

Draft Amendment to the Recovery Plan for the Mariana Common Moorhen (*Gallinula choropus guami*)

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 common moorhen (*Gallinula choropus guami*)

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 21 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 A review of the recovery plan and its implementation may show that the plan is out of date or its usefulness is limited, and therefore warrants modification.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, and 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 21 in Part II (Recovery) of the Recovery Plan for the Mariana Common Moorhen (*Gallinula choropus guami*) (USFWS 1991).

Synthesis

The Mariana common moorhen currently occurs on Guam, Tinian, and Saipan, having been extirpated from Pagan (USFWS 2015). The species requires permanent freshwater wetland habitat. The most recent population estimate from 2003 and 2004 is 287 birds distributed across these three islands (USFWS 2015). Numbers on Guam appear to have declined over the past decade; however, standardized surveys with more thorough coverage of permanent and seasonal wetlands are needed to assess population trends. The condition of wetland habitat on the islands is generally poor due to wetland fill, impacts on wetland hydrology, and invasive plants. Translocation of moorhens to Pagan is being considered, but the wetlands would require restoration in order to support a population (USFWS 2015).

In its current form, the recovery plan identifies 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).

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 common moorhen, which will supersede those included in the Recovery Plan for the Mariana Common Moorhen (*Gallinula choropus guami*) (USFWS 1991), as follows:

Downlisting Recovery Criteria

The Mariana common moorhen will be considered for downlisting when:

- Criterion 1: Suitable wetland habitat, totaling 240 hectares (ha) (600 acres) on Guam, 120 ha (300 acres) on Saipan, and 17 ha (40 acres) on Tinian, has been protected and managed for the foraging, breeding, and sheltering needs of Mariana common moorhen.
- Criterion 2: Over a minimum 15-year period, Mariana common moorhen population data show a stable or increasing trend (i.e., finite rate of annual population increase, or λ , greater than or equal to 1) that is statistically significant, as determined through

quantitative surveys of abundance, or an index of abundance estimated through population surveys or demographic monitoring; and the average population throughout that time period is at least 600 adult birds on Guam, 300 adult birds on Saipan, and 30 adult birds on Tinian.

Criterion 3: Threats to the species, including road strikes, habitat loss, habitat degradation, and non-native predators, are managed so as to minimize mortality and meet population targets in Criterion 2.

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

Delisting Recovery Criteria

The Mariana common moorhen will be considered for delisting when:

Criterion 1: The area protected and managed for Mariana common moorhen, including previously suitable wetland habitat that has been restored, totals 400 ha (1000 acres) on Guam, 200 ha (500 acres) on Saipan, and 18 ha (45 acres) on Tinian.

Criterion 2: Over a minimum 30-year period, Mariana common moorhen population data show a stable or increasing trend (i.e., finite rate of annual population increase, or λ , greater than or equal to 1) that is statistically significant, as determined through quantitative surveys of abundance, or an index of abundance estimated through quantitative surveys or demographic monitoring; and the average population throughout that time period is at least 1000 adult birds on Guam, 500 adult birds on Saipan, and 45 adult birds on Tinian.

Criterion 3: A fourth breeding population has been established on another island. The fourth breeding population may contribute to meeting Delisting Criterion 1 (total acreage of wetlands) and 2 (minimum number of birds).

Criterion 4: Threats to the species, including road strikes, habitat loss, habitat degradation, and non-native predators, are managed to minimize mortality and meet population targets in Criterion 2, such that populations are capable of persisting without significant human intervention.

All classification decisions consider the following five listing 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). While we do not have life history information specific to this species, in the closely related Hawaiian gallinule (*G. galeata sandvicensis*) the age at first reproduction is approximately 2 years, clutch size is up to five eggs, and the longest-lived bird documented was 7 years and 8 months (VanRees et al. 2018). It is likely that the Mariana common moorhen has a similar life history that results in slow population growth; thus in Downlisting Criterion 2 and Delisting Criterion 2 the length of time the population must be stable or increasing reflects the species' intrinsically low to moderate potential for population growth when stressors are reduced. The difference in duration between Downlisting Criterion 2 and Delisting Criterion 2 reflects the need for greater statistical confidence in the population trend to support the conclusion that delisting is appropriate.

The most recent population estimates for Mariana common moorhen are 90 adult birds on Guam, 41 on Tinian, and 154 on Saipan, resulting in a population estimate of 287 birds (Takano and Haig 2004, USFWS 2015). The population targets in Downlisting Criterion 2 and Delisting Criterion 2 take into consideration the slow potential population growth and amount of suitable or potentially suitable habitat on Guam, Saipan, and Tinian. The differences in population size between Downlisting Criterion 2 and Delisting Criterion 2 reflect the need for increased resiliency prior to delisting.

Takano and Haig (2004) used radio telemetry to look at movements of Mariana common moorhen on Guam and Saipan. They found the average home range was 3.1 ha, and that there was greater intra-island movement during the wet season as ephemeral wetlands became available. They also found there was overlap in areas used; thus the area reflected in Downlisting Criterion 1 and Delisting Criterion 1 is not calculated by direct multiplication of the number of birds by average home range size. The acreages in these criteria were also determined with consideration of the amount of habitat available for management and restoration, to improve the redundancy of the species. The difference in acreage between Downlisting Criterion 1 and Delisting Criterion 1 reflects the need for increased redundancy prior to delisting.

According to the most recent 5-year review (USFWS 2015), ongoing threats to the Mariana common moorhen include loss and degradation of wetland habitat, alteration of hydrology, invasion by nonnative plants, predation by nonnative predators, contaminants, human disturbance, and climate change and sea level rise. The current status of the threat from avian disease is unknown. The recovery criteria address these threats to the species. Protection, management, and restoration of wetland habitat sufficient to meet Downlisting Criterion 1 and Delisting Criterion 1 would counter threats from habitat loss and degradation (Factor A), hydrology alteration (Factor A), and nonnative plant invasion (Factor A). Effective management of other threats from nonnative predators (Factor C), contaminants (Factor E), and human disturbance (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 2 and Delisting Criterion 2 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. Establishing a breeding population on another island would meet Delisting Criterion 3 and help to protect the species in the event of climate change impacts (Factor E) or other threats causing catastrophic loss of population on specific islands.

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 common moorhen 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) supporting 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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