

## 5-YEAR REVIEW

### Short Form Summary

**Species Reviewed:** Gualiik halumtanu, gho'luuf (Slevin's skink, *Emoia slevini*)

**Current Classification:** Endangered

#### **FR Notice announcing initiation of this review:**

[USFWS] U.S. Fish and Wildlife Service. 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.

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

#### **Name of Reviewer(s):**

Bronson Curry, 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 in January 2024. The review was based on a review of current, available information since the last 5-year review for gualiik halumtanu (Slevin's skink, *Emoia slevini*) (USFWS 2020, entire). The evaluation by Bronson Curry, 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 USFWS Environmental Conservation Online System database for threatened and endangered species at <http://ecos.fws.gov/ecp/species/9767>.

#### **Review Analysis:**

Please refer to the Draft Recovery Plan for 23 Species in the Mariana Islands (USFWS 2022, entire) and the previous 5-year review for Slevin's skink published on August 26, 2020 (available at <http://ecos.fws.gov/ecp/species/9767>) 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 Slevin's skink as endangered.

Slevin's skink (*Emoia slevini*), also known as the Mariana skink, is the only member of the Scincidae family that is endemic to the Mariana Islands. It has a long, slender body, short legs, and cryptically patterned scales. Slevin's skink varies from brown to olive in overall color, with darker flecks in a checkered pattern dorsally. The ventral side ranges from light orange to bright yellow (Brown and Falanruw 1972, p. 109; Vogt and

Williams 2004, p. 65). The skin has an iridescent sheen. Juveniles may appear a lighter cream-color (Vogt and Williams 2004, p. 65; Rodda 2010, p. 3). Larger adult skinks measure around 3 inches (in) (77 millimeters (mm)) (Brown and Falanruw 1972, p. 107; Vogt and Williams 2004, p. 65) from snout to cloaca vent (the opening for reproductive and excretory ducts), but historically may have ranged up to 4.3 in (110 mm) in length (Pregill 1998, p. 72; Rodda 2010, p. 3).

New status information:

- No new populations of Slevin's skink have been identified since the last review. The most recent minimum population estimate is four populations on four islands: Islan Dãno' (Cocos Island), an islet located off the southern coast of Guam, and the islands of Alamagan, Sarigan, and Asuncion in the Commonwealth of the Northern Mariana Islands (USFWS 2023, entire).
- Monitoring and surveys – The CNMI Division of Fish and Wildlife (CNMI DFW) conducted skink surveys on the island of Anatahan in May 2021 using sticky traps. Trapping was conducted in forest and coastal environments over the course of five days, and a total of 63 skinks were captured, all of which were identified as Pacific blue-tailed skinks (*Emoia caeruleocauda*). No other skink species were seen (CNMI DFW 2021, pp. 26-30).
- Monitoring and surveys – CNMI DFW worked in collaboration with U.S. Geological Survey (USGS) and U.S. Department of Agriculture (USDA) biologists to conduct skink surveys on the island of Alamagan in May 2022 using a combination of methods including visual surveys and sticky traps. Trapping was conducted in forest and coastal environments over the course of nine days, and a total of 208 lizards were captured, including three species of skinks: Slevin's skink, Pacific blue-tailed skink, and snake-eyed skink (*Cryptoblepharus poecilopleurus*). All three species were also observed during visual surveys (CNMI DFW 2022c, p. 21). Although Slevin's skink was not found in every habitat type, the species was relatively abundant in some areas of Alamagan and did not appear to be strictly limited to specific habitats (CNMI DFW 2022c, p. 22). Researchers noted the presence of monitor lizards (*Varanus tsukamotoi*) and Pacific rats (*Rattus exulans*), both known predators of Slevin's skink (USFWS 2023, pp. 21-29). Rats were seen in camp and occasionally captured in snap traps, but none were recorded during nighttime visual surveys or captured in baited live traps placed along forest transects (CNMI DFW 2022c, p. 22). Feral ungulates (pigs, goats, and cattle) were also present throughout the island, which may represent an additional threat to the persistence of Slevin's skink on Alamagan (CNMI DFW 2022c, p. 24).
- Monitoring and surveys – CNMI DFW conducted skink surveys on the island of Aguiguan in April 2022 using sticky traps. Trapping was conducted in forest environments over the course of three days, and a total of three skinks were captured, all of which were identified as Pacific blue-tailed skinks. No other skink species were seen (CNMI DFW 2022a, p. 16).
- Monitoring and surveys – CNMI DFW worked in collaboration with USGS and USFWS biologists to conduct skink surveys on the island of Rota in April-May 2022 using a combination of methods including visual surveys and sticky traps (CNMI DFW 2022b, pp. 5-11). A total of 460 skinks were recorded during visual surveys,

while 535 skinks were captured in sticky traps (CNMI DFW 2022b, p. 7). Five species of skink were recorded: Pacific blue-tailed skink, copper-tailed skink (*Emoia cyanura*, a species not previously recorded on Rota), littoral skink (*Emoia atrocostata*), curious skink (*Carlia ailanpalai*, a nonnative species which may compete with Slevin’s skink), and snake-eyed skink. Although Slevin’s skink was historically present on Rota, the species was not detected during surveys (CNMI DFW 2022b, p. 7). Rats (*Rattus spp.*) and monitor lizards were also recorded during surveys, as well as feral ungulates, especially Philippine deer (*Rusa marianna*) (CNMI DFW 2022b, p. 7).

- Monitoring and surveys – USGS conducted skink surveys on Cocos Island in 2022 using a combination of methods that included visual surveys, sticky traps, and camera traps. Additional data collection was scheduled for 2023 but was canceled due to the impact of a typhoon on the island’s vegetation (USGS 2023, p. 3). One of the purposes of the study was to compare the efficacy of different survey methods to collect occupancy data. Preliminary results indicate that both the visual surveys and trapping were successful in detecting Slevin’s skink, with visual surveys having a higher detection probability than sticky traps (USGS 2023, pp. 3, 9). Two other species of skink – curious skink and Pacific blue-tailed skink – were also observed during these surveys (USGS 2023, p. 3).

New threats:

- There are no new threats known at this time.

New management actions:

- No new management actions have been conducted since the previous five-year review.

Table 1. Status and trends of Slevin’s skink from listing through current 5-year review.

<b>Date</b>	<b>No. Adult Wild Individuals</b>	<b>Downlisting Criteria Identified in Recovery Plan</b>	<b>Downlisting Criteria Completed?</b>
2015 (listing)	Unknown, found on 4 islands	No recovery plan developed yet.	N/A
2020 (5-year review)	Unknown, found on 4 islands	No recovery plan developed yet.	N/A
2022 (draft recovery plan)	Unknown, found on 4 islands	1. Stable populations on 4 islands.	No
		2. Suitable habitat supporting Downlisting Criterion 1 is protected.	No
		3. Islands are free of invasive predators or predators are controlled.	No
2024 (5-yr review)	Unknown, found on 4 islands	1. Stable populations on 4 islands.	No

		2. Suitable habitat supporting Downlisting Criterion 1 is protected.	No
		3. Islands are free of invasive predators or predators are controlled.	No

Table 2. Threats to Slevin's skink and ongoing conservation efforts.

<b>Threat</b>	<b>Listing Factor</b>	<b>Current Status</b>	<b>Conservation/Management Efforts</b>
Nonnative species modification and degradation of habitat (ungulates)	A	Ongoing	None
Nonnative species modification and degradation of habitat (rats)	A	Ongoing	None
Climate change – degradation or loss of habitat	A	Ongoing	None
Typhoons	A	Ongoing	None
Brown treesnake – Predation	C	Ongoing	Partial, some landscape-scale trials for brown treesnake management
Rats – Predation	C	Ongoing	None
Monitor lizards – Predation	C	Ongoing	None
Asian house shrew and curious skink – Predation and competition	C	Ongoing	None
Inadequate regulatory mechanisms	D	Ongoing	None
Ordnance and live-fair training	E	Ongoing	None

**Syntheses:**

Downlisting and delisting objectives are provided in the Draft Recovery Plan for 23 Species in the Mariana Islands (USFWS 2022, pp. viii, 40). To be downlisted, there must be stable or increasing populations on at least four islands, suitable habitat on those islands must be effectively protected from development and habitat-altering invasive species (including ungulates), and predators, including brown treesnake (*Boiga irregularis*), Asian house shrew (*Suncus murinus*), and black rat (*Rattus rattus*), on each island must be absent or controlled to a level that allows for a stable or increasing population of Slevin's skink on those islands. There are a minimum of four populations of Slevin's skink range-wide. Population size estimates for each of the four islands it inhabits are not available. Slevin's skink is threatened by multiple factors, including habitat loss and direct predation by several vertebrate species, including rodents, shrews, monitor lizards, and snakes. Competition with an introduced species, the curious skink, may also pose a threat to the species' recovery (USFWS 2023, p. 21). Most islands within the historic range of Slevin's skink have experienced habitat loss due to human activity and the presence of feral ungulates, in addition to sporadic incidents of volcanic activity in the Northern Islands of the Marianas archipelago (USFWS 2023, pp. 31-37). Because these threats are not currently being managed, Slevin's skink continues to meet the definition of endangered as it remains in danger of extinction throughout its range.

**Recommendations for Future Actions:**

- Surveys / inventories – Continue to assess the status of known occurrences of Slevin's skink in historical locations and potentially suitable habitat including island-wide surveys throughout the historical range.
- Ungulate monitoring and control – Continue to construct and maintain fenced enclosures to protect individuals from the negative impacts of feral ungulates.
- Predation by rodents – Implement effective control methods for rats in all populations.
- Predation by brown treesnakes – Implement effective control methods for brown treesnakes to prevent the spread to other islands.
- Predation and competition by other lizards – Implement effective control methods for monitor lizards and, if possible, the curious skink at all populations.
- Captive propagation for genetic storage and reintroduction – Attempt to establish a captive breeding population for maintenance of genetic stock, and for use in translocation and reintroduction. Conduct genetic testing to establish the “genetic barcode” for the species, and ensure the best practices in husbandry, captive rearing, and genetic diversity measures.
- Climate change adaptation strategy – Research suitability of habitat in the future due to the impacts of climate change.
- Alliance and partnership development – Continue to contribute to planning and implementation of ecosystem-level restoration and management to benefit this taxon.

**References:**

*See previous 5-year reviews for additional references.*

[CNMI DFW] Commonwealth of the Northern Mariana Islands (CNMI) Division of Fish and Wildlife. 2021. Wildlife and Vegetation Surveys: Anatahan 2021 (Technical Report #19). CNMI Division of Fish and Wildlife, Saipan, CNMI. 74 pp.

[CNMI DFW] Commonwealth of the Northern Mariana Islands (CNMI) Division of Fish and Wildlife. 2022a. State Wildlife Grant Program Final Performance Report: State Wildlife Grant Program Implementation FY 2019-2022 (F19AF01013). CNMI Division of Fish and Wildlife, Saipan, CNMI. 23 pp.

[CNMI DFW] Commonwealth of the Northern Mariana Islands (CNMI) Division of Fish and Wildlife. 2022b. State Wildlife Grant Program Interim Performance Report: State Wildlife Grant Program Implementation FY 2022 (F21AF03872). CNMI Division of Fish and Wildlife, Saipan, CNMI. 21 pp.

[CNMI DFW] Commonwealth of the Northern Mariana Islands (CNMI) Division of Fish and Wildlife. 2022c. Competitive State Wildlife Grant Program Interim Performance Report: C-SWG Alamagan Ecosystem Restoration to Benefit Mariana Skink and Multiple SGCN (F20AP11998). CNMI Division of Fish and Wildlife, Saipan, CNMI. 31 pp.

[USFWS] U.S. Fish and Wildlife Service. 2020. 5-year review for Slevin's skink (*Emoia slevini*). Pacific Islands Fish and Wildlife Office, Honolulu, Hawaii. 20 pp.

[USFWS] U.S. Fish and Wildlife Service. 2022. Draft Recovery Plan for 23 Species in the Mariana Islands. Portland, Oregon. xiii+76 pp.

[USFWS] U.S. Fish and Wildlife Service. 2023. Species Report for Slevin's skink (guâli'ek hâlom tâno', *Emoia slevini*). Pacific Islands Fish and Wildlife Office, Honolulu, Hawaii. 55 pp.

[USGS] U.S. Geological Survey. 2023. Development of an Occupancy Based sampling design to monitor Mariana Skink populations on Cocos Island. Preliminary Report 2022-2023 for Species Recovery ES Permit Number: PER0051869. Unpublished draft report. 10 pp.

