

5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Zosterops rotensis* (Nosa Luta; Rota white-eye; Rota bridled white-eye)

Current Classification: Endangered

Federal Register Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2023. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews for 133 Species in Oregon, Washington, Idaho, Montana, California, Nevada, Hawaii, Guam, and the Commonwealth of the Northern Mariana Islands. Federal Register 88 (56):17611-17614.

Lead Region/Field Office: Region 1/Pacific Islands Fish and Wildlife Office (PIFWO), Honolulu, Hawai'i

Name of Reviewer:

Tyler Willsey, Fish and Wildlife Biologist, PIFWO
Jacqueline Flores, Mariana Islands Team Manager, PIFWO
John Vetter, Animal Recovery Coordinator, PIFWO
Megan Laut, Conservation and Restoration Team Manager, PIFWO

Methodology used to complete this 5-year review:

This review was conducted by staff of the Pacific Islands Fish and Wildlife Office of the U.S. Fish and Wildlife Service (USFWS), beginning on March 23, 2023. The review was based on a review of current, available information since the last 5-year review for the Rota white-eye (USFWS 2020, entire) as well as information from the recovery plan (USFWS 2007, entire), the amendment to the recovery plan (USFWS 2019, entire), and updates obtained from biologists working in the Mariana Islands. The evaluation, coordinated by Tyler Willsey, Fish and Wildlife Biologist, was reviewed by John Vetter, the Animal Recovery Coordinator, and Megan Laut, the Recovery Program Manager.

Background:

For information regarding the species listing history and other facts, please refer to the Fish and Wildlife Service's Environmental Conservation On-line System (ECOS) database for threatened and endangered species (http://ecos.fws.gov/tess_public).

Review Analysis:

Please refer to the to the final listing rule for the Rota white-eye published in January 2004 (available at http://ecos.fws.gov/docs/federal_register/fr4219.pdf), the previous 5-year reviews published on August 27, 2010, August 12, 2015, and August 28, 2020 (available at <https://ecos.fws.gov/ecp/species/3092>) and the Recovery Plan published in October 2007 (available at http://ecos.fws.gov/docs/recovery_plan/071019.pdf) and amended on August 20, 2019 ([https://ecos.fws.gov/docs/recovery_plan/Rota Bridled White Eye Final Recovery Plan Amendment_20190820.pdf](https://ecos.fws.gov/docs/recovery_plan/Rota_Bridled_White_Eye_Final_Recovery_Plan_Ame ndment_20190820.pdf)) for a complete discussion of the species' status (including biology and habitat), threats, and management efforts. No significant new information regarding the

biological status has come to light since listing to warrant a change in the federal listing status of the Rota white-eye.

The Rota white-eye is known only from the island of Rota in the Mariana Islands, where it forages in the forest canopy on insects, fruit and nectar. While it utilizes both native and non-native trees, the species is primarily found in mature native wet forest above 150 meters (492 feet) in elevation, possibly due to long-term changes in the vegetation structure of forests on the island (Amidon 2000, p 44-45; Zarones et al. 2013, p. 459-460; Craig and Pyle 2024, entire).

New status information:

- No new information on the species has been published since the last review. The most recent published population estimate is 14,384 (95% CI = 5,620-20,961) (Camp et al. 2014, p.39; Table 1). Surveys have been conducted biannually by the Commonwealth of the Northern Mariana Islands Division of Fish and Wildlife (CNMI DFW) since the previous five-year review, but this data has yet to be analyzed (Wiitala 2025, in litt., entire).

Table 1. Abundance estimates of Rota white-eyes from point-transect distance sampling surveys (also called variable circular plot sampling; Camp et al. 2014).

Year	Population estimate (95% CI)
1982	14,963 (8,741–18,487)
1987	7,885 (3,766–10,559)
1994	4,789 (2,420–6,615)
1995	2,015 (0–4,003)
1998	2,898 (747–4,654)
2003	6,591 (2,076–11,554)
2006	9,730 (3,917–14,078)
2012	14,384 (5,620–20,961)

New threats:

- No new threats are known at this time.

New management actions:

- CNMI DFW began a study to measure predation rates and nesting success for the Rota white-eye that is ongoing. They intend to measure relative rat density within Rota white-eye nesting habitat and use that information to develop rat suppression methods for Rota white-eye nesting habitat. This study also looked at habitat variables by taking detailed habitat measurements at nesting sites and comparing that to non-nesting sites (Wiitala 2025, in litt., entire).
- Additional research and management projects tentatively planned to be investigated by CNMI DFW in the next one to five years include (Wiitala 2025, in litt., entire):
 - Running a population viability analysis.
 - Collecting and analyzing DNA for a population genetics analysis.

- Developing a public outreach campaign to inform the public and solicit feedback to advise the translocation of the species to another island.
 - Proposing an on-island translocation of Rota white-eye to an area outside their current range with site selection involving stakeholder and community engagement.
 - Using the information gained from the on-island translocation to conduct a feasibility analysis for translocating Rota white-eyes to a yet-to-be-determined northern island.

Table 2. Status and trends of Rota white-eye from listing through current 5-year review. Abundance estimates and 95% confidence intervals from Camp et al. (2014).

Date	Abundance estimate (95% CI)	Downlisting Criteria Identified in Recovery Plan or Amendment	Downlisting Criteria Completed?
2004 (listing)	6,591 (2,076-11,554)	No recovery plan developed.	N/A
2006 (critical habitat)	9,730 (3,917-14,078)	No recovery plan developed	N/A
2007 (recovery plan);	No estimate	Restore population to 10,000 individuals.	No
		Reduce decline of habitat and restore enough habitat to sustain a population of at least 10,000 individuals.	Partially; critical habitat designated in 2006 throughout its range
		Assess impact of black drongos and rats and implement control of these species if needed.	No
		Implement measures to prevent brown treesnake and other threats.	Partially; brown treesnake interdiction efforts on Guam, Saipan, Tinian, and Rota
2010 (5-year review)	No estimate	Restore population to 10,000 individuals.	No
		Reduce decline of habitat and restore enough habitat to sustain a population of at least 10,000 individuals.	Partially; critical habitat designated in 2006 throughout its range.
		Assess impact of black drongos and rats and implement control of these species if needed.	No
		Implement measures to prevent brown treesnake and other threats.	Partially; brown treesnake interdiction efforts on Guam, Saipan, Tinian, and Rota.

2014 (5-year review)	14,384 (5,620-20,961) (Camp et al. 2014)	Restore population to 10,000 individuals	Yes, population was estimated at 14,384 (5,620-20,961) during 2012 surveys (Camp et al. 2014)
		Reduce decline of habitat and restore enough habitat to sustain a population of at least 10,000 individuals.	Partially; critical habitat designated in 2006 throughout its range.
		Assess impact of black drongos and rats and implement control of these species if needed.	No
		Implement measures to prevent brown treesnake and other threats.	Partially; brown treesnake interdiction efforts on Guam, Saipan, Tinian, and Rota.
2020 (5-year review)	14,384 (5,620-20,961) (Camp et al. 2014)	Over a minimum 10-year period, Rota white-eye population data show a stable or increasing trend (i.e., finite rate of annual population increase, or Lambda, greater than or equal to 1) that is statistically significant, as determined through quantitative surveys of abundance, or an index of abundance derived from quantitative surveys or demographic monitoring; and the average population on Rota throughout that time period is estimated to be at least 10,000 individuals.	Partially; population has reached 10,000 but has not been analyzed over a 10-year period.
		Habitat within the range of the Rota white-eye is protected and restoration has been completed to the extent that the amount of suitable habitat has increased sufficiently to sustain a population of at least 10,000 individuals as identified in Criterion 1.	Yes

		Threats to the species, including predation by introduced predators, are effectively managed to the extent that mortality has been reduced and population targets in Criterion 1 are met.	No
2025 (5-year review)	14,384 (5,620-20,961) (Camp et al. 2014)	Over a minimum 10-year period, Rota white-eye population data show a stable or increasing trend (i.e., finite rate of annual population increase, or Lambda, greater than or equal to 1) that is statistically significant, as determined through quantitative surveys of abundance, or an index of abundance derived from quantitative surveys or demographic monitoring; and the average population on Rota throughout that time period is estimated to be at least 10,000 individuals.	Partially; Population has reached 10,000 but has not been analyzed over a 10-year period.
		Habitat within the range of the Rota white-eye is protected and restoration has been completed to the extent that the amount of suitable habitat has increased sufficiently to sustain a population of at least 10,000 individuals as identified in Criterion 1.	Yes
		Threats to the species, including predation by introduced predators, are effectively managed to the extent that mortality has been reduced and population targets in Criterion 1 are met.	No

Table 3. Threats to Rota white-eye and ongoing conservation efforts.

Threat	Listing Factor	Current Status	Conservation/ Management Efforts
Habitat loss and degradation	A	ongoing	Partially; federally designated critical habitat throughout its range in 2006
Predation by introduced rats, black drongos, and other predators	C	insufficient data	CNMI DFW plans to measure rat density and install camera traps to document nest success and predation
Accidental introduction of new predators, such as brown treesnakes	C	ongoing	Partially; brown treesnake interdiction efforts on Guam, Rota, and Saipan
Avian disease	C	insufficient data	No
Pesticides	E	insufficient data	No
Susceptibility of single small population to random catastrophic events	E	ongoing	CNMI DFW plans to collect and analyze DNA as well as conduct a trial capture and holding study in preparation for potential translocations

Synthesis:

The Rota white-eye is restricted to a portion of the island of Rota where the population has fluctuated over time since it was listed. Point-transect distance sampling surveys conducted from 1982 to 2012 suggest the abundance of Rota white-eyes has increased to over 14,000 birds in the most recent analysis (Camp et al. 2014, p. 39). However, the estimate precision is low and additional research is needed to determine whether the Rota white-eye population has recovered and remains stable over a significant time-frame. There has been little progress toward determining threats to the species, and research is still needed to determine what factors are contributing to apparent fluctuations in population abundance. CNMI DFW has several research ongoing and planned projects designed to learn more about the life history and reproduction of the Rota white-eye, as well as the impacts of non-native predators. CNMI DFW, in partnership with Pacific Bird Conservation, is also hoping to conduct a trial capture and holding study in preparation for a potential translocation to another island. The results of these studies will inform future management decisions for the species. While brown treesnake interdiction has prevented the establishment of this species on Rota so far, the threat to the Rota white-eye if the snake does establish is extremely high. A second population could alleviate the risk in the future.

Downlisting criteria for the Rota white-eye were established in the Draft Amendment to the Recovery Plan for the Nosa Luta or Rota Bridled White-eye (*Zosterops rotensis*) (USFWS 2018, entire). For downlisting the species requires: 1) Over a minimum 10-year period, Rota white-eye population data show a stable or increasing trend (i.e., finite rate of annual population increase, or Lambda, greater than or equal to 1) that is statistically significant, as determined through quantitative surveys of abundance, or an index of abundance derived from quantitative surveys or demographic monitoring; and the average population on Rota throughout that time period is estimated to be at least 10,000 individuals; 2) Habitat within the range of the Rota white-eye is protected and restoration has been completed to the extent that the amount of suitable habitat has increased sufficiently to sustain a population of at least 10,000 individuals as identified in Criterion 1, and 3) Threats to the species, including predation by introduced predators, are effectively managed to the extent that mortality has been reduced and population targets in Criterion 1 are met.

The most recent estimate of the Rota white-eye population is over 14,000 birds, but no recent analysis of ongoing surveys has been conducted to determine the stability of the population. Given the fluctuations seen in the past, the lack of knowledge of key limiting factors for the species, and the lack of ongoing threat management, the species continues to meet the definition of endangered as it remains endangered throughout its range.

Recommendations for Future Actions:

- Population viability monitoring and analysis – Continue population monitoring and conduct analysis of surveys conducted to date to establish greater confidence in abundance estimates and determine the stability of the population.
- Predator / herbivory monitoring and control – Continue and expand brown treesnake interdiction on Rota.
- Population biology research
 - Continue and expand threat assessments for the Rota white-eye to determine mortality factors.
 - Continue and expand research into population dynamics to provide information on nest success and survival.
 - Conduct a population viability analysis.
 - Conduct a population genetics analysis.
- Habitat and natural process management and restoration – Restore and protect native forest habitat throughout the historic range of the Rota white-eye.
- Reintroduction/translocation – Conduct a study including public outreach and stakeholder involvement to develop techniques and protocols for translocation of this species to an area outside of its range on Rota and potentially to another island to reduce the long-term threat from brown treesnake incursion into the one population.

References:

See previous 5-year review for additional references.

Craig, R. J. and P. Pyle. 2024. Rota White-eye (*Zosterops rotensis*), version 2.0. In Birds of the World (G. M. Kirwan and B. K. Keeney, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.rotwhe1.02>

[USFWS] U.S. Fish and Wildlife Service. 2020. Rota white-eye (*Zosterops rotensis*) 5-year review summary and evaluation. U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, Honolulu, HI. 6 pages.

[USFWS] U.S. Fish and Wildlife Service. 2023. Endangered and threatened wildlife and plants; initiation of 5-year status reviews of 133 species in Oregon, Washington, Hawaii, Palau, Guam, and the Northern Mariana Islands. Federal Register 88(56):17611-17614.

In litt:

Wiitala, D. 2025. CNMI Division of Fish and Wildlife, Wildlife Section Conservation Planner. Email sent to Tyler Willsey, Pacific Islands Fish and Wildlife Office, email dated May 9, 2025. Subject: Planned Research on ROWE.

U.S. FISH AND WILDLIFE SERVICE
SIGNATURE PAGE for 5-YEAR REVIEW of
Rota white-eye or Nosa Luta (*Zosterops rotensis*)

Pre-1996 DPS listing still considered a listable entity? N/A

Recommendation resulting from the 5-year review:

<u> </u>	Delisting
<u> </u>	Reclassify from Endangered to Threatened status
<u> </u>	Reclassify from Threatened to Endangered status
<u> X</u>	No Change in listing status

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