

O`ahu creeper
(Paroreomyza maculata)

5-Year Review:
Summary and Evaluation

U.S. Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
Honolulu, Hawai`i

5-YEAR REVIEW

Species reviewed: O`ahu creeper (*Paroreomyza maculata*)

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5-YEAR REVIEW
O`ahu creeper (*Paroreomyza maculata*)

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:

Information used to conduct this review was obtained from the following sources: the Revised Recovery Plan for Hawaiian Forest Birds (USFWS 2006) and The Birds of North America species account, No. 503 (Baker and Baker 2000). Information from these sources was used to determine the species' historical distribution, recovery criteria, threats, most recent documented sightings, and extinction probability. The BNA species account (Baker and Baker 2000) and the peer-reviewed Revised Recovery Plan for Hawaiian Forest Birds (USFWS 2006) summarized all early scientific information gathered about the species and constitute the most recent, complete, and scientifically reliable information available for the evaluation of the taxon's current status. The Hawaiian Forest Bird Survey (Scott *et al.* 1986) and the 1994-1996 Hawai'i Rare Bird Search (Reynolds and Snetsinger 2001) was not conducted on O`ahu, and periodic forest bird surveys on other of the main Hawaiian Islands have not been conducted on O`ahu since 1991; therefore information from these sources, available for other species of Hawaiian forest birds, are mostly lacking for O`ahu creeper.

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 2006. Information in this review was compiled by the lead biologist and Hawaiian Birds Recovery Coordinator. The document was reviewed by the 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 Federal Register (FR) Notice citation announcing initiation of this review:

USFWS. 2006. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Reviews of 70 Species in Idaho, Oregon, Washington, Hawaii, and Guam. Federal Register 71:18345-18348.

1.3.2 Listing history

Original Listing

FR notice: USFWS. 1970. Conservation of Endangered Species and Other Fish and Wildlife; Appendix D – United States List of Endangered Native Fish and Wildlife. 35 FR 16047.

Date listed: October 13, 1970

Entity listed: Species

Classification: Endangered

Since the time of the species' listing in 1970, reevaluation of species' nomenclature resulted in changing the scientific name to *Paroreomyza maculata* (Baker and Baker 2000).

Revised Listing, if applicable

FR notice: N/A

Date listed: N/A

Entity listed: N/A

Classification: N/A

1.3.3 Associated rulemakings:

N/A

1.3.4 Review History:

Species status review [FY 2010 Recovery Data Call (August 2010)]: Unknown

Recovery achieved:

1 (0-25%) (FY 2007 Recovery Data Call – most recent year reported)

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

6

1.3.6 Current Recovery Plan or Outline

Name of plan or outline: Revised Recovery Plan for Hawaiian Forest Birds. Region 1, Portland, OR. 622 pp.

Date issued: September 22, 2006.

Dates of previous revisions, if applicable:

N/A

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?

Yes
 No

2.1.2 Is the species under review listed as a DPS?

Yes
 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
 No

2.2 Recovery Criteria

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

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?

Yes
 No

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

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:

A taxon may be downlisted from endangered to threatened when all four of the following criteria have been met.

1. The species occurs in two or more viable populations or a viable metapopulation that represent the ecological, morphological, behavioral, and genetic diversity of the species.

This criterion has not been met; it is not known whether the species still exists.

2. Either a) quantitative surveys show that the number of individuals in each isolated population or in the metapopulation has been stable or increasing for 15 consecutive years, or b) demographic monitoring shows that each population or the metapopulation exhibits an average intrinsic growth rate (λ) not less than 1.0 over a period of at least 15 consecutive years; and total population size is not expected to decline by more than 20 percent within the next 15 consecutive years for any reason.

This criterion has not been met; survey effort has not been adequate to determine with confidence whether the species still exists.

3. Sufficient recovery habitat is protected and managed to achieve Criteria 1 and 2.

This criterion has not been fully met; however, some important habitat areas are protected and managed including the O'ahu Forest National Wildlife Refuge. Other areas of habitat where the species might occur are unfenced and vulnerable to damage by feral ungulates.

4. The mix of threats that were responsible for the decline of the species have been identified and controlled.

This criterion has not been fully met; most threats have been identified including disease, predation, and habitat damage by feral ungulates. However, each of these threats is only partly controlled. The threat from disease has been partly controlled by protecting forest habitat in some areas from feral pigs that create mosquito breeding sites, but mosquitoes are known to fly several kilometers in forested habitats and thus may still threaten forest birds even in pristine forest. Predator control and ungulate removal has been implemented in some areas where the species may still occur, but not in the entire suitable habitat area for the species.

The taxon may be delisted when the downlisting criteria described above have been satisfied for at least 30 consecutive years.

2.3 Updated Information and Current Species Status

The O`ahu creeper, or O`ahu `alauahio, is a small sexually dichromatic Hawaiian honeycreeper (family Fringillidae, subfamily Drepanidinae) approximately 11 centimeters (4.3 inches) in total body length. Males are olive-green above and bright yellow below, with a yellow forehead and superciliary line, and a dark eye line. Female and immature are grayish-green above and yellowish-white below, with two prominent white wing bars. The bill is straight, relatively short, dark above, and pale below (USFWS 2006).

2.3.1 Biology and Habitat

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

No new information.

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:

No new information.

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):

The preferred habitat of the O`ahu creeper may be mid-elevation koa/`ōhi`a (*Acacia koa*/*Metrosideros polymorpha*) forests in valleys or on the side-ridges of valleys (USFWS 2006). Native forested habitats on O`ahu as result of agriculture, urbanization, and ungulate grazing are now removed almost completely below 2,000 feet elevation.

2.3.1.7 Other:

Not applicable.

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:

Habitat loss and degradation by agriculture, urbanization, cattle grazing, browsing by feral ungulate species, timber harvesting, and invasion of nonnative plant species into native-dominated plant communities have been some of the primary threats to this species (USFWS 2006). Feral pigs, and goats to a lesser degree, have had a long-term damaging effect upon native forests in the remaining O`ahu creeper range by consuming and damaging understory vegetation, creating openings on the forest floor for weeds, transporting weed seeds into the forest, and causing soil erosion and disruption of seedling regeneration of native plants.

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

Not known to be a limiting factor.

2.3.2.3 Disease or predation:

Predation by alien mammals such as black rats (*Rattus rattus*) and Polynesian rats (*Rattus exulans*) and diseases such as avian malaria (*Plasmodium relictum*) and avian pox (*Poxvirus avium*) carried by alien mosquitoes have also been primary threats to this species (USFWS 2006).

2.3.2.4 Inadequacy of existing regulatory mechanisms:

Current regulatory mechanisms are adequate: The O`ahu creeper was federally listed as endangered October 13, 1970 (USFWS 1970), and thus receives regulatory protection under the Endangered Species Act. Species listed under the Endangered Species Act are automatically added to the State of Hawai`i list of endangered species, and are thus also protected by State regulations. The Service recently added 24 species that belong to families covered by the Canadian and/or Mexican Conventions, but occur naturally in the United States only in Hawai`i, to the List of Migratory Birds. Accordingly, these species, including the O`ahu creeper, receive additional protection under the Migratory Bird Treaty Act (USFWS 2010).

2.3.2.5 Other natural or manmade factors affecting its continued existence:

This species now occurs in such low numbers and in such restricted ranges, if it exists at all, that it is threatened by natural processes, such as inbreeding depression and demographic stochasticity, and by natural and man-made factors such as hurricanes, wildfires, and periodic vegetation die-back (USFWS 2006). Impacts of alien birds are not well understood, but include

aggressive behavior towards native bird species, possible competition for food, nest sites, and roosting sites, and possibly supporting elevated predator population levels.

Climate change may also pose a threat to the O`ahu creeper. 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

Lack of survey effort indicates that the species status is best described as “unknown” rather than “presumed extinct.”

The last well-documented observation of the O`ahu creeper was of two birds on December 12, 1985, during the Waipi`o Christmas Bird Count (Bremer 1986). The 1994-1996 Hawai`i Rare Bird Search did not include O`ahu (Reynolds and Snetsinger 2001), and periodic forest bird surveys, performed on a five-year rotating cycle on each of the main Hawaiian Islands, have not been conducted on O`ahu since 1991. The species is difficult to identify, being similar in size and coloration to O`ahu `amakihi (*Hemignathus virens flavis*) (Baker and Baker 2000), and relatively few qualified observers have spent much time in the mid-elevation koa/`ohi`a forests where O`ahu creepers are most likely to occur (Shallenberger and Vaughn 1978, USFWS 2006). There have been several reports from different areas since 1985; however, details of the observations have been inconclusive and the birds were never relocated (Baker and Baker 2000, USFWS 2006). Based on an evaluation of the survey effort required to detect small populations of other rare Hawaiian forest birds (Scott *et al.* 1986, pp. 69-71), there is likely a low probability of detecting a small remaining population of this species using variable circular-plot point count methodology.

As Reynolds and Snetsinger (2001) describe, there are instances where rare Hawaiian birds have been rediscovered after they were presumed extinct or have been found in larger populations than expected. The large area on O`ahu with suitable habitat, including the entire Ko`olau and Wai`anae Mountains, historical records dating from the 1970s (USFWS 2006), and many sites that are remote and only rarely visited by qualified observers, increase the potential that a small population of O`ahu creeper could still exist.

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:

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

Given the low survey effort for this species, its similarity to the O`ahu `amakihi, and the difficulty of detecting forest birds in remote mountainous habitats in Hawai`i, we recommend the species' biological status be changed from "presumed extinct" to "unknown." This determination is based on reexamination of data for species sightings, the lack of survey effort for this species, and analysis of data from the Hawaiian Forest Bird Survey for other rare Hawaiian forest birds. Additional targeted searches for this species are needed to confirm either that the O`ahu creeper still exists or that it has disappeared and is likely to be extinct.

As described in the Revised Recovery Plan for Hawaiian Forest Birds (USFWS 2006), one of the most important recovery actions for the O`ahu creeper is to intensively and systematically search areas of forest habitat where the species occurred historically. Statewide surveys of Hawaiian forest bird populations are conducted along widely spaced transects (Scott *et al.* 2006, pp. 37) that do not cover all areas where extremely rare Hawaiian forest birds are most likely to be. Additionally, these surveys do not spend the lengths of time needed to maximize the probability that extremely rare and/or likely extinct Hawaiian forest birds will be detected or rediscovered. Therefore, we recommend that an intensive search for O`ahu creeper be conducted on O`ahu using similar methodologies as those employed during the 1994-1996 Hawai`i Rare Bird Search (Reynolds and Snetsinger 2001). In addition, we recommend that autonomous recording units, or ARUs (Fitzpatrick 2002), be deployed in suitable habitats for this species. These field recording units record vocalizations of forest birds. The tapes are then analyzed using computer programs to determine if the target species is present in the area. Use of this technology would greatly increase the amount of search time for this species.

5.0 REFERENCES

- Baker, P. E., and H. Baker. 2000. Kākāwahie (*Paroreomyza flammea*) and O`ahu `Alauahio (*Paroreomyza maculata*). In *The Birds of North America*, No. 503 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.
- Bremer, D. 1986. Waipio, O`ahu, Christmas Bird Count-1985. *Elepaio* 46:132-135.
- Fitzpatrick, J. W. Ivory-bill Quest. *Birdscope*, newsletter of the Cornell Lab of Ornithology, Spring 2002. <www.birds.cornell.edu>
- Reynolds, M. H., and T. J. Snetsinger. 2001. The Hawai`i Rare Bird Search 1994--1996. *Studies in Avian Biology* 22:133-143.
- Scott, J. M., S. Mountainspring, F. L. Ramsey, and C. B. Kepler. 1986. Forest bird communities of the Hawaiian Islands: their dynamics, ecology, and conservation. *Studies in Avian Biology* 9:69-71.
- Shallenberger, R. J. and G. H. Vaughn. 1978. Avifaunal survey of the central Ko`olau Range, Oahu. Ahuimanu Productions, Honolulu, HI.
- U.S. Fish and Wildlife Service. 1970. Conservation of Endangered Species and Other Fish and Wildlife; Appendix D – United States List of Endangered Native Fish and Wildlife. *Federal Register* 35:16047-16048.
- U.S. Fish and Wildlife Service. 2006. Revised Recovery Plan for Hawaiian Forest Birds. Region 1, Portland, OR. 622 pp.
- U.S. Fish and Wildlife Service. 2010. General Provisions; Revised List of Migratory Birds. *Federal Register* 75:9282-9314.

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U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of O`ahu creeper
(*Paroreomyza maculata*)

Current Classification: E

Recommendation resulting from the 5-Year Review:

- Downlist to Threatened
- Uplist to Endangered
- Delist
- No change needed

Appropriate Listing/Reclassification Priority Number, if applicable: _____

Review Conducted By:

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Approved  Date **AUG 27 2010**
for Field Supervisor, Pacific Islands Fish and Wildlife Office