Draft Amendment to the Recovery Plan for Mariana Islands Population of the Vanikoro Swiftlet (*Aerodramus vanikorensis bartschi*)

Original Approved: September 30, 1991
Original Prepared by: Pacific Region, U.S. Fish and Wildlife Service

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Species addressed in Draft Amendment: Mariana gray swiftlet [originally listed as Vanikoro swiftlet] (*Aerodramus vanikorensis bartschi*)

We have analyzed the best available scientific and commercial information and find that an amendment to the recovery criteria for this species is warranted. The current recovery criteria have been in place since the recovery plan was completed in 1991. In this proposed modification, we discuss the adequacy of the existing recovery criteria, show amended recovery criteria, and present the rationale supporting the proposed recovery plan modification. The proposed modification of the criteria is presented as an appendix that supplements the recovery plan, superseding only page 25 in Section II (Recovery) of the recovery plan (USFWS 1991).

BACKGROUND INFORMATION

Recovery plans should be consulted frequently, used to initiate recovery activities, and updated as needed. A review of the recovery plan and its implementation may show that the plan is out of date or its usefulness is limited, and therefore warrants modification. Keeping recovery plans current ensures that the species benefits through timely, partner-coordinated implementation based on the best available information. The need for, and extent of, plan modifications will vary considerably among plans. Maintaining a useful and current recovery plan depends on the scope and complexity of the initial plan, the structure of the document, and the involvement of stakeholders.

An amendment involves a substantial rewrite of a portion of a recovery plan that changes any of the statutory elements. The need for an amendment may be triggered when, among other possibilities: (1) the current recovery plan is out of compliance with regard to statutory requirements; (2) new information has been identified, such as population-level threats to the species or previously unknown life history traits, that necessitates new or refined recovery actions and/or criteria; or (3) the current recovery plan is not achieving its objectives. The amendment replaces only that specific portion of the recovery plan, supplementing the existing recovery plan, but not completely replacing it. An amendment may be appropriate in cases where significant plan improvements are needed, but resources are too scarce to accomplish a full recovery plan revision in a short time.

Although it would be inappropriate for an amendment to include changes in the recovery program that contradict the approved recovery plan, it could incorporate study findings that enhance the scientific basis of the plan, or that reduce uncertainties as to the life history, threats, or species' response to management. An amendment could serve a critical function while awaiting a revised recovery plan by: (1) refining and/or prioritizing recovery actions that need to be emphasized, (2) refining recovery criteria, or (3) adding a species to a multispecies or

ecosystem plan. An amendment can, therefore, efficiently balance resources spent on modifying a plan against those spent on managing implementation of ongoing recovery actions.

METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

We utilized a group of expert biologists and managers, including staff from the Guam Department of Aquatic and Wildlife Resources, Commonwealth of the Northern Mariana Islands Department of Fish and Wildlife, a private contractor who is an expert on the species, and Ecological Services staff from the Pacific Islands Fish and Wildlife Office of the U.S. Fish and Wildlife Service. We met by phone and through email to develop these draft amended downlisting and delisting criteria. The working group was composed of species experts and managers, whose knowledge supplemented the information in the most recent 5-year review (USFWS 2015).

Peer review of the updated delisting criteria will be concurrent with the public comment period on the draft amendment, and comments received will be incorporated into the final recovery plan amendment.

ADEQUACY OF RECOVERY CRITERIA

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) states that each recovery plan shall incorporate, to the maximum extent practicable, "objective, measurable criteria which, when met, would result in a determination…that the species be removed from the list." Legal challenges to recovery plans (see Fund for Animals v. Babbitt, 903 F. Supp. 96 (D.D.C. 1995)) and a Government Accountability Audit (GAO 2006) also have affirmed the need to frame recovery criteria in terms of threats assessed under the five listing factors.

Recovery Criteria

See previous version of criteria on page 25 in Part II (Recovery) of the Recovery Plan for Mariana Islands Population of the Vanikoro Swiftlet (*Aerodramus vanikorensis bartschi*) (USFWS 1991).

Synthesis

Mariana gray swiftlet populations currently exist on Saipan, Aguiguan, and Guam; the species has been extirpated from Rota and Tinian (USFWS 2015). They nest and roost in colonies in caves, which are sensitive to disturbance. On Guam, predation by brown treesnakes is an ongoing mortality factor and depredation by rats is a mortality factor on all islands.

In its current form, the recovery plan identifies only interim recovery objectives for downlisting. The amended recovery criteria take into consideration the need to manage threats in order to improve the status of the species. They also provide for increased certainty about population status and trends by providing guidelines on the length of time the estimated size of the population and the population trend should be maintained prior to down- or delisting. We anticipate assessing the significance of decreasing, stable, or increasing population trends using an equivalency testing framework which allows for biologically meaningful trends to be statistically assessed (Camp *et al*. 2008). It should be noted that in surveys since 2008 the population estimate for Saipan (~5,000 individuals) has exceeded the target for downlisting and

delisting, but population estimates for the other islands remain below recommended levels (Aguiguan ~300, Guam ~1,400) (USFWS 2015), and the species is extirpated from two islands in its historic range.

AMENDED RECOVERY CRITERIA

Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that it may be downlisted to threatened, or that the protections afforded by the Act are no longer necessary and the species may be delisted. Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Downlisting is the reclassification of a species from endangered to threatened. The term "endangered species" means any species (species, sub-species, or distinct population segment) that is in danger of extinction throughout all or a significant portion of its range. The term "threatened species" means any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Revisions to the Lists, including delisting or downlisting a species, must reflect determinations made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine whether a species is an endangered species or threatened species (or not) because of threats to the species. Section 4(b) of the Act requires that the determination be made "solely on the basis of the best scientific and commercial data available." Thus, while recovery plans provide important guidance to the U.S. Fish and Wildlife Service (Service), States, and other partners on methods of minimizing threats to listed species and measurable objectives against which to measure progress towards recovery, they are guidance and not regulatory documents.

Recovery criteria should help indicate when we would anticipate that an analysis of the species' status under section 4(a)(1) would result in a determination that the species is no longer an endangered species or threatened species. A decision to revise the status of or remove a species from the Federal Lists of Endangered and Threatened Wildlife and Plants, however, is ultimately based on an analysis of the best scientific and commercial data then available, regardless of whether that information differs from the recovery plan, which triggers rulemaking. When changing the status of a species, we first propose the action in the *Federal Register* to seek public comment and peer review, followed by a final decision announced in the *Federal Register*.

We provide both downlisting and delisting criteria for the Mariana gray swiftlet, which will supersede those included in the Recovery Plan for Mariana Islands Population of the Vanikoro Swiftlet (*Aerodramus vanikorensis bartschi*) (USFWS 1991), as follows:

Downlisting Recovery Criteria

The Mariana gray swiftlet will be considered for downlisting when:

Criterion 1: Over a minimum 15-year period, Mariana gray swiftlet population data on Saipan, Aguiguan, and Guam 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 throughout that time period is estimated to be at least 2,000 birds on Guam, 2,000 on Saipan, and 1,000 on Aguiguan.

Criterion 2: Sufficient Mariana swiftlet roosting and nesting habitat (i.e., occupied and potentially-occupied caves) is protected and managed to achieve Criterion 1 above, with the populations distributed among at least five caves on each island. On Guam, at least two of the five occupied caves should be in northern Guam.

Criterion 3: Threats to the species, including predation by introduced predators, nest damage, and pesticide impacts, are effectively managed so as to minimize mortality and to meet Criterion 1 above, and are expected to continue to be so for the foreseeable future.

In addition, any rule to downlist the Mariana gray swiftlet should incorporate a rule under section 4(d) of the Act granting protections regarding take.

Delisting Recovery Criteria
The Mariana gray swiftlet will be considered for delisting when:

Criterion 1: Over a minimum 30-year period, Mariana gray swiftlet population data on Saipan, Aguiguan, and Guam 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 throughout that time period is estimated to be at least 3,000 birds on Guam, 2,500 on Saipan, and 1,500 on Aguiguan.

Criterion 2: A self-sustaining Mariana gray swiftlet population has been established on Rota.

Criterion 3: Sufficient Mariana gray swiftlet roosting and nesting habitat (i.e., occupied and potentially-occupied caves) is protected and managed to achieve Criterion 1 above, with the populations distributed among at least six caves on each island, excluding Rota. On Guam, at least three of the six occupied caves should be in northern Guam.

Criterion 4: Threats to the species, including predation by introduced predators, nest damage, and pesticide impacts, are effectively managed so as to minimize mortality and to meet Criterion 1 above, and are expected to continue to be so for the foreseeable future.

All classification decisions consider the following five factors: (A) the present or threatened destruction, modification, or curtailment of the species' habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms (outside the ESA, and taking into account the efforts by states and other organizations to protect the species or habitat); and (E) other natural or manmade factors affecting its continued existence. When delisting or downlisting a species, we

first propose the action in the *Federal Register* and seek public comment and peer review. Our final decision is announced in the *Federal Register*.

Rationale for Recovery Criteria

The amended downlisting and delisting criteria are based upon the best available scientific and commercial information about the species' biology and habitat. Timeframes for downlisting and delisting are based on our current understanding of life history characteristics of the species, such as fecundity and parental investment, which influence how quickly a population can grow. In general, island species are believed to exhibit a shift toward slower life history strategies in which reproduction is delayed, clutch size is reduced, parental care is extended, and adults have a relatively long lifespan (Cody 1966, MacArthur and Wilson 1967). Life history information on the Mariana swiftlet is scarce, but Johnson (2015) reported clutch size of one egg, and relatively long average incubation and brooding periods of 24 and 55 days, respectively, for a Mariana swiftlet population that was introduced to Oahu, Hawaii. Mariana swiftlets on Oahu did re-nest after successfully fledging a chick (Johnson 2015). On Saipan, Reichel et al. (2007) documented the average incubation and brooding periods to be 23 and 47 days, and indicated the species was K-selected (has a low reproductive output, high investment in individuals produced, has a relatively long life span, and reproduces at a late age). In the absence of information about age at first breeding and longevity, the relatively long nesting cycle, maximum production of one chick per clutch, and high investment in each chick indicates this species has a relatively low potential for population growth. Thus in Downlisting Criterion 1 and Delisting Criterion 1 the duration of time the population must be stable or increasing reflects the species' low intrinsic potential for growth and reproductive potential when stressors are reduced. The difference in duration between Downlisting Criterion 1 and Delisting Criterion 1 reflects the need for greater statistical confidence about the population trend to support the conclusion that delisting is appropriate.

The population targets in Downlisting Criterion 1 and Delisting Criterion 1 take into consideration the amount of suitable or potentially suitable roosting and nesting habitat on the three islands it currently occupies; Guam has 192 known suitable caves, Saipan has up to 33 caves, and Agiguan has up to 16 suitable caves (Johnson 2015). On Rota, where the species is extirpated, there are 120 known caves of which eight showed evidence of being occupied by Mariana swiftlets (Johnson 2015). For each island the population targets in Downlisting Criterion 1 and Delisting Criterion 1, and the number of caves occupied in Downlisting Criterion 2 and Delisting Criterion 3, reflect the potential for the population to increase based on the amount of suitable roosting and nesting habitat. Because we do not know the suitability of foraging habitat adjacent to the caves, or the carrying capacity of the caves, the population targets in the recovery criteria are below historic maximum estimates. The difference in population targets between Downlisting Criterion 1 and Delisting Criterion 1 allows for increased population resiliency to support the conclusion that delisting is appropriate; similarly, the increase in the number of caves occupied between Downlisting Criterion 2 and Delisting Criterion 3 allows for improved population redundancy before delisting.

According to the most recent 5-year review (USFWS 2015), ongoing threats to the Mariana gray swiftlet include habitat loss and degradation (loss of foraging habitat and cave disturbance), predation by the brown treesnake on Guam, nest damage by insects, and climate change and increasing storms. The current status of the threat from pesticides is unknown. The recovery

criteria address these threats to the species. Protection and management of roosting and nesting habitat in nest caves sufficient to meet Downlisting Criterion 2 and Delisting Criterion 3 would counter threats from habitat loss and degradation (Factor A), allowing the caves to support a self-sustaining population. Effective management of other threats from brown tree snake predation (Factor C), nest damage by insects (Factor E), and pesticides (Factor E) that minimizes mortality and meets population targets would meet Downlisting Criterion 3 and Delisting Criterion 4. Population size and trend sufficient to meet Downlisting Criterion 1 and Delisting Criterion 1 would also protect the species from impacts related to small population size (Factor E), such as vulnerability to stochastic events and loss of genetic diversity. Maintaining viable populations on multiple islands and establishing a population on Rota as indicated in Delisting Criterion 2 would meet distributional criteria and help to protect the species in the event of population loss from catastrophic storm impacts (Factor E) or other factors on any particular island.

The Service uses the conservation biology principles of resiliency, representation, and redundancy (Shaffer and Stein 2000) as a lens to evaluate current and future condition of species. The amended recovery criteria for the Mariana gray swiftlet will allow meeting recovery goals by: (1) ensuring the ecological, morphological, behavioral, and genetic diversity of the species is conserved within its current range (representation); (2) managing for stable or increasing populations with adequate reproduction and recruitment (resiliency); and (3) recommending distribution throughout its historic range and reintroduction to at least one additional island (redundancy). The recovery criteria are objective and measurable. Information is accurate, unbiased, and based upon the best known data at this time.

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