

gardenia) to be an endangered species under the authority of the Endangered Species Act of 1973, as amended. This plant occurs in the wild on Lanai (about 6 plants), Molokai (2 plants), and Oahu (a single plant), but is now believed to be extinct on Hawaii and Maui. This species is vulnerable to any substantial habitat alteration and faces the potential threats of grazing and browsing by domestic and feral animals, fire, soil erosion, introduced insect pests, rodent predation, competition from exotic plants, and potential development on and/or near the sites where it occurs. This determination that *Gardenia brighamii* is an endangered species implements the protection provided by the Endangered Species Act of 1973, as amended. The Service further withdraws its proposal to designate critical habitat for this species.

**DATE:** The effective date of this rule is September 20, 1985.

**ADDRESS:** The complete file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Lloyd 500 Building, 500 NE Multnomah Street, Suite 1692, Portland, Oregon 97232.

**FOR FURTHER INFORMATION CONTACT:** Mr. Wayne S. White, Chief, Division of Endangered Species, at the above address (503/231-6131 or FTS 429-6131).

**SUPPLEMENTARY INFORMATION:**

**Background**

Past collections and field notes on *Gardenia brighamii* indicate that it once grew on the islands of Hawaii and Maui, where it is not known to be extant in the wild today. The species was first collected in 1864-65 by Horace Mann and William Brigham, and was formally described by Mann in 1867. It still occurs on Lanai (about 6 plants) and Molokai (2 plants), as well as on Oahu, where a single plant remains in the wild. The current habitat has been severely degraded and altered by grazing and browsing animals (e.g., domestic cattle and feral goats, respectively). The invasion of exotic plants such as *Lantana camara*, *Leucaena leucocephala*, *Schinus terebinthifolius*, and various grass species crowds out the remaining dry forest and shades out any seedlings that may have survived rat predation on the fruits. The remaining habitats on Lanai and Molokai are found on marginal land used for grazing.

*Gardenia brighamii* was a distinctive element of the lowland dry forest. It is a tree growing 20 to 30 feet in height, with a smooth trunk 6 to 12 inches or more in

diameter and a spreading canopy of shiny dark-green leaves. The white to cream-colored flowers are 1 to 2 inches long and very fragrant, and resemble the Tahitian gardenia (*G. taitensis*) in shape.

Section 12 of the Endangered Species Act of 1973 (Act) directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975. On July 1, 1975, the Service published a notice in the **Federal Register** (40 CFR 27823) of its acceptance of this report as a petition within the context of section 4(c)(2) of the Act (petition acceptance is now governed by section 4(b)(3) of the Act, as amended), and of its intention to review the status of the plant taxa named within. On June 16, 1976, the Service published a proposed rule in the **Federal Register** (41 FR 24523) to determine approximately 1,700 vascular plant taxa to be endangered species. This list was assembled on the basis of comments and data received by the Smithsonian Institution and the Service in response to House Document No. 94-51 and the July 1, 1975, **Federal Register** publication. *Gardenia brighamii* was included in the July 1, 1975, notice and the June 16, 1976, proposal. General comments on the 1976 proposal were summarized in an April 26, 1978, **Federal Register** publication (43 FR 17909).

The Endangered Species Act Amendments of 1978 required that all proposals over 2 years old be withdrawn. A 1-year grace period was given to those proposals already more than 2 years old. Subsequently, on December 10, 1979, the Service published a notice of the withdrawal of the portion of the June 16, 1976, proposal that had not been made final, along with other proposals that had expired (44 FR 70796); this notice of withdrawal included *Gardenia brighamii*. The Service published an updated notice of review on December 15, 1980 (45 FR 82480), which included *Gardenia brighamii*. A reproposal was published on October 12, 1984 (49 FR 40058), based on information available at the time of the 1976 proposal and information gathered after that time and summarized in a detailed status report prepared under contract by a University of Hawaii botanist (Gagne 1982). The Service now determines *Gardenia brighamii* to be an endangered species with the publication of this final rule.

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**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for *Gardenia brighamii* (Na'u or Hawaiian Gardenia) and Withdrawal of Proposed Designation of Critical Habitat**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Final rule.

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**SUMMARY:** The Service determines *Gardenia brighamii* (na'u or Hawaiian

### Summary of Comments and Recommendations

In the October 12, 1984, proposed rule (49 FR 40058) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate State agencies, the county government, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice that invited general public comment was published in the *Honolulu Advertiser* on December 7, 1984. Five comments were received and are summarized and discussed below.

The Hawaii State Department of Land and Natural Resources, Division of Forestry and Wildlife, supported the listing of *Gardenia brighamii* as an endangered species because of the low population numbers, the deterioration of its habitat, and the need for more protection of this species. The Division stated that its office is aware of three individuals on Lanai and two on Molokai, which have not been visited for several years and may no longer be alive; it had no information on the Oahu plant. The Division believes that the 685 acres proposed for critical habitat is too large an area to set aside for a single purpose, and may cause problems for the landowner. It recommended that alternate land uses, compatible with the survival of the tree, should be explored, as more than just the designation of critical habitat will be required to save this species.

A member of the Friends of the Maui Botanical Garden concurred that *Gardenia brighamii* should be listed as endangered. He also supported the designation of critical habitat. Because the trees need to be protected from exotic grasses and shrubs, and deer need to be fenced out, he commented that 685 acres would be too large an area to manage effectively. He suggested that a permanent botanical worker be hired to oversee and protect the endangered species in Hawaii.

Castle & Cooke, Inc. (C&C), owner of the land on Lanai that had been proposed as critical habitat, opposed the listing of *Gardenia brighamii* as an endangered species, although it stated that it is sensitive to the efforts to protect the species and will fully cooperate with conservation actions by Federal and State agencies should the species be listed. One of the main concerns of C&C is the impact that designating critical habitat would have upon its long-term land management plans. C&C noted that Betsy H. Gagne,

in the status report she compiled on the gardenia, reported that Kenepu'u . . . population occurs within an area of only about 275 acres. Since her report, other plants have been located in remote areas of Lanai that are not contiguous with the proposed critical habitat. C&C believes that the proposed critical habitat is excessive, and, as it does not embrace all of the plants, questions the need for it. C&C continued, " . . . we feel that the designation of a critical habitat for *G. brighamii* will cause more harm to the species by calling attention to the species. We have observed that often a greater damage results from well-meaning parties collecting plants with the intention of protecting the species by cultivation and propagation . . ." Also, C&C questioned the accuracy of the species census and noted that the species is in cultivation in botanical gardens and has been offered for sale in plant sales.

The single individual plant known from Oahu occurs on land owned by the Campbell Estate and leased to the Tongg Ranch. Neither the owner nor the lessee provided recommendations or additional information in their letters.

In response to the comment on the accuracy of the census of the Lanai population, it appears that the original estimate of ten was high. Three plants are presently known from the Kanepu'u area and an additional three recently were discovered on the north and west slopes of Lana'ihale, making a total of six trees on that island. A re-estimate of the patchy remnants of dry forest at Kanepu'u also was undertaken. Two of the three trees of this area are in a 330-acre forested area; the other is in a 48-acre forested patch.

In response to the comment on cultivated plants and plants offered for sale, one of the purposes of the Act is to conserve the ecosystems which sustain endangered species. Cultivated plants do not aid in the conservation of native habitat, nor do they normally represent an adequate diverse sample of the gene pool of a species. Their value is as a backup resource for the wild population. The presence of the species in private gardens and the fact that it has been sold at plant sales in the past indicate that the species has potential ornamental value. This may be an added threat to its existence, as the collection of cuttings may damage the few remaining wild trees and the collection of seed may prevent reproduction in native populations.

In response to the question of critical habitat, the Service has considered the three that commented on critical habitat and has reconsidered its proposal to

designate critical habitat for *Gardenia brighamii*. The proposed critical habitat consisted of 685 acres in the Kanepu'u area of Lanai. The proposed critical habitat comprises a remnant of native forest; eroded, laterized areas; and areas vegetated with introduced grasses, shrubs, and trees. Only two of the six known gardenia trees on Lanai are now known to be within the boundary of the proposed critical habitat; a third is in another patch of native dry forest about a half mile away, while the remaining three trees are on other parts of the island. To designate the proposed area as critical habitat would not reflect the habitat needs of the plant. The area proposed for designation exceeds that which could be justified as critical habitat for the two trees it contains. However, any more narrowly delimited designation for these or other individuals of the species would expose them to an increased threat of collection or vandalism. Given the negligible increment of protection for the species that would be provided by such designation, the Service no longer believes it prudent to designate critical habitat for this species. Because *Gardenia brighamii* is presently in cultivation, and young plants have been sold in the past, the Service believes there is an interest in and a market for the species. The fact that there are documented acts of vandalism against plants in Hawaii and other parts of the United States further supports the inappropriateness of designating critical habitat in this case (see "Critical Habitat" section below).

### Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Gardenia brighamii* should be determined to be an endangered species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (codified at 50 CFR Part 424) were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Gardenia brighamii* Mann (na'u or Hawaiian gardenia) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* This species once grew on five of the Hawaiian Islands, where, at least on the island of Molokai, it was a fairly common component of

the native dryland forests. Today it still occurs on the islands of Lanai (about 6 plants), Molokai (2 plants), and Oahu (1 plant). It is now believed extinct on Hawaii and Maui. Grazing and browsing by domestic and feral animals and the invasion of exotic shrubs, forbs, and grasses have caused severe degradation of its habitat. Urbanization, pineapple fields (on Lanai and Molokai), sugar cane fields (on Oahu and Maui), and pastures (on Oahu, Maui, and Hawaii) have replaced most of the dryland forests in Hawaii. The Molokai population grows at the edge of an erosion gully; several trees were lost recently when the gully walls collapsed during winter storms. Further grazing and browsing by domestic and feral animals, further invasion and spread of exotic plants, potential urbanization or development, and, as the plants grow in dry parts of the islands, the continual possibility of fires, are all existing threats to the future survival of the species.

**B. Overutilization for commercial, recreational, scientific, or educational purposes.** Although the species has apparently not been adversely affected by collecting in the past, it is potentially an attractive garden subject. Because of the extremely low number of remaining individuals, any further horticultural collecting could jeopardize the species.

**C. Disease or predation.** The introduced black twig borer, *Xylosandrus compactus* (Scolytidae), attacks terminal shoots and has severely affected the one wild tree on Oahu. Rats appear to gnaw the fruit while it is still on the tree, severely reducing the chances of successful regeneration. The full impact of grazing remains to be determined.

**D. The inadequacy of existing regulatory mechanisms.** No regulatory mechanisms exist at the present time. Federal listing would automatically invoke listing under Hawaii State law, which prohibits taking and encourages conservation by State government agencies.

**E. Other natural or man made factors affecting its continued existence.** The number of plants of this species has been greatly reduced due to factors enumerated above. Further reduction of the breeding population (gene pool) may have adverse effects of the reproductive capacity and survival of this species.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the species in determining to make this rule final. Based on this evaluation, the

perferred action is to list *Gardenia brighamii* as endangered. Due to the low number of extant trees and the threats posed to the species, threatened status is not appropriate. The designation of critical habitat is discussed below.

#### Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. Critical habitat is not being designated for *Gardenia brighamii*, as it is believed to be neither prudent nor beneficial to the species to do so. Due to the additional information provided during the open comment period (see "Summary of Comments and Recommendations" section, above), the area proposed as critical habitat would not accurately reflect the habitat requirements of the species. Any reduction or further refinement of the area to be designated might threaten the plant with taking, an activity difficult to enforce against and not regulated by the Endangered Species Act with respect to plants, except for a prohibition against removal and reduction to possession of endangered plants from areas under Federal jurisdiction. Publication of critical habitat descriptions would make this species more vulnerable and increase enforcement problems. Therefore, it would not be prudent to determine critical habitat for *Gardenia brighamii* at this time. The proposed designation of critical habitat for this species is therefore withdrawn.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its

critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402, and are now under revision (see proposal at 48 FR 29990; June 29, 1983). Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species, or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species, the responsible Federal agency must enter into formal consultation with the Service. Currently, no Federal involvement is known to exist with regard to *Gardenia brighamii*.

The only known potential action that may be affected by the listing is the casual use of the Kanepu'u area. Federal listing automatically results in similar listing by the State and, therefore, enforcement of the State's own regulations comes into effect. These regulations may limit casual use by prohibiting the taking of the plants. Take, in the State law, is defined as picking or otherwise damaging the plants. Voluntary or mandatory protection of this species and its habitat will require cooperation among the land owners, Castle & Cooke, Inc., the State of Hawaii, the County of Maui, and the U.S. Fish and Wildlife Service.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general trade prohibitions and exceptions that apply to all endangered plant species. With respect to *Gardenia brighamii*, all trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, or sell or offer for sale this species in interstate or foreign commerce. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances. No interstate or foreign trade in this species is known, although it has been sold locally. It is anticipated that few trade permits involving *Gardenia brighamii* would ever be sought or issued since the species is not common in cultivation or in the wild.

Section 9(a)(2)(B) of the Act, as amended in 1982, prohibits the removal

and reduction to possession of endangered plant species from areas under Federal jurisdiction. This prohibition is not expected to be significant for *Gardenia brighamii*, since all of the known plants are on private property. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Federal Wildlife Permit Office, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (703/235-1903).

**National Environmental Policy Act**

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

**Literature Cited**

Footo, D.E., E.L. Hill, S. Nakamura, and F. Stephens. 1972. Soil survey of the islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. U.S. Dept. of Agriculture, Soil Conservation Service: Washington, D.C. 232 pp., 130 maps.  
 Gagne, B.H. 1982. Status report of *Gardenia brighamii*. Research Corporation of the University of Hawaii, under contract 14-16-0001-79096 to the U.S. Fish and Wildlife Service. 42 pp.  
 Spence, G., and S.L. Montgomery. 1976. Ecology of the dry land forest of Kanepu'u, island of Lanai. Newsletter, Hawaiian Bot. Soc. 15(4): 62-80.

**Author**

The primary author of this final rule is Dr. Derral Herbst, U.S. Fish and Wildlife Service, P.O. Box 50167, Honolulu, Hawaii 96850 (808/546-7530).

**List of Subjects in 50 CFR Part 17**

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

**Regulations Promulgation**

**PART 17—[AMENDED]**

Accordingly, Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for Part 17 reads as follows:

**Authority:** Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. Amend § 17.12(h) by adding the following in alphabetical order under the family Rubiaceae, to the list of Endangered and Threatened Plants:

**§ 17.12 Endangered and threatened plants.**

\* \* \* \* \*  
 (h) \* \* \*

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Rubiaceae—Coffee family: <i>Gardenia brighamii</i>	Na'u (Hawaiian gardenia)	U.S.A. (HI)	E	195	NA	NA

Dated: August 8, 1985.  
**P. Daniel Smith,**  
*Acting Deputy Assistant Secretary for Fish and Wildlife and Parks.*  
 [FR Doc. 85-19909 Filed 8-20-85; 8:45 am]  
**BILLING CODE 4310-55-M**