

Hawai`i Creeper
(*Oreomystis mana*)

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: Hawai`i Creeper (*Oreomystis mana*)

TABLE OF CONTENTS

1.0	GENERAL INFORMATION	3
1.1	Reviewers.....	3
1.2	Methodology used to complete the review:.....	3
1.3	Background:	3
2.0	REVIEW ANALYSIS.....	4
2.1	Application of the 1996 Distinct Population Segment (DPS) policy	4
2.2	Recovery Criteria.....	5
2.3	Updated Information and Current Species Status	7
2.4	Synthesis.....	10
3.0	RESULTS	10
3.1	Recommended Classification:.....	10
3.2	New Recovery Priority Number:	10
3.3	Listing and Reclassification Priority Number:	10
4.0	RECOMMENDATIONS FOR FUTURE ACTIONS.....	11
5.0	REFERENCES.....	12
	Signature Page.....	16

5-YEAR REVIEW

Hawai`i Creeper (*Oreomystis mana*)

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) in 2008. The Revised Recovery Plan for Hawaiian Forest Birds (USFWS 2006) and recent surveys of populations on the Island of Hawai`i (Gorresen *et al.* 2009) provided most of the updated information on the current status of *Oreomystis mana*. The document 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 Federal Register (FR) Notice citation announcing initiation of this review:

USFWS. 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: USFWS. 1975. Endangered and Threatened Wildlife; Listing of Endangered and Threatened Fauna. 40 FR 44149.

Date listed: October 28, 1975

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:

N/A

1.3.4 Review History:

Species status review [FY 2009 Recovery Data Call (September 2009)]:
Stable

Recovery achieved:

2 (26-50%) (FY 2007 Recovery Data Call – most recent year reported)

1.3.5 Species' Recovery Priority Number at start of this 5-year review: 8

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, and viable populations exist in Hāmākua, Kūlanī/Kīlauea/Keauhou, Ka`ū, south Kona, and Pu`u Wa`awa`a/Hualālai.

This criterion has not been met. Some populations are declining and others are not viable.

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 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. Some populations are declining and others are not viable.

3. Sufficient recovery area is protected and managed to achieve criteria 1 and 2 above.

Sufficient recovery area is identified to have protection; however, some areas are not adequately managed.

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

Threats responsible for the decline of Hawai`i Creeper have been identified, but have not been adequately controlled.

A taxon may be delisted when all four of the criteria above have been met for a 30-year period.

2.3 Updated Information and Current Species Status

The Hawai`i creeper is a small Hawaiian honeycreeper 10.8 to 13.0 centimeters in length (4.3 to 5.1 inches) and 13.7 grams (0.48 ounces) average weight (Lepson and Woodworth 2001). It is predominantly olive green on the back and dull greenish-buff below, with a white chin and throat. The brownish-white bill is almost straight, the iris is dark hazel, and the legs and feet are dark brown. Immature birds are paler below, with less contrast between the throat and breast, and they usually have a prominent yellowish-white superciliary line. Field identification is complicated by its similarities in appearance and behavior with the Hawai`i `amakihi (*Hemignathus virens*), Hawai`i `ākepa (*Loxops coccineus coccineus*), and Japanese White-eye (*Zosterops japonicus*) (Scott *et al.* 1979).

At the time of European discovery, each of the six main Hawaiian Islands harbored a small, straight-billed, simple-tongued, insectivorous bird. The Hawai`i creeper was first described as *Himatione mana* by Wilson (1891). Subsequent nomenclature has been problematic (reviewed in Pratt 1992, 2001), and the species has been considered a full species (Perkins 1903), a subspecies of *Paroreomyza bairdi* (Bryan and Greenway 1944) and a subspecies of *Loxops maculata* (Amadon 1950). It is currently classified as *Oreomystis mana* (American Ornithologists Union 1998) following Pratt (1979, 1992), but recent evidence (Olson and James 1995, Fleischer *et al.* 2001) supports its inclusion as a full species in the genus *Loxops*.

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:

Based on analysis of variable circular plot point count data from the 1980s to the present, the total population of Hawai'i creeper in 2009 was approximately 14,000 birds distributed in five wild populations (Gorresen *et al.* 2009, p. 135). Density is increasing in Hakalau Forest National Wildlife Refuge, possibly stable in upper Ka`ū, likely decreasing in central windward Hawai'i Island, and the species has been nearly extirpated from Hualālai and central Kona (Gorresen *et al.* 2009, p. 135).

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 historical range (e.g. corrections to the historical range, change in distribution of the species within its historical range, etc.):

In the 1890s, Hawai'i creepers were found in `ōhi`a and `ōhi`a/koa forests throughout the island of Hawai'i, usually above 1,070 meters (3,600 feet; Perkins 1903) above sea level (asl). Creepers were recorded in the Kona and Ka`ū districts as well as the forests above Hilo. Perkins noted that they were very abundant and widely distributed but had puzzling gaps in their distribution, especially at lower elevations. In general, the creeper's decline was not well documented, perhaps in part due to difficulties of field identification (Scott *et al.* 1979). However, a drastic decline in numbers in Hawai'i Volcanoes National Park during the 1930s and 1940s was noted, and the species had virtually disappeared from the park by about 1960 (Conant 1975, Banko and Banko 1980).

As of 1979, the Hawai'i creeper was confined to four disjunct populations in wet and mesic forests, primarily above 1,500

meters (5,000 feet) asl (Scott *et al.* 1986). Two populations near Kona totaled only about 300 birds, and a third, near Ka`ū, consisted of about 2,100 birds. The Hāmākua coast on the windward side of Mauna Kea, where $10,000 \pm 1,200$ birds resided at that time, supports the largest remaining population of Hawai`i creepers (Scott *et al.* 1986). A population recorded on Kohala Mountain in 1972 by Van Riper (1982) could not be relocated during the Hawai`i Forest Bird Survey in the early 1980s (Scott *et al.* 1986).

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

See 2.3 above.

2.3.1.7 Other:

See 2.3 above.

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

Habitat loss and modification, avian disease, and predation by introduced mammals are thought to have caused the Hawai`i creeper to become endangered, and these factors continue to limit the Hawai`i creeper today.

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

Modification and loss of habitat, avian disease, predation by introduced mammals, and competition with introduced birds all probably played a part in the decline of the Hawai`i creeper. Many areas of `ōhi`a-koa forest have been logged or grazed, severely degrading the quality of remaining habitat.

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

Not a limiting factor at this time.

2.3.2.3 Disease or predation:

Hawai`i creepers are rarely found below about 1,500 meters (5,000 feet) asl, probably because of the distribution of mosquitoes that transmit avian malaria and avian pox (Warner

1968, van Riper *et al.* 1986). Nest success rates for Hawai`i creepers are alarmingly low (11 to 50 percent), which may reflect the invasion of their habitat by alien nest predators, particular black rats (*Rattus rattus*). Hawai`i creeper nests may be particularly vulnerable to rat predation because of their proximity to the main trunk of nest trees (Woodworth *et al.* 2001), where rats may be more likely to encounter them.

2.3.2.4 Inadequacy of existing regulatory mechanisms:

Current regulatory mechanisms are adequate: The Hawai`i creeper was federally listed as endangered October 28, 1975 (USFWS 1975), 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 Hawai`i creeper, receive protection under the Migratory Bird Treaty Act (USFWS 2010).

2.3.2.5 Other natural or manmade factors affecting its continued existence:

The Hawai`i creeper is threatened with extinction because of its small total population size and restricted distribution. These characteristics make the species vulnerable to a variety of natural processes, including reduced reproductive vigor caused by inbreeding depression, loss of genetic variability and evolutionary potential over time due to random genetic drift, stochastic fluctuations in population size and sex ratio, and natural disasters such as hurricanes and fires.

Climate change may also pose a threat to the Hawai`i 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

Recent surveys confirm the Hawai`i creeper population is stable overall and is increasing in Hakalau Forest National Wildlife Refuge. However, the Hawai`i creeper is likely decreasing in central windward Hawai`i Island and nearly extirpated from Hualālai and central Kona.

Although the overall population is stable, the species' range is contracting, thus the Hawai'i creeper 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*
- 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

Recovery of the Hawai'i creeper will require protection, management, and restoration of native forests above 4,000 feet (1,300 meters) asl, as well as lower elevation forest areas, and management of threats such as predation and disease. Conservation efforts for the Hawai'i creeper have focused primarily on protection and management of high-elevation native forests. The Hakalau Forest National Wildlife Refuge was established in 1985 primarily to protect and manage habitat for native birds, including the Hawai'i creeper. Much of the refuge has been fenced and efforts are underway to remove feral pigs from the refuge. Planting of koa and other native plants began in the early 1990s, and over 350,000 koa seedlings have been planted thus far. Plans to remove ungulates from the State Kīpāhoehoe Natural Area Reserve and from lands at Honomalino, owned by The Nature Conservancy of Hawai'i, would protect

recovery area that could serve as sites for reintroducing Hawai`i creeper. The recent purchase of the former Kahuku Ranch by the National Park Service will help protect and restore forest habitat adjacent to the Ka`u Hawai`i creeper population.

Research. Research on factors that limit populations of endangered Hawaiian forest birds has been ongoing since the late 1980s. The productivity, recruitment, and survival of the Hawai`i creeper was investigated as part of a larger study by U.S. Geological Survey from 1994 to 1999 (Woodworth *et al.* 2001). Further research is needed to identify the threats that cause geographical variation in density and effectiveness of threats management actions such as feral ungulate removal.

Habitat protection and restoration. The most important component of the recovery strategy for the Hawai`i creeper is protection, management, and restoration of koa/`ōhi`a forests above 1,300 meters (4,000 feet) asl. High elevation forest is of primary importance because it provides the greatest refuge from mosquito-borne diseases, but forests at lower elevation also could be valuable if a means of controlling mosquitoes can be found. To maintain connectivity and allow dispersal among fragmented patches of habitat, cattle should be removed and habitat restoration pursued in several key parcels, such as the Kapāpala Forest Reserve and adjoining lands leased by the state for ranching.

Predator control and avian disease. Control of alien predators, especially rats, has been shown to be an effective method of increasing reproduction and survival in other Hawaiian forest birds (VanderWerf and Smith 2002). The degree of threat from alien rodents may vary among species and locations, and rodent control programs initially should be conducted in an experimental way to document population-level effects on the Hawai`i creeper. Ground-based methods of rodent control using snap traps and diphacinone bait stations have been effective on a small scale, but are labor intensive (Nelson *et al.* 2002). Effective large-scale rodent control likely will require aerial broadcast methods. Implementation of aerial broadcast of diphacinone for rodent control should be actively pursued and supported. Eradication of mosquitoes is not practical with methods currently available, and management for avian disease should focus on reduction of breeding habitat for mosquitoes through drainage of stock ponds, public education/container removal in residential areas, and removal of feral pigs.

Captive propagation and reintroduction. Because the Hawai`i creeper population is relatively large and the threat of extinction is not imminent, recovery may be achieved cost effectively through habitat management; therefore, captive propagation currently is of lower priority than habitat

restoration. In case captive propagation becomes necessary for the Hawai`i creeper, technology has been developed for the collection of wild eggs, artificial incubation of eggs, hand-rearing of chicks, maintenance of adult Hawai`i creepers in captivity, and captive-breeding of the species. Reintroduction of Hawai`i creepers bred in captivity into former habitat (e.g., the Mauna Loa Strip Road in Hawai`i Volcanoes National Park) could be undertaken after appropriate habitat management steps have been taken, and could be expected to speed the process of recolonization and recovery.

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Signature Page
U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of Hawai'i Creeper (*Oreomystis mana*)

Current Classification: E

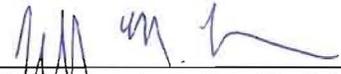
Recommendation resulting from the 5-Year Review:

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

Appropriate Listing/Reclassification Priority Number, if applicable:

Review Conducted By:

Jay T. Nelson, Fish and Wildlife Biologist
Holly Freifeld, Vertebrate Recovery Coordinator
Marilet A. Zablan, Assistant Field Supervisor for Endangered Species
Jeff Newman, Acting Deputy Field Supervisor

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