

5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Abutilon eremitopetalum* (no common name)

Current Classification: Endangered

Federal Register Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2012. Endangered and threatened wildlife and plants; 5-year status reviews of 46 species in Idaho, Oregon, Washington, Nevada, Montana, Hawaii, Guam, and the Northern Mariana Islands. Federal Register 77(44):13248-13251.

Lead Region/Field Office:

Region 1/Pacific Islands Fish and Wildlife Office (PIFWO), Honolulu, Hawaii

Name of Reviewer(s):

Rachel Rounds, Fish and Wildlife Biologist, PIFWO

Maui Nui and Hawaii Island Team Manager, PIFWO

Marie Bruegmann, Plant Recovery Coordinator, PIFWO

Recovery Program Lead, PIFWO

Kristi Young, Programmatic Deputy Field Supervisor, PIFWO

Methodology used to complete this 5-year review:

This review was conducted by staff of the Pacific Islands Fish and Wildlife Office of the U.S. Fish and Wildlife Service (USFWS), beginning on March 6, 2012. The review was based on a review of current, available information since the last 5-year review for *Abutilon eremitopetalum* (USFWS 2010). The evaluation by Rachel Rounds, Fish and Wildlife Biologist, was reviewed by the Island Team Manager and the Plant Recovery Coordinator, followed by the Recovery Program Lead. It was subsequently reviewed and approved by the Programmatic Deputy Field Supervisor.

Background:

For information regarding the species listing history and other facts, please refer to the Fish and Wildlife Service's Environmental Conservation On-line System (ECOS) database for threatened and endangered species (http://ecos.fws.gov/tess_public).

Review Analysis:

Please refer to the previous 5-year review for *Abutilon eremitopetalum* published on August 27, 2010 (available at http://ecos.fws.gov/docs/five_year_review/doc3323.pdf) for a complete review of the species' status, threats, and management efforts. No significant new information regarding the species' biological status has come to light since listing to warrant a change in the Federal listing status of *A. eremitopetalum*.

This long-lived perennial is endangered and occurs on the island of Lanai in a single location (USFWS 1995). The current status and trends for *Abutilon eremitopetalum* are provided in the tables below.

New status information:

In 2012, the single population contained 2 mature wild individuals of *Abutilon eremitopetalum* (Plant Extinction Prevention Program 2013). The number of individuals has decreased from the 12 individuals reported in the previous 5-year review.

New threats:

- Climate change destruction or degradation of habitat – Fortini *et al.* (2013) conducted a landscape-based assessment of climate change vulnerability for native plants of Hawaii using high resolution climate change projections. Climate change vulnerability is defined as the relative inability of a species to display the possible responses necessary for persistence under climate change. The assessment by Fortini *et al.* (2013) concluded that *Abutilon eremitopetalum* is highly vulnerable to the impacts of climate change. Therefore, additional management actions are needed to conserve this taxon into the future.

New management actions:

- Ungulate monitoring and control – The Plant Extinction Prevention Program (2013) inspected the ungulate fence annually, and conducted ungulate control within the enclosure in 2012.
- Invasive plant monitoring and control – Annual weed control is ongoing within the ungulate fence by the Plant Extinction Prevention Program (2013).
- Population viability monitoring and analysis – The Plant Extinction Prevention Program (2013) monitored the single existing population on Lanai.
- Captive propagation for genetic storage and reintroduction
 - The Waimea Valley Arboretum (2013) has 8 individuals in its nursery.
 - The Lyon Arboretum's Seed Conservation Lab (2013) has 23,664 seeds in storage.
 - The Maui Nui Botanical Gardens (2013) had 30 seeds in storage.
 - The National Tropical Botanical Garden (2013) propagated 386 seeds in its nursery and has more than 2,000 seeds in storage.
- Listing and critical habitat designation – One occupied and one unoccupied unit of critical habitat for *A. eremitopetalum* was proposed in the lowland dry ecosystem on Lanai (USFWS 2012). The final rule for critical habitat designations has not been published at the time of this review.

Synthesis:

Stabilizing, downlisting, and delisting objectives are provided in the Lanai plant cluster recovery plan (USFWS 1995), based on whether the species is an annual, a short-lived perennial (fewer than 10 years), or a long-lived perennial. *Abutilon eremitopetalum* is a long-lived perennial, and to be considered stable, the taxon must be managed to control threats (*e.g.*, fenced) and be represented in an *ex situ* (at other than the plant's natural location, such as a nursery or arboretum) collection. In addition, a minimum of three populations should be documented on the island of Lanai. Each of these populations must be naturally reproducing and increasing in number, with a minimum of 25 mature individuals per population.

The interim stabilization goals for this species have not been met (see Table 1), as only one population of two mature individuals exists, and all threats are not being sufficiently managed throughout all of the populations (Table 2). While fencing to exclude browsing ungulates protects the current population, the small genetic base represented with so few individuals makes it extremely vulnerable to extinction from unexpected events such as hurricanes or fires. Therefore, *Abutilon eremitopetalum* meets the definition of endangered as it remains in danger of extinction throughout its range.

Recommendations for Future Actions:

- Ungulate monitoring and control – Maintain fencing to exclude browsing by deer and mouflon sheep.
- Invasive plant monitoring and control – Continue control of invasive introduced plant species within the enclosure.
- Captive propagation for genetic storage and reintroduction
 - Continue collection of genetic resources for storage, propagation, and reintroduction into protected suitable habitat within historical range.
 - Evaluate genetic resources currently in storage to determine the need to place additional genetic resources in long-term storage due to this species’ vulnerability to climate change.
- Threats – predator / herbivore research – Determine what is eating the seed, and what methods will effectively stop seed predation.
- Fire monitoring and control – Develop and implement a fire management plan at the existing enclosure.
- Climate change adaptation strategy – Research the suitability of habitat for reintroducing this species in the future due to the impacts of climate change.
- Alliance and partnership development – Initiate planning and contribute to implementation of ecosystem-level restoration and management to benefit this taxon.

Table 1. Status and trends of *Abutilon eremitopetalum* from listing through current 5-year review.

Date	No. wild indivs	No. outplanted	Stability Criteria identified in Recovery Plan	Stability Criteria Completed?
1991 (listing)	30-70	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 25 mature individuals each	No
1995(recovery plan)	7	0	All threats managed in all 3 populations	No
			Complete genetic storage	Partially
			3 populations with 25 mature individuals each	No
2003 (critical habitat)	7	0	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 25 mature individuals each	No
2008 (5-yr review)	25	0	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 25 mature individuals each	No
2012(critical habitat - proposed)	23	0	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 25 mature individuals each	No
2014 (5-yr review)	2	0	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 25 mature individuals each	No

Table 2. Threats to *Abutilon eremitopetalum* and ongoing conservation efforts.

Threat	Listing factor	Current Status	Conservation/ Management Efforts
Ungulates – degradation of habitat and herbivory	A, C, D, E	Ongoing	Partially, the population was fenced in 2001; historical locations are not protected
Invasive introduced plants	A, E	Ongoing	Partially, weed control occurs at the fenced location
Invertebrate herbivory or predation	C	Ongoing	None
Fire	E	Ongoing	None
Low numbers	E	Ongoing	Partially, captive propagation for genetic storage and reintroduction
Climate change	A, E	Increasing	None

References:

See previous 5-year review for a full list of references (USFWS 2010). Only references for new information are provided below.

Fortini, L., J. Price, J. Jacobi, A. Vorsino, J. Burgett, K. Brinck, F. Amidon, S. Miller, S. Gon II, G. Koob, and E. Paxton. 2013. A landscape-based assessment of climate change vulnerability for all native Hawaiian plants. Technical report HCSU-044. Hawaii Cooperative Studies Unit, University of Hawaii at Hilo, Hawaii. 141 pages.

Harold L. Lyon Arboretum Seed Conservation Laboratory. 2013. Seed storage database. University of Hawaii at Manoa, Honolulu, Hawaii. Unpublished.

Maui Nui Botanical Gardens. 2013. Report on controlled propagation of listed and candidate species, as designated under the U.S. Endangered Species Act. 12 pages. Unpublished.

National Tropical Botanical Garden. 2013. Report on controlled propagation of listed and candidate species, as designated under the U.S. Endangered Species Act. Unpublished.

Plant Extinction Prevention Program. 2013. Plant Extinction Prevention Program annual report, fiscal year 2013 (July 1, 2012-June 30, 2013). 207 pages. Unpublished.

[USFWS] U.S. Fish and Wildlife Service. 1995. Lanai plant cluster recovery plan. U.S. Fish and Wildlife Service, Portland, Oregon. 138 pages.

[USFWS] U.S. Fish and Wildlife Service. 2010. *Abutilon eremitopetalum* 5-year review short form summary. Pacific Islands Fish and Wildlife Office, Honolulu, Hawaii. 6 pages.

[USFWS] U.S. Fish and Wildlife Service. 2012. Endangered and threatened wildlife and plants; listing 38 species on Molokai, Lanai, and Maui as endangered and designating critical habitat on Molokai, Lanai, Maui, and Kahoolawe for 135 species; proposed rule. Federal Register 77(112):34464-34775.

Waimea Valley Arboretum. 2013. Report on controlled propagation of listed and candidate species, as designated under the U.S. Endangered Species Act. Unpublished.

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**SIGNATURE PAGE for 5-YEAR REVIEW of *Abutilon eremitopetalum* (no
common name)**

Pre-1996 DPS listing still considered a listable entity? N/A

Recommendation resulting from the 5-year review:

Delisting
 Reclassify from Endangered to Threatened status
 Reclassify from Threatened to Endangered status
 No Change in listing status

Appropriate Listing/Reclassification Priority Number, if applicable: _____

for **Programmatic Deputy Field Supervisor, Pacific Islands Fish and Wildlife Office**

Maria M. Buegmann

Date 2014-03-11