

5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Eugenia bryanii* (no common name)

Current Classification: Endangered

Federal Register Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2022. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status reviews for 167 Species in Oregon, Washington, Idaho, Montana, California, Hawaii, Guam, and the Northern Mariana Islands . Federal Register 87(90): 28031–28034, May 10, 2022.

Lead Region/Field Office:

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

Name of Reviewer:

Anthony J.G. Tornito, Biologist, PIFWO

Lauren Weisenberger, Plant Recovery Coordinator, PIFWO

Megan Laut, Recovery Program Manager, PIFWO

Methodology used to complete this 5-year review:

This review was conducted by staff of the Pacific Islands Fish and Wildlife Office (PIFWO) of the U.S. Fish and Wildlife Service (Service) beginning in October 2023. The review was based on a review of current, available information since the last 5-year review for *Eugenia bryanii* (USFWS 2024). The evaluation by Anthony J.G. Tornito, Biologist, was reviewed by Lauren Weisenberger, Plant Recovery Coordinator, and Megan Laut, 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/ecp/species/9752>).

Review Analysis:

Please refer to the previous 5-year review for *Eugenia bryanii* published in the Federal Register on May 7, 2018 (available at https://ecos.fws.gov/docs/tess/species_nonpublish/3138.pdf) *Eugenia bryanii* 5-Year Review Summary and Evaluation, for a complete review of the species' status, threats, management efforts, and references cited. We are not aware of any significant new information regarding the species' biological status since listing to warrant a change in the Federal listing status of *E. bryanii*.

This long-lived perennial shrub in the Myrtaceae (myrtle) family is endangered and is known from the island of Guam. The status and trends for *Eugenia bryanii* are provided in the tables below.

New Status Information:

- Surveys conducted in 2020-2021 indicated that there are 10 populations in 10 locations totaling in an estimated 1,000 individuals.
- The three large populations on Guam are at Andersen Northwest Field, Pati Point, and Spanish Steps with documented recruitment
- Surveys conducted by Demeulenaere et al. 2018 have reported 608 individuals at Andersen Northwest Field. A density estimate provided was extrapolated to derive an estimate of up to 2,000 individuals for the population
- Seedlings have been observed, but it is unclear if it is enough for population stability

New Threats:

- No known new threats

New Management Actions:

- At the end of FY2023, 38 *E.bryanii* were reported to be in a controlled population under the care of the Guam Plant Extinction Prevention Program (GPEPP)

Table 1. Status and trends of *Eugenia bryanii* from listing through current 5-year review. Table 1a shows progress according to Preventing Extinction Goals.

Date	No. wild individuals	No. Outplanted	Preventing Extinction Targets identified in Recovery Plan	Preventing Extinction Goals Completed?
2015 (Listing)	<420 5 occurrences	0	All threats managed in all 3 populations	Partial, strategic fencing
			Complete genetic storage	Partial, many collections pooled
			3 populations with 25 mature individuals each	Partial, total population size ~ 1,000
2020 (5-year review)	929 – 2,311	0	All threats managed in all 3 populations	Partial, strategic fencing
			Complete genetic storage	Limited cultivation by GPEPP
			3 populations with 25 mature individuals each	Yes

2024 (5-year review)	1,000	0	All threats managed in 3 populations	Partial, fencing around the largest population
			Complete genetic storage	Partial, limited cultivation by GPEPP
			Natural reproduction at 3 populations	Partial
			3 populations with 25 mature individuals each	Partial, 7 populations with ≥ 25 plants but reproduction unknown

Table 2. Threats to *Eugenia bryanii* and ongoing conservation efforts.

Threat	Listing factor	Current Status	Conservation/ Management Efforts
Habitat Destruction and Degradation from Non-native ungulate	A	Ongoing	Partial, strategic fencing
Habitat Destruction and Degradation by Brown Treesnakes	A	Ongoing	Partial, some landscape-scale trails for brown treesnake management
Habitat Destruction and Degradation by Rats	A	Ongoing	None
Habitat Destruction and Degradation by Non-native Plants	A	Ongoing	Partial, some habitat restoration planned/initiated
Habitat Destruction and Degradation by Typhoons	A	Ongoing	None
Predation and Herbivory by Ungulates	C	Ongoing	Partial, strategic fencing
Predation and Herbivory by Rats	C	Ongoing	None
Inadequate Regulatory Mechanisms	D	Ongoing	None
Disease: Myrtle Rust	E	Ongoing	None

Agricultural and urban development destruction or degradation of habitat	E	Ongoing	None
Habitat Destruction and Degradation by Climate change	E	Ongoing	None

Synthesis:

Currently there are approximately 1,000 wild individuals of *Eugenia bryanii* throughout 10 populations on Guam, with a the large majority of them found on Andersen Northwest Field, Pati Point, and Spanish Steps. There were 38 plants in a controlled population in the GPEPP nursery at the end of FY2023. These individuals are being maintained until sites are established for their reintroduction.

Preventing extinction targets, interim stabilization targets, downlisting criteria, and delisting criteria are provided in the Draft Recovery Plan for the 23 Species in the Mariana Islands and have been updated according to the draft revised recovery objective guidelines developed by the Hawai‘i and Pacific Plants Recovery Coordinating Committee (HPPRCC 2011). The life history traits such as breeding system, population size fluctuation or decline, and reproduction type (sexual or vegetative), have been included in the calculation of goals for the number of populations and reproducing individuals for each stage. The goals for each stage remain grouped by life span defined as annual, short-lived perennial (fewer than 10 years), or long-lived perennial.

Eugenia bryanii is a long-lived shrub. To prevent extinction, which is the first milestone in recovering the species, the taxon must be managed to control threats (e.g., fenced) and have 50 individuals from each of three populations represented in *ex situ* (secured off-site, such as a nursery or seed bank) collections that are well managed. In addition, a minimum of a total of three populations should be documented on Guam where they now occur or occurred historically and each of these populations must be naturally reproducing (i.e., viable seeds, seedlings, saplings) with a minimum of 25 mature, reproducing individuals per population.

The preventing extinction goals for this species have not been met. Although genetic storage has been initiated (Table 1), there is an estimated 10 wild populations totaling at least 1,000 individuals each, but it is unknown how many are reproductive, and all threats are not being managed (Table 1, Table 2). There is also a controlled population of 38 under the care of the Guam Plant Extinction Prevention Program. Even if preventing extinction goals for the number of reproducing individuals per population are met, efforts are needed to reach at least the interim goals of recovery which is a minimum of three populations with one-hundred reproducing individuals. Therefore, *Eugenia bryanii* meets the definition of Endangered as it remains in danger of extinction throughout its range.

Recommendations for Future Actions:

No significant new information regarding the species' biological status has been reported since the last 5-year review in 2020. Thus, the following recommendations for future actions are reiterated for the 5-year review for 2024.

- Surveys and monitoring—
 - A population census of *Eugenia bryanii* should be conducted to record the number of reproducing individuals within each population
 - Continue surveys for populations of *Eugenia bryanii* in areas of potentially suitable habitat.
- Ungulate monitoring and control—Construct new fences to protect individuals from the negative impacts of browsing by ungulates.
- Invasive nonnative plant monitoring and control—Continue control of established ecosystem-altering nonnative invasive plant species, and those that compete with *Eugenia bryanii*.
- Site and habitat protection—Develop and implement effective control measures to reduce the impact of illegal collection or over-visitation.
- Fire prevention and control—Continue to develop and implement fire prevention management plans.
- Climate change adaptation strategy—Research suitability of habitat for viability of species, including where to conduct translocations in the future due to the impacts of climate change
- Predator and herbivore monitoring and control—Determine and implement effective methods to control invasive threats such as brown treesnakes, ungulates, and rats
- Actively monitor for myrtle rust
- Captive propagation for genetic storage and reintroduction—Continue and maintain collection and propagation efforts for maintenance of genetic stock and for reintroduction.
- Conduct genetic studies to determine genetic variation within the population (and between populations)
- Alliance and partnership development—Continue to work with partners and other land managers in planning and implementation of ecosystem-level restoration and management to benefit this species.

References:

[GPEPP] Guam Plant Extinction Prevention Program. 2023. 2023 Annual Report for Recovery Permit TE-78405C-0. Unpublished report submitted to U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, Honolulu, Hawai'i

[USFWS] 2015. Endangered and threatened wildlife and plants; Endangered Status for 16 Species and Threatened Status for 7 Species in Micronesia. Federal Register, 80(190), 260-261

[USFWS] 2020. *Eugenia bryanii* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, Hawai'i.
https://ecos.fws.gov/docs/five_year_review/doc3138.pdf.

[USFWS] 2023. Species Report for *Eugenia bryanii*. Pacific Island Fish and Wildlife Office, Pacific Region 1. Portland, OR. 24 pages.

[USFWS] 2023. Recovery Plan for 23 Species in the Mariana Islands. Portland, Oregon. xiv+102 pp.

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SIGNATURE PAGE for 5-YEAR REVIEW of *Eugenia bryanii* (No common name)

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
- No Change in listing status

For Field Supervisor, Pacific Islands Fish and Wildlife Office

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