Hawaiian Common Moorhen or `Alae `ula
(*Gallinula chloropus sandvicensis*)

5-Year Review
Summary and Evaluation

U.S. Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
Honolulu, Hawaii

5-YEAR REVIEW

Species reviewed: Hawaiian Common Moorhen or `Alae `ula
(*Gaillinula chloropus sandvicensis*)

TABLE OF CONTENTS

5-YEAR REVIEW
Hawaiian Common Moorhen or `Alae `ula/*Gallinula chloropus sandvicensis*

1.0 GENERAL INFORMATION

1.1 Reviewers

Lead Regional Office:
Region 1, Endangered Species Program, Division of Recovery, Jesse D'Elia, (503) 231-2071

Lead Field Office:
Pacific Islands Fish and Wildlife Office, Loyal Mehrhoff, Field Supervisor, (808) 792-9400.

Cooperating Field Office(s):
N/A

Cooperating Regional Office(s):
N/A

1.2 Methodology used to complete the review:

This review was conducted by staff of the Pacific Islands Fish and Wildlife Office (PIFWO) of the U.S. Fish and Wildlife Service (USFWS) beginning in June 2008. The draft revised recovery plan for Hawaiian waterbirds, second draft of second revision (USFWS 2005), was the primary source of information for this five-year review of the Hawaiian common moorhen or `alae `ula (*Gallinula chloropus sandvicensis*). Updates on the status and biology of this species were also obtained from additional sources, including local agencies and researchers recently or currently working on this species. The draft five-year review was then reviewed by the Vertebrate Recovery Coordinator, Assistant Field Supervisor for Endangered Species and Acting Deputy Field Supervisor before submittal to the Field Supervisor for approval.

1.3 Background:

1.3.1 FR Notice citation announcing initiation of this review:

U.S. Fish and Wildlife Service. 2008. Endangered and threatened wildlife and plants; initiation of 5-year status reviews for 70 species in Idaho, Montana, Oregon, Washington, and the Pacific Islands. Federal Register 73(83):23264-23266.

1.3.2 Listing history

Original Listing
FR notice: U.S. Fish and Wildlife Service. 1967. Native fish and wildlife: endangered species. Federal Register 32(48): 4001.
Date listed: March 11, 1967
Entity listed: Species
Classification: Endangered

Revised Listing, if applicable
FR notice: N/A
Date listed: N/A
Entity listed: N/A
Classification: N/A

1.3.3 Associated rulemakings: None

1.3.4 Review History:
Species status review [FY 2010 Recovery Data Call (August 2010)]: Stable

1.3.5 Species' Recovery Priority Number at start of this 5-year review: 9

1.3.6 Current Recovery Plan or Outline
Name of plan or outline: Draft revised recovery plan for Hawaiian waterbirds, second draft of second revision.
Date issued: May 2005
Dates of previous revisions, if applicable: First revision approved 1985, first draft of second revision released May 1999.

2.0 REVIEW ANALYSIS

2.1 Application of the 1996 Distinct Population Segment (DPS) policy

2.1.1 Is the species under review a vertebrate?
__X__ ***Yes***
_____ ***No***

2.1.2 Is the species under review listed as a DPS?
____ ***Yes***
__X_ ***No***

2.1.3 Was the DPS listed prior to 1996?
____ ***Yes***
____ ***No***

2.1.3.1 Prior to this 5-year review, was the DPS classification reviewed to ensure it meets the 1996 policy standards?

____ ***Yes***
____ ***No***

2.1.3.2 Does the DPS listing meet the discreteness and significance elements of the 1996 DPS policy?

____ ***Yes***
____ ***No***

2.1.4 Is there relevant new information for this species regarding the application of the DPS policy?

____ ***Yes***
__X_ ***No***

2.2 Recovery Criteria

2.2.1 Does the species have a final, approved recovery plan containing objective, measurable criteria?

__X_ ***Yes***
____ ***No***

2.2.2 Adequacy of recovery criteria.

2.2.2.1 Do the recovery criteria reflect the best available and most up-to date information on the biology of the species and its habitat?

_X__ ***Yes***
____ ***No***

2.2.2.2 Are all of the 5 listing factors that are relevant to the species addressed in the recovery criteria?

_X__ ***Yes***
____ ***No***

2.2.3 List the recovery criteria as they appear in the recovery plan, and discuss how each criterion has or has not been met, citing information:

The draft revised recovery plan for Hawaiian waterbirds includes the following criteria for downlisting and delisting of the Hawaiian common moorhen or `alae `ula:

Downlisting criteria

Criterion 1: All core wetlands listed in the recovery plan (Table 10) on the islands of Kaua`i and O`ahu are protected and managed in accordance with the management practices outlined in the recovery plan;

Criterion 2: Of the supporting wetlands listed in the recovery plan (Table 11) on the islands of Kaua`i/Ni`ihau, and O`ahu, 25 percent are protected and managed in accordance with the management practices outlined in the recovery plan;

Criterion 3: The statewide moorhen population shows a stable or increasing trend at a number greater than 2,000 birds for at least 5 consecutive years; and

Criterion 4: There are multiple self-sustaining breeding populations, with populations present on Kaua`i and O`ahu, and on Maui/Moloka`i and/or Hawai`i.

Delisting criteria

Criterion 1: All core wetlands listed in the recovery plan (Table 10) on the islands of Kaua`i and O`ahu are protected and managed in accordance with the management practices outlined in this recovery plan;

Criterion 2: Of the supporting wetlands listed in the recovery plan (Table 11) on the islands of Kaua`i and O`ahu, 75 percent are protected and managed in accordance with the management practices outlined in the recovery plan; and

Criterion 3: The statewide moorhen population shows a stable or increasing trend at a number greater than 2,000 birds for at least 10 consecutive years; and

Criterion 4: There are multiple self-sustaining breeding populations, with populations present on Kaua`i, O`ahu, Maui/Moloka`i, and Hawai`i.

None of these down- or delisting criteria have been met. Of 17 core wetlands, 14 are currently protected and of 34 supporting wetlands, six (17 percent) are currently protected. Although there appears to be a slightly increasing trend in count numbers, for the past five years Hawaiian common moorhen or `alae `ula numbers have fluctuated under 450 during winter counts and under 400 for summer counts. In addition this species has a very limited distribution and is currently found only on the islands of Kaua`i and O`ahu, although it was historically found on all the main Hawaiian Islands (except Lāna`i and possibly Ni`ihau).

2.3 Updated Information and Current Species Status

2.3.1 Biology and Habitat

2.3.1.1 New information on the species' biology and life history:

Molt in the Hawaiian common moorhen or `alae `ula, which lasts about 30 days, was not synchronous across individuals with molting birds recorded from June to September in the field (DesRochers et al. 2009).

2.3.1.2 Abundance, population trends (e.g. increasing, decreasing, stable), demographic features (e.g., age structure, sex ratio, family size, birth rate, age at mortality, mortality rate, etc.), or demographic trends:

Recent waterbird surveys indicate Hawaiian common moorhen or `alae `ula numbers are fluctuating around below 450 in the winter and under 400 in the summer. The overall population trend appears to be slightly increasing based on biannual waterbird surveys.

2.3.1.3 Genetics, genetic variation, or trends in genetic variation (e.g., loss of genetic variation, genetic drift, inbreeding, etc.):

No new information.

2.3.1.4 Taxonomic classification or changes in nomenclature:

No new information.

2.3.1.5 Spatial distribution, trends in spatial distribution (e.g. increasingly fragmented, increased numbers of corridors, etc.), or historic range (e.g. corrections to the historical range, change in distribution of the species' within its historic range, etc.):

No new information.

2.3.1.6 Habitat or ecosystem conditions (e.g., amount, distribution, and suitability of the habitat or ecosystem):

Over the past several years, Huleia National Wildlife Refuge on Kaua`i has been considerably expanded to provide additional habitat for the Hawaiian common moorhen or `alae `ula as well as other wetland species.

2.3.1.7 Other:
The inaccuracy of current methodology used in the biannual waterbird count, which involves relatively brief visits to each wetland (Griffin *et al.*

1989), is demonstrated by the extreme differences in numbers between summer and winter waterbird surveys of lotus fields on O`ahu (USFWS 2005). In the winter, after fields have been harvested and visibility is greater, numbers may be two to three times higher than the numbers seen during the summer survey of the same areas (USFWS 2005). Recent research on the Hawaiian common moorhen or `alae `ula found that playing calls of the Hawaiian common moorhen or `alae `ula increased detections of birds by 30 percent (D. DesRochers, *in litt*. 2008). Gee (2007) also found that playbacks can increase Hawaiian common moorhen or `alae `ula detections. This information can be used to modify survey methods and increase the accuracy of surveys for the Hawaiian common moorhen or `alae `ula during the biannual waterbird surveys.

2.3.2 Five-Factor Analysis (threats, conservation measures, and regulatory mechanisms)

2.3.2.1 Present or threatened destruction, modification or curtailment of its habitat or range:

No new information. See synthesis below.

2.3.2.2 Overutilization for commercial, recreational, scientific, or educational purposes:

No new information. See synthesis below.

2.3.2.3 Disease or predation:

West Nile virus and avian flu may pose a risk to the Hawaiian common moorhen or `alae `ula if these diseases reach Hawaii. In 2002, the Hawaii Department of Agriculture placed an embargo on shipping any birds in to the islands, which may help reduce the risk of these diseases arriving here, but continued vigilance is required. In addition, Hawai`i is currently monitoring birds statewide through a passive morbidity/mortality surveillance strategy for the detection of avian flu; this effort conceivably could also yield early detection of other pathogens.

2.3.2.4 Inadequacy of existing regulatory mechanisms:

No new information. See synthesis below.

2.3.2.5 Other natural or manmade factors affecting its continued existence:

Climate change may also pose a threat to the Hawaiian common moorhen or `alae `ula, as its range includes low-elevation habitat. However, current

climate change models do not allow us to predict specifically what those effects, and their extent, would be for this species.

2.4 Synthesis

The threats (Factors A, C, and E) affecting this species are discussed in Section 1.D. - Reasons for Decline and Current Threats - of the recovery plan (USFWS 2005). The main threats to the Hawaiian common moorhen or `alae `ula are predation by a large variety of introduced species (Factor C: Disease or Predation) and the loss and degradation of habitat, including grazing by feral animals, invasion of habitat by non-native plants, and alteration of hydrology (Factor A: the present or threatened destruction, modification, or curtailment of habitat or range). In addition, avian botulism (Factor C) has been documented at wetlands state-wide and has caused mortality events in this and other waterbird and waterfowl species. Environmental contaminants are considered a threat to birds utilizing wetland habitat; fuel spills, for example, have resulted in direct mortality of birds.

Direct and indirect human disturbance is also considered detrimental, especially during breeding (Factor E: other natural or manmade factors). For example, humans working in wetlands (e.g., to remove alien invasive plant species) or draining or flooding of fields may lead to nest failure. The wetlands utilized most frequently by the Hawaiian common moorhen or `alae `ula are coastal wetlands that are vulnerable to global warming and sea level rise. Sea level rise may result in the loss of some wetland habitat and affect the suitability of other wetlands for waterbirds. Overutilization (Factor B) and inadequacy of existing regulatory mechanisms (Factor D) are not considered to be threats to this species at this time (USFWS 2005).

The recovery criteria for this species have not been. Although some wetlands have been protected under Habitat Conservation Plans or Safe Harbor Agreements, of 17 core wetlands, 14 (82 percent) are currently protected and of 34 supporting wetlands, six (17 percent) are currently protected. For the past five years Hawaiian common moorhen or `alae `ula numbers have fluctuated under 450 during winter counts and under 400 for summer counts. In addition this species has a very limited distribution and is currently found only on the islands of Kaua`i and O`ahu, although it was historically found on all the main Hawaiian Islands (except Lāna`i and possibly Ni`ihau). The main threats to the species, predation and habitat loss are on-going. Therefore, the Hawaiian common moorhen or `alae `ula still meets the definition of endangered.

3.0 RESULTS

3.1 Recommended Classification:

____ Downlist to Threatened
____ Uplist to Endangered
____ Delist

____ *Extinction*
____ *Recovery*
____ *Original data for classification in error*
__X__ No change is needed

3.2 New Recovery Priority Number: N/A

Brief Rationale:

3.3 Listing and Reclassification Priority Number:

Reclassification (from Threatened to Endangered) Priority Number: ____
Reclassification (from Endangered to Threatened) Priority Number: ____
Delisting (regardless of current classification) Priority Number: ____

Brief Rationale:

4.0 RECOMMENDATIONS FOR FUTURE ACTIONS

- Incorporate improved survey techniques for the Hawaiian common moorhen or `alae `ula into annual waterbird surveys.
- Conduct a population viability analysis to identify population numbers and time spans to serve as predictors of long term recovery for the Hawaiian common moorhen or `alae `ula.
- Reintroduce the Hawaiian common moorhen or `alae `ula to a protected and managed site on at least two additional islands (Maui, Moloka`i, Lāna`i, Hawai`i) and monitor survival, dispersal, and reproduction.
- Continue to work on securing and managing core and supporting wetlands.
- Continue predator control, keep abreast of research on improvements in predator control, and implement improved methodology.
- Continue annual State-wide waterbird counts. These data are currently not analyzed for other than basic status of the species. Directed analysis of the waterbird count data could identify correlations, including use of specific wetlands, time of year, and state of wetlands, that could improve our ability to manage for waterbirds.

5.0 REFERENCES

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Gee, H.K. 2007. Habitat characteristics of refuge wetlands and taro lo`i used by endangered waterbirds at Hanalei National Wildlife Refuge, Hawai`i. M.S. thesis, South Dakota State University. 154 pp.

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Pratt, H.D., P.L. Bruner, and D.G. Berrett. 1987. A field guide to the birds of Hawaii and the tropical Pacific. Princeton, N.J.: Princeton University Press.

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IN LITT. COMMUNICATIONS

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Signature Page
U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of Hawaiian Common Moorhen or `Alae `ula
(*Gallinula chloropus sandvicensis*)

Current Classification: E

Recommendation resulting from the 5-Year Review:

____ Downlist to Threatened
____ Uplist to Endangered
____ Delist
_X__ No change needed

Appropriate Listing/Reclassification Priority Number, if applicable:_____

Review Conducted By:
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Marilet A. Zablan, Assistant Field Supervisor for Endangered Species
Jeff Newman, Acting Deputy Assistant Field Supervisor

Approved _____ Date AUG 2 7 2010
for **Field Supervisor, Pacific Islands Fish and Wildlife Office**