

5-YEAR REVIEW

Short Form Summary*

Species Reviewed: *Viola helenae* (No common name)

Current Classification: Endangered

FR Notice announcing initiation of this review:

U.S. Fish and Wildlife Service (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(69):18345-18348.

Lead Region/Field Office:

Region 1, Sarah Hall, Chief, Division of Recovery, (503) 231-2071

Pacific Islands Fish and Wildlife Office, Gina Shultz, Assistant Field Supervisor for Endangered Species, (808) 792-9400

Name of Reviewer(s):

Christian Torres-Santana, Pacific Islands Fish and Wildlife Office, Fish and Wildlife Biologist, (808) 792-9400

Marie Bruegmann, Pacific Islands Fish and Wildlife Office, Plant Recovery Coordinator, (808) 792-9400

Marilet A. Zablan, Pacific Islands Fish and Wildlife Office, Recovery Program Leader and Acting Assistant Field Supervisor for Endangered Species, (808) 792-9400

Methodology used to complete this 5-year review:

This review was based on the final critical habitat designation for *Viola helenae* and other species from the island of Kauai. The National Tropical Botanical Garden provided the updated information on the current status of *V. helenae*.

Application of the 1996 Distinct Population Segment (DPS) Policy:

Not applicable.

Review Analysis:

Please refer to the final critical habitat designation for *Viola helenae* published in the Federal Register on February 27, 2003 (68 FR 9116) for a complete five-factor analysis and a discussion of the species' status (including biology and habitat), threats, and management efforts. No significant new information regarding the species' biological status has come to light since this listing to warrant a change in the Federal listing status of *V. helenae*.

Originally listed as federally endangered in 1991 (USFWS 1991), *Viola helenae* is only known from the Wahiawa Mountains of Kauai. From five populations known in 1991, only one or possibly two populations are left. All populations have declined seriously since the early 1990s (Lorance and Flynn 1991; Perlman 2006; Tangalin 2006)

This short form is to be used ONLY when there is no new information, or when the 5-year review is being done concurrent with another range-wide status review (such as a 12-month finding on a delisting petition) that completely addresses all the questions outlined in the standard 5-year review template. Attach a copy of the final 12-month finding or other status review to this form.

Two historical populations were known in 1991 and 1993, located near Wahiawa Stream, one at the gap and the other on the southern side of the stream, below Mount Kahili Peaks; they have not been seen since (Perlman 2006). Currently only two wild populations remain. One is located north of Hulua Gulch, below the Hanapepe Valley rim (Perlman 2006; Tangalin 2006). This population was comprised of 15 mature and ten immature individuals in August of 2004. By February 2005, a landslide occurred at the site, and the population has not been revisited since immediately after that event, when ten seedlings were rescued, and one seed pod was recovered. No other individuals are known to remain, but the population has not been surveyed since 2005. The landslide opened the forest canopy to let in more sun, which may stress or kill these very light-sensitive plants (N. Tangalin, National Tropical Botanical Garden, pers. comm. 2006). A second population occurs on a ridge between Wahiawa and Hanapepe at a higher elevation off the main gulch (Perlman 2006). The second population was also visited in February, 2005, and was comprised of five mature and two immature individuals. These two small populations are not within pollination range of each other, and the second population appears to be sterile (N. Tangalin, pers. comm. 2006). *Viola helenae* is currently in cultivation at Harold L. Lyon Arboretum Micropropagation Laboratory (Harold L. Lyon Arboretum 2006).

The major threats to *Viola helenae* are habitat degradation and browsing by feral pigs (*Sus scrofa*) (Factors A, C, and D); habitat degradation by and competition with introduced invasive plant species *Rubus rosifolius*, (thimbleberry), *Psidium cattleianum* (strawberry guava), *Clidemia hirta* var. *hirta* (Koster's curse), *Melastoma candidum* (no common name), *Pterolepis glomerata* (no common name), *Juncus planifolius* (bog rush), *Rhodomyrtus tomentosa* (rose myrtle), *Paspalum urvillei* (vasey grass), *Setaria gracilis* (yellow or perennial foxtail), *Paspalum conjugatum* (Hilo grass), *Oplismenus hirtellus* (basketgrass), *Sacciolepis indica* (Glenwood grass), *Melaleuca quinquenervia* (paperbark), and *Stachytarpheta dichotoma* (owi) (Factor E); risk of extinction from stochastic events such as landslides and other erosion, hurricanes and reduced reproductive vigor due to the small number of wild individuals (Factor E) (USFWS 1991 and 1994; 68 FR 9116; Tangalin 2006; Perlman 2006).

Stabilizing, downlisting, and delisting objectives are provided in the recovery plan for Wahiawa plants (USFWS 1994). In order for *Viola helenae* to be considered stable, existing populations must be free of competition with introduced invasive plant species and protected from feral pigs and seed predators. The individuals must be able to complete their entire life cycle within the area. To meet this objective, the species must be managed to control threats (*e.g.*, fenced and introduced invasive plant species controlled) and as many genotypes as possible from within populations must be collected and backed up in genetic storage as well as growing in safe localities (off-site) (USFWS 1994).

The stabilization goals for this species have not been met (see Table 1). Therefore, *Viola helenae* meets the definition of endangered as it remains in danger of extinction throughout its range.

Recommendations for Future Actions:

- Search for new populations of *Viola heleana*, and regularly visit the sites where the species formerly grew to search for any seedlings that might germinate at the sites from a seedbank.
- Control introduced invasive plant species around the remaining population.
- Fence the remaining population to control ungulates.
- Find the most effective propagation method, and best horticultural techniques for growing this species.
- Study new or reintroduced *Viola helenae* populations with regard to population size and structure, geographical distribution, flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, limiting factors, and threats.
- Develop a plan for conserving the species' genetic diversity in *ex situ* collections and in reintroduced populations.

References:

Harold L. Lyon Arboretum Micropropagation Laboratory. 2006. Report on controlled propagation of species, as designated under the U.S. Endangered Species Act. Unpublished.

Perlman, S. 2006. National Tropical Botanical Garden summary of field notes for *Viola helenae* from 3/24/1991 to 2/24/2005. Unpublished.

Tangalin, N. 2006. Report on *Viola helenae*, submitted to Conservation Department, National Tropical Botanic Garden, June 2, 2006. Unpublished.

[68 FR 9116] U. S. Fish and Wildlife Service. 2003 . Endangered and threatened wildlife and plants; final designation or nondesignation of critical habitat for 95 plant species from the islands of Kauai and Niihau, HI; final rule. Federal Register 68(39):9116-9479.

[USFWS] U.S. Fish and Wildlife Service. 1994. Recovery plan for the Wahiawa plant cluster: *Cyanea undulata*, *Dubautia pauciflorula*, *Hesperommania lydgatei*, *Labordia lydgatei* and *Viola helenae*. U.S. Fish and Wildlife Service, Portland, Oregon. 51 pages + appendices.

[USFWS] U.S. Fish and Wildlife Service. 1991. Endangered and threatened wildlife and plants; determination of endangered status for five plants from the Wahiawa Drainage Basin; final rule. Federal Register 59(183):47695-47700.

Personal Communication:

Tangalin, Natalia. 2006. Field Botanist, National Tropical Botanical Garden, June 8 and 20, 2006.

Table 1. Status of *Viola helenae* from listing through 5-year review.

Date	No. wild inds	No. outplanted	Stability Criteria	Stability Criteria Completed?
1991 – listing	13	0	Free of introduced invasive plant species	No
			Protected from feral pigs	No
			Protected from seed predators	No
			Complete life cycles within its range	No
			Complete genetic storage	No
1994 – recovery plan	137	0	Free of introduced invasive plant species	No
			Protected from feral pigs	No
			Protected from seed predators	No
			Complete life cycles within its range	Partially
			Complete genetic storage	No
2003 – critical habitat	137	Unknown	Free of introduced invasive plant species	No
			Protected from feral pigs	No
			Protected from seed predators	No
			Complete life cycles within its range	Partially
			Complete genetic storage	No
2007 – 5-yr review	7	0	Free of introduced invasive plant species	No
			Protected from feral pigs	No
			Protected from seed predators	No

Date	No. wild inds	No. outplanted	Stability Criteria	Stability Criteria Completed?
			Complete life cycles within its range	Partially
			Complete genetic storage	Partially

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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

Lead Field Supervisor, Fish and Wildlife Service

Approve Patricia [Signature]

Date 1/18/08