

## **5-YEAR REVIEW**

### Short Form Summary

**Species Reviewed:** Mariana Swiftlet or Chachaguak (*Aerodramus bartschi*)

**Current Classification:** Endangered

#### **Federal Register Notice announcing initiation of this review:**

[USFWS] U.S. Fish and Wildlife Service. 2013. Endangered and threatened wildlife and plants; initiation of 5-year status reviews of 44 species in Oregon, Hawai`i, Guam, and the Northern Mariana Islands. Federal Register 78(24):8185-8187.

#### **Lead Region/Field Office:**

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

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

Julia Boland, Wildlife Biologist, PIFWO

Fred Amidon, Wildlife Biologist, PIFWO

Annie Marshall, Wildlife Biologist, PIFWO

Marie Brueggemann, Recovery Plant Coordinator, PIFWO

Kristi Young, Programmatic Deputy Field Supervisor, 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). The review was based on a review of current, available information since the last 5-year review for the Mariana Swiftlet or chachaguak (USFWS 2010). The evaluation by Julia Boland, Fred Amidon, and Annie Marshall, Fish and Wildlife Biologists, was reviewed by the Plant Recovery Coordinator before submission to the Programmatic Deputy Field Supervisor for review and approval.

#### **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](http://ecos.fws.gov/tess_public)).

#### **Review Analysis:**

Please refer to the previous 5-year review for the Mariana Swiftlet or chachaguak published on August 27, 2010 (available at [http://ecos.fws.gov/docs/five\\_year\\_review/doc3352.pdf](http://ecos.fws.gov/docs/five_year_review/doc3352.pdf)) for a complete review of the species' status, threats, and management efforts. No significant new information regarding the species biological status has come to light since listing to warrant a change in the Federal listing status of the Mariana Swiftlet as endangered.

The chachaguak is endemic to Guam, Rota, Aguiguan, Tinian, and Saipan, but has declined on all islands and is extirpated from Rota and Tinian (Cruz *et al.* 2008; USFWS 1991; Valdez *et al.* 2011 and references therein). The current range-wide population estimate for chachaguak is approximately 6,750 individuals (Grimm 2008; Valdez *et al.* 2011; P. Radley, Commonwealth of the Northern Mariana Islands, Division of Fish and

Wildlife (DFW), unpubl. data cited in Valdez *et al.* 2011), and a small population was introduced and currently persists on Oahu, Hawaii (Wiles and Woodside 1999).

The numbers of chachaguak on Saipan have exceeded 2,000, the number of chachaguak on Aguguan has remained somewhat stable around 300 to 400 birds over the past years, and there are around 1,000 in three caves in southern Guam (Cruz *et al.* 2008; Grimm 2008; USFWS 1991)

The current status for the chachaguak, as known, is provided in Table 1 below. Threats to the species continue, including human disturbance of caves, predation by the brown treesnake (*Boiga irregularis*), loss and degradation of foraging habitat, nest loss due to introduced insects, and more recently, climate change (Morton and Amidon 1996; USFWS 2010).

New status information:

- The most recent population estimate for the chachaguak in the Mariana Islands is approximately 6,750 individuals (Grimm 2008, Valdez *et al.* 2011; P. Radley, DFW, unpubl. data).

New management actions:

- Predator / herbivore monitoring and control – Efforts continue on Guam to control the brown treesnake at ports of entry and on military lands. Recently, acetaminophen was used as a toxicant to control snakes within a 55-hectare (136-acre) fenced area on Anderson Air Force Base (AAFB), Guam.
- Climate change degradation of habitat – Climate change is believed to pose a threat to this species. However, current climate change analyses in the Pacific Islands lack sufficient spatial resolution to make predictions on impacts to this species. The Pacific Islands Climate Change Cooperative (PICCC) has currently funded climate modeling that will help resolve these spatial limitations. We anticipate high spatial resolution climate outputs by 2015.

### **Synthesis:**

The recovery plan included interim downlisting criteria for the chachaguak and identified revising the recovery criteria as a recovery action (USFWS 1991). These interim downlisting criteria call for a population of 2,000 birds distributed among five caves on Guam (a minimum of two occupied caves should occur in each of northern and southern Guam), 2,000 birds on Rota (no criteria on number of caves), 1,000 birds on Aguguan distributed among five caves, and 2,000 birds distributed among five caves on Saipan (Table 1). No delisting goals were identified due to a lack of information (USFWS 1991).

Currently, the chachaguak is only found on the islands of Guam, Aguguan, and Saipan. Recovery goals have been exceeded on Saipan, but are below recommended levels on Aguguan and Guam (Table 1). In addition, the chachaguak has not yet been reestablished on Rota. Because population goals have not been met throughout its range,

not all of the known occupied caves are protected and managed, and the species is still threatened by human disturbance, predation, and other factors (Table 2), the chachaguak remains in danger of extinction.

### **Recommendations for Future Actions:**

- Population biology research – Identify limiting factors for chachaguak expansion in the Commonwealth of the Northern Mariana Islands.
- Threats – predator / herbivore control research – Continue efforts to develop and refine brown treesnake control techniques to support large-scale control and/or eradication efforts. Implement large-scale brown treesnake control and/or eradication efforts on Guam.
- Site / area / habitat protection – Permanently secure and manage the known active chachaguak caves on Guam, Rota, and Saipan and the immediately surrounding buffer habitat. Secure and manage potentially usable caves, including known historic caves, not currently used by the chachaguak.
- Captive propagation protocol development – Develop methods for translocating chachaguak.
- Reintroduction / translocation
  - Develop reintroduction plan for and reintroduce chachaguak to Rota.
  - Develop reintroduction plan for and reintroduce chachaguak to northern Guam.
- Population viability monitoring and analysis
  - Develop and implement plans to monitor chachaguak populations on all islands on a regular basis.
  - Conduct a PVA to determine the minimum viable population number by island needed for recovery.
- Population biology research / Revise recovery objectives and criteria – Conduct specific research on population biology that can be used to develop criteria for delisting and revise downlisting criteria if necessary.

**Table 1. Status and trends of the Mariana Swiftlet or Chachaguak 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> |
|----------------------------------|---|--|--|
| 1984 (listing)                   | 50 on Guam, numbers on Aguiguan may be stable and declining on Saipan (USFWS 1984)  | No recovery plan developed yet.  | N/A                                    |
| 1991 (recovery plan, USFWS 1991) | 400 on Guam, 970 on Aguiguan, and 3,160 on Saipan (USFWS 1991)  | 1. Minimum subpopulations of 2,000 birds on Guam, 2,000 on Rota, 1,000 on Aguiguan, and 2,000 on Saipan. | No                                     |
|                                  |   | 2. Populations must be distributed among at least five caves on each island except Rota.                 | No                                     |
|                                  |   | 3. On Guam, at least two of the five occupied caves must be in northern Guam, and two in southern Guam.  | No                                     |
|                                  |   | 4. Total population numbers, once increased, must be sustained over three consecutive years.             |  |
| 2010 (5-year review)             | >5,000 individuals, with the majority on Saipan (>5,000), <500 on Aguiguan, and 900 on Guam (Cruz <i>et al.</i> 2008, USFWS 2010)                   | 1. Minimum subpopulations of 2,000 birds on Guam, 2,000 on Rota, 1,000 on Aguiguan, and 2,000 on Saipan. | Partially: over 5,000 on Saipan.       |
|                                  |   | 2. Populations must be distributed among at least five caves on each island except Rota.                 | No                                     |
|                                  |   | 3. On Guam, at least two of the five occupied caves must be in northern Guam, and two in southern Guam.  |  |
|                                  |   | 4. Total population numbers, once increased, must be sustained over three consecutive years.             |  |
| 2015 (5-yr review)               | Approximately 6,750 individuals, over 5,000 on Saipan and 300-400 on Aguiguan (Grimm 2008, Valdez <i>et al.</i> 2011; P. Radley, DFW, unpubl. data) | 1. Minimum subpopulations of 2,000 birds on Guam, 2,000 on Rota, 1,000 on Aguiguan, and 2,000 on Saipan. | Partially: over 5,000 on Saipan.       |
|                                  |   | 2. Populations must be distributed among at least five caves on each island except Rota.                 | No                                     |
|                                  |   | 3. On Guam, at least two of the five occupied caves must be in northern Guam, and two in southern Guam.  | No                                     |
|                                  |   | 4. Total population numbers, once increased, must be sustained over three                                | Partially: over 5,000 on Saipan        |

|  |  |                    |   |
|--|--|--------------------|---|
|  |  | consecutive years. | since 2010 (Cruz <i>et al.</i> 2008; Valdez <i>et al.</i> 2011 cited P. Radley, DFW, unpub. data) |
|--|--|--------------------|---|

**Table 2. Status of threats to the Mariana Swiftlet or Chachaguak from listing through current 5-year review.**

| <b>Threat</b>  | <b>Listing factor</b> | <b>Current Status</b> | <b>Conservation/ Management Efforts</b>  |
|--|-----------------------|-----------------------|--|
| Habitat loss and degradation (cave disturbance)        | A, E                  | Ongoing               | No   |
| Loss of foraging habitat                               | A                     | Ongoing               | No   |
| Predation by the brown treesnake on Guam               | C                     | Ongoing               | Partially; efforts to control the brown tree snake are ongoing                       |
| Nest damage by cockroaches (species unknown)           | E                     | Ongoing               | Partially; efforts to control cockroaches at some of the caves on Saipan are ongoing |
| Nest damage by mud-dauber wasps ( <i>Vespula</i> spp.) | E                     | Ongoing               | No   |
| Pesticides   | E                     | Unknown               | No   |
| Climate change and increased storms                    | E                     | Increasing            | No   |

**References:**

See previous 5-year review for a full list of references. Only references not listed in that document are provided below.

Grimm, G. 2008. Mariana Swiftlet surveys on Naval Munitions Site, Guam. Unpublished report by U.S. Navy, NAVFAC Marianas, Guam, November 2008. 6 pp.

Morton, J.M. and F.A. Amidon. 1996. Development of field techniques for studying and restoring the Vanikoro Swiftlet (*Aerodramus vanikorensis bartschi*) on Guam. Unpublished U.S. Fish and Wildlife Service report, December 1996. 17 pp. + Tables and Figures.

U.S. Fish and Wildlife Service. 2010. Mariana Swiftlet or Chachaguak (*Aerodramus bartschi*) 5-year review summary and evaluation. U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, Honolulu, HI. 10 pp.

- U.S. Fish and Wildlife Service. 2013. Endangered and threatened wildlife and plants; initiation of 5-year status reviews of 44 species in Oregon, Hawaii, Guam, and the Northern Mariana Islands. Federal Register 78(24): 8185-8187.
- Valdez, E.W., G.J. Wiles, and T.J. O'Shea. 2011. Diets of the sympatric Pacific Sheath-tailed Bat (*Emballonura semicaudata rotensis*) and Mariana Swiftlet (*Aerodramus bartschi*) on Aguiguan, Mariana Islands. Pacific Science 65: 301-309.
- Wiles, G.J. and D.H. Woodside 1999. History and population status of Guam Swiftlets on O`ahu, Hawai`i. `Elepaio 59: 57-61.

**U.S. FISH AND WILDLIFE SERVICE**  
SIGNATURE PAGE for 5-YEAR REVIEW of  
Mariana Swiftlet or Chachaguak (*Aerodramus bartschi*)

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

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Date 2015-08-06