Draft Amendment to the Native Forest Birds of Guam and Rota of the Commonwealth of the Northern Mariana Islands Recovery Plan

Original Approved: September 28, 1990
Original Prepared by: Pacific Region, U.S. Fish and Wildlife Service

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Species addressed in Draft Amendment: Guam rail (*Rallus owstoni*)

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 1990. In this proposed modification, we discuss the adequacy of the existing recovery criteria, identify 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 33 in Section II (Recovery) of the recovery plan (USFWS 1990).

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 A review of the recovery plan and its implementation may show that the plan is out of date or its usefulness is limited, and therefore warrants modification.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 to develop these criteria, including staff from Guam Division of Aquatic and Wildlife Resources 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 2014).

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 33 in Part II (Recovery) of the Native Forest Birds of Guam and Rota of the Commonwealth of the Northern Mariana Islands Recovery Plan (USFWS 1990).

Synthesis

The Guam rail is extinct in the wild; its recovery is therefore dependent on captive propagation and eventual reintroduction to its historic range once threats to the species have been addressed. Two nonessential experimental populations have been established off of Guam (on Rota and Cocos) where the primary threat of the brown treesnake (*Boiga irregularis*) does not occur. On Guam, this threat has not yet been managed sufficiently for reintroduction. In its current form, the recovery plan identifies interim recovery objectives for downlisting, once there is effective control of the brown treesnake, but it does not establish delisting criteria. The amended recovery criteria acknowledge the continued need for captive propagation and for eventual reintroduction to its historic range. They also address the need to manage threats such as predation and ongoing habitat degradation and loss to ensure suitable habitat is available for reintroduction. 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).

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 Guam rail, which will supersede those included in the Native Forest Birds of Guam and Rota of the Commonwealth of the Northern Mariana Islands Recovery Plan (USFWS 1990), as follows:

Downlisting Recovery Criteria
The Guam rail will be considered for downlisting when:

Criterion 1: Guam rail populations in captive propagation programs on Guam and in the mainland United States maintain adequate population size, demographic characteristics (sex ratio, age structure, and reproductive success), and representation of genetic diversity to support reintroduction to Guam.

Criterion 2: Guam rails occur in three or more viable populations in the wild, with at least one population in northern Guam, exhibiting ecological, morphological, behavioral, and genetic diversity representative of the species.

Criterion 3: Over a minimum 15-year period, Guam rail 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.

Criterion 4: Habitat is protected and management has been established to the extent that Criteria 2 and 3 above are achieved.

Criterion 5: Threats to the species, including the identified primary threat of predation by introduced predators such as the brown treesnake and feral cats, are effectively managed to minimize mortality and meet population targets in Criterion 3.

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

Delisting Recovery Criteria
The Guam rail will be considered for delisting when:

Criterion 1: Guam rails occur in five or more viable populations in the wild, with at least two populations in northern Guam, exhibiting ecological, morphological, behavioral, and genetic diversity representative of the species.

Criterion 2: Over a minimum 30-year period, Guam rail 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.

Criterion 3: Habitat is protected and management has been established to the extent that Criteria 1 and 2 above are achieved.

Criterion 4: Threats to the species, including the identified primary threat of predation by introduced predators such as the brown treesnake and feral cats, are sufficiently managed to minimize mortality and meet population targets in Criterion 2.

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 age at first reproduction, 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). In captivity, Guam rails reproduce at approximately three years, and produce more than one clutch of up to five eggs per year (S. Newland, pers. comm. 2018). Females live to approximately 5 years of age, and males can live up to 9 years (S. Newland, pers. comm. 2018). In combination, these life history factors indicate Guam rails exhibit a slower life history and have a low to moderate potential to increase population size under favorable conditions. However, monitoring of these demographic factors has not occurred in wild populations, and we are uncertain how variables such as food availability and social structure might influence these and other life history traits under natural conditions. Thus in Downlisting Criterion 3 and Delisting Criterion 2 the duration of time the population must be stable or increasing reflects the species' low to moderate intrinsic potential for population growth when stressors are reduced. The difference in duration between Downlisting Criterion 3 and Delisting Criterion 2 reflects the need for greater statistical confidence about the population trend to support the conclusion that delisting is appropriate, particularly since we have not observed population trends in this species in the wild. The number of populations we identified for Downlisting Criterion 2 would provide a moderate level of population redundancy, whereas the number of populations identified for Delisting Criterion 1 would provide sufficient redundancy to warrant delisting, according to our panel of experts.

Primarily as a result of predation by the introduced brown tree snake, the Guam rail was believed to have been extirpated in the wild on Guam by 1985 (Wiles *et al*. 1995). In 1983, 22 Guam rail were captured and moved to captive propagation facilities on Guam and several zoological institutions in the mainland United States to begin a captive propagation program (Haig and Ballou 1995). As of 2014, there were approximately 170 Guam rails in captivity on Guam and in mainland zoological institutions, and 150 individuals in introduced experimental populations (USFWS 2014). The amended recovery criteria address captive propagation, which is essential to the reintroduction and establishment of wild populations of Guam rail within its historic range. Downlisting Criterion 1 for the captive propagation program (as well as Downlisting Criterion 2 and Delisting Criterion 1 for the wild populations) address genetic diversity to maintain the adaptive capacity of the captive and reintroduced populations (Factor E). In addition Downlisting Criterion 2 and Delisting Criterion 1 address the number and distribution of populations, which secures the Guam rail from stochastic events by spreading risks amongst a number of populations that are distributed across its historic range (Factor E). Downlisting Criterion 3 and Delisting Criterion 2 address population size and trend (Factor E), protecting the Guam rail from a number of risks inherent to small populations (e.g., chance environmental events, catastrophic habitat loss or resource failure, predation, disease, demographic limitations, loss of genetic diversity, and inbreeding depression).

According to the most recent 5-year review (USFWS 2014), one of the factors affecting the Guam rail is degradation or loss of habitat (Factor A). While it has been discovered that Guam rail prefer edge habitats, and increases in development on Guam may increase such habitat, there is currently no monitoring of vegetation changes on the island. The degree of availability and rate of change in suitable habitat is poorly known and poses a potential threat to the species. Downlisting Criterion 4 and Delisting Criterion 3 therefore address protection and management of habitat to mitigate habitat loss and degradation. Also, a primary cause of the Guam rail's original decline, and a clear ongoing threat to its ability to survive in the wild, is introduced predators, especially the brown treesnake and feral cats. Downlisting Criterion 5 and Delisting

Criterion 4 specifically address this threat of introduced predators (Factor C), which has a high impact on the recovery potential of Guam rail.

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 Guam rail will allow meeting recovery goals by: (1) managing for stable or increasing populations with adequate reproduction and recruitment (resiliency), (2) ensuring the ecological, morphological, behavioral, and genetic diversity of the species is conserved through captive propagation and reintroduced to its historic range on Guam (representation), and (3) ensuring the presence of multiple local populations throughout its historical range (redundancy). The recovery criteria are objective and measurable. Information is accurate, unbiased, and based upon the best known data at this time.

LITERATURE CITED

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