess/species_nonpublish/1140.pdf), August 19, 2014 (available at https://ecos.fws.gov/docs/tess/species_nonpublish/2213.pdf) and August 15, 2017 (available at https://ecos.fws.gov/docs/tess/species_nonpublish/2397.pdf) for a complete review of the species' status, threats, and management efforts. No new threats or no new information regarding the species biological status have come to light since listing to warrant a change in the Federal listing status of the Laysan finch as endangered.

The Laysan finch (‘ekupu‘u) is a federally endangered passerine endemic to Laysan Island (Kamole) in the Papahānaumokuākea Marine National Monument. A conservation translocation from Laysan in 1967 established a second population on Southeast Island at Pearl and Hermes Reef (Manawai) (Sincock and Kridler 1977, p. 21). Post introduction

natural colonization and human-assisted conservation translocations occurred on the remaining three vegetated islands (North Island, Grass Island, and Seal-Kittery) (Conant 1988, entire; Fleischer et al. 1991, entire).

Documentation from the Laysan finch population on Laysan indicate that the population is stable and does not experience wide ranges of fluctuation (USFWS 2017, pp. 3–4). The population on Pearl and Hermes is variable and is documented to have periodic periods of abundance followed by a population crash (Kropidlowski 2007, p. 4). The fluctuating finch population may be linked to the nonnative annual plants *Verbesina encelioides* (golden crownbeard) and *Setaria verticillata* (bristly foxtail) which dominate the vegetative community on Southeast Island (Kropidlowski 2007, p. 4). No recent survey estimates have been completed for the species at Pearl and Hermes.

The current status for the Laysan finch, as known, is provided in Table 1 below. Threats to the species (Table 2) continue, including habitat loss and degradation, the potential for the introduction of mosquito born disease (e.g., avian malaria) (van Riper 1986, entire), stochastic events (e.g., hurricanes and tropical storms) (USFWS 1984, p. 27), a small isolated population (USFWS 1984, p. 28), and climate change (USFWS 2008, p. 9). The genus of the Laysan finch is listed as *Telespyza*, however, this is likely an error and the correct spelling should be *Telespiza* (Olson and James 1986, p. 85).

New status information:

- U.S. Geological Survey is analyzing Laysan finch abundance data collected via point count from Laysan in 2019 (Plentovich et al. 2019, p. 2).

New Threats:

- Climate change destruction or degradation of habitat - According to the Intergovernmental Panel on Climate Change, human activities have caused a 1 degree Celsius (°C) (1.8 degrees Fahrenheit [°F]) increase in temperature above pre-industrial levels, and if the current rate of warming remains constant, an increase of 1.5°C (2.7 °F) by the year 2030 (IPCC 2018, A1, p. 6) may occur. Regional climate change models predict that the wet windward parts of the Hawaiian Islands may become wetter or remain stable in their seasonal rainfall, while the dry leeward sides would become drier (Timm et al. 2015, p. 92). The Hawaiian Islands are expected to experience a greater contrast between wet and dry regions (Timm et al. 2015, p. 92). Changes in climatic conditions may cause a reduction of prey, loss of habitat, and increase localized catastrophes such as severe storms, diseases, climate change, or demographic stochasticity which, because of the Laysan finches restricted range and low numbers, increases the finches vulnerability to extinction (Gilpin and Soule 1986, pp. 24–34; Pimm et al. 1988, p. 757; Mangel and Tier 1994, p. 607).

New Management Actions:

- A workshop is being organized to determine future conservation translocation needs.

- A seasonal field camp was reestablished in 2022 on Laysan. This will allow for more consistent monitoring of the Laysan finch population on Laysan.
- Plans are underway to deploy a seasonal field camp on Pearl and Hermes in 2023. This will allow for the Pearl and Hermes Laysan finch population to be more closely monitored.

Synthesis:
The Laysan finch currently occurs on Laysan Island and at Pearl and Hermes. The Laysan population has been generally stable since listing in 1967. The population on Pearl and Hermes is more volatile and experiences periods of abundance followed by periods of low numbers. Population stability on Laysan and population volatility on Pearl and Hermes is likely attributed to the relative abundance of native verses nonnative vegetation that occurs on each island. Factors influencing annual population shifts remain poorly understood. Research to characterize carrying capacity and the environmental components that alter carrying capacity of the Laysan finch on Laysan and Pearl and Hermes is needed. Discussions for establishing additional populations of Laysan finch are ongoing. The recovery objectives for this species have not been met. Therefore, the Laysan finch meets the definition of endangered: it remains in danger of extinction throughout its range.

Recommendations for Future Actions:
- Habitat and natural process management and restoration - Continue restoration work on Laysan.
- Surveys / Inventories
    - Continue Laysan finch monitoring surveys annually on Laysan. Determine feasibility of establishing a consistent monitoring program for the Laysan finch population on Pearl and Hermes.
- Invasive plant monitoring and control - Restore habitat for the Laysan finch population at Pearl and Hermes by managing *Verbesina encelioides* and fostering recovery of native vegetation.
- Threats - Improve monitoring for new introductions of alien species throughout the Northwestern Hawaiian Islands.
- Threats - Prevent outbreak of avian disease.
- Reintroduction / translocation - Pursue translocation to establish new Laysan finch populations in secure habitat on other islands.
- Biosecurity planning and monitoring
    - Implement procedures to minimize the chances of accidental introductions of alien species.
    - Improve monitoring for new introductions of alien species throughout the Northwestern Hawaiian Islands.
- Update the Northwestern Hawaiian Islands Recovery Plan (USFWS 1984, entire). Use recent survey and biological data to reevaluate down- and delisting criteria as appropriate.

Table 1. Status and trends of the Laysan finch from time of listing (1967) through current 5-year review.

Date	No. Adult Wild Individuals	Recovery Criteria identified in Recovery Plan	Downlisting Criteria Completed?
1967 (listing)	~10,000/108 introduced	No recovery plan developed yet.	N/A
1984 (recovery plan)	~10,000/523 (USFWS 1984, p. 4)	1. Put necessary mechanisms in place that will protect the island from invasion by alien species.	Yes - Quarantine procedures exist and are strictly enforced for all visitors permitted to visit the island.
		2. Establish effective and reliable mechanisms to monitor for alien species.	No
		3. Verify the existence of a reasonably stable population of the Laysan finch at least annually.	No
2008 (5-year review)	17,780 ±2,819 (Bechaver et al. 2006, p. 26)/329 (Sprague 2004, p. 11)	1. Put necessary mechanisms in place that will protect the island from invasion by alien species.	Yes - Quarantine procedures exist and are strictly enforced for all visitors permitted to visit the island.
		2. Establish effective and reliable mechanisms to monitor for alien species.	No
		3. Verify the existence of a reasonably stable population of the Laysan finch at least annually.	Partial - surveys at Pearl and Hermes conducted opportunistically.
2014 (5-yr review)	~10,000 (Underwood 2013, p.159) /1,043 ±	1. Put necessary mechanisms in	Yes - Quarantine

	253 (Kropidlowski 2007, p. 4)	place that will protect the island from invasion by alien species.	procedures exist and are strictly enforced for all visitors permitted to visit the island.
		2. Establish effective and reliable mechanisms to monitor for alien species.	No
		3. Verify the existence of a reasonably stable population of the Laysan finch at least annually.	Partial - surveys at Pearl and Hermes conducted opportunistically.
2017 (5-yr review)	~10,000 (Underwood 2013, p.159) /1,043 ± 253 (Kropidlowski 2007, p. 4)	1. Put necessary mechanisms in place that will protect the island from invasion by alien species.	Yes - Quarantine procedures exist and are strictly enforced for all visitors permitted to visit the island.
		2. Establish effective and reliable mechanisms to monitor for alien species.	No
		3. Verify the existence of a reasonably stable population of the Laysan finch at least annually.	Partial - Surveys at Pearl and Hermes conducted opportunistically.
2022 (5-yr review)	~10,000 (Underwood 2013, p.159) /1,043 ± 253 (Kropidlowski 2007, p. 4)	1. Put necessary mechanisms in place that will protect the island from invasion by alien species.	Yes - Quarantine procedures exist and are strictly enforced for all visitors permitted to visit the island.
		2. Establish effective and reliable mechanisms to	No

		monitor for alien species.	
		3. Verify the existence of a reasonably stable population of the Laysan finch at least annually.	Partial - Surveys at Pearl and Hermes conducted opportunistically.

Table 2. Status of threats to the Laysan finch and ongoing conservation efforts.

Threat	Listing Factor	Current Status	Conservation/Management Efforts
Habitat loss and degradation	A	Ongoing	Quarantine and restoration efforts are in place (e.g., removal of invasive plants during trips to the island).
Alien Species	A	Ongoing	Quarantine measures are in place.
Alien predators	C	Ongoing	Quarantine measures are in place.
Disease	C	Ongoing	Quarantine measures are in place.
Human disturbance	E	Ongoing	Education of personnel that visit Laysan are ongoing.
Alien competitors	E	Ongoing	Quarantine measures are in place.
Small isolated population	E	Ongoing	Discussions on establishing a second Laysan finch population are ongoing.
Environmental catastrophes/Stochastic events	E	Ongoing	None
Climate change and sea level rise	A, E	Increasing	None

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U.S. FISH AND WILDLIFE SERVICE
SIGNATURE PAGE for 5-YEAR REVIEW on
Laysan Finch (*Telespyza cantans)*

Pre-1996 DPS listing still considered a listable entity? ____N/A_____

Recommendation resulting from the 5-year review:

_____ Delisting
_____ Reclassify from Endangered to Threatened status
_____ Reclassify from Threatened to Endangered status
____X____ No Change in listing status

Name of Reviewer(s):
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For **Field Supervisor, Fish and Wildlife Service**

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