

50 CFR Part 17**Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for *Cyathea Dryopteroides* and *Ilex Cookii***

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines two plants, *Cyathea dryopteroides* and *Ilex cookii*, to be endangered species pursuant to the Endangered Species Act (Act) of 1973, as amended. These plants are endemic to elfin forests of the Central Cordillera of Puerto Rico at elevations above 1,000 meters (3,280

feet). The species are threatened by construction and expansion of communications facilities and other activities. This final rule will implement the Federal protection and recovery provisions afforded by the Act for *Cyathea dryopteroides* and *Ilex cookii*.

DATES: The effective date of this rule is July 16, 1987.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Caribbean Field Office, U.S. Fish and Wildlife Service, P.O. Box 491, Boqueron, Puerto Rico 00622, and at the Service's Regional Office, Suite 1282, 75 Spring Street, SW, Atlanta, Georgia 30303.

FOR FURTHER INFORMATION CONTACT: Mr. David Densmore at the Caribbean Field Office address (809/851-7297) or Mr. Richard P. Ingram at the Atlanta Regional Office address (404/331-3583 or FTS 242-3583).

SUPPLEMENTARY INFORMATION:

Background

Cyathea dryopteroides was first collected by Britton and Brown on Monte Cerrote in 1915, by Sargent on Monte Jayuya in 1943, and by Woodbury on Monte Guilarte in the late 1960's (Vivaldi *et al.* 1981a). The species has not been collected at any other sites. The Monte Cerrote population has since been eliminated, and only a small population of approximately 10 plants remains on Monte Guilarte. The largest population, consisting of more than 60 individuals, exists on Monte Jayuya.

Cyathea dryopteroides is a small ("dwarf") tree fern reaching 24 inches (60 centimeters) in height, with a trunk approximately 1 inch (2-3 centimeters) in diameter, and bipinnate, nearly hairless fronds up to 36 inches (90 centimeters) long and 10 inches (25 centimeters) wide. Although the species has always been considered distinct, it has been alternately placed in the genera *Cyathea* and *Alsophila*, depending upon the relative importance placed on various morphologic characters. The designation here as *Cyathea* is based on the most recent classification of the ferns of Puerto Rico (Proctor 1986). The species is endemic to the elfin forests of the Central Cordillera of Puerto Rico and is presently known from populations on two peaks approximately 12 miles (20 kilometers) apart, Monte Guilarte and Monte Jayuya. Both sites are within units of the Commonwealth Forest System (Monte Guilarte and Toro Negro).

Ilex cookii was discovered in 1926 by H.A. Gleason and M.T. Cook during what was probably the first botanical

exploration of the highest mountain in Puerto Rico, Cerro de Punta (4,402 feet or 1,338 meters). Subsequently, the species was found a little more than 1 mile (2 kilometers) to the east on Monte Jayuya (Vivaldi *et al.* 1981b). At present, only a single 15 foot (4.8 meter) tree with 4 small root sprouts is known from Cerro de Punta, and several (up to 30) sprouts or seedlings less than 24 inches (60 centimeters) tall are known to be scattered along the ridgetops of Monte Jayuya.

Ilex cookii is an evergreen shrub or small tree with light brown bark, hairless green twigs, and alternate elliptic leaves which are leathery, entire, shiny dark green on the upper surface, and pointed at the apex. The female flowers are small and white, and the fruits are drupes. Like *Cyathea dryopteroides*, *Ilex cookii* is endemic to the elfin forests of the Central Cordillera, but the species has only been found near the summits of Cerro de Punta and Monte Jayuya, both of which are within the Toro Negro Commonwealth Forest.

Both *Cyathea dryopteroides* and *Ilex cookii* occur at the highest elevations in Puerto Rico, where temperatures as low as 4 degrees centigrade have been recorded, and rainfall exceeds evapotranspiration throughout the year. The vegetation of these areas is variously termed elfin, dwarf, or cloud forest (Howard 1968, Ewel and Whitmore 1973), and is physiognomically analogous to similarly named forests elsewhere in the montane tropics. Within this vegetation type, *Ilex cookii* occurs on more exposed ridges at or below canopy height, while *Cyathea dryopteroides* is generally a component of the ground cover within nearly monotypic stands of sierra palm (*Prestoea montana*).

The montane forests of central Puerto Rico have been subjected to increased human disturbance in recent years with the construction of roads and installation of communications facilities on the highest peaks. Although the sites of concern are on lands owned by the Commonwealth of Puerto Rico and managed as part of the Commonwealth Forest System, the summits of Monte Guilarte, Cerro de Punta, and Monte Jayuya, in addition to some adjacent peaks and ridges, have been cleared for construction after being leased to communications companies. At one site (Monte Jayuya), clearing of the summit destroyed what was once thought to be the only population of *Cyathea dryopteroides*, which consisted of more than 100 plants (Vivaldi *et al.* 1981a). More recently, these forests have been used as military training areas, resulting

in additional disturbance to the relatively fragile vegetation.

Cyathea dryopteroides and *Ilex cookii* were recommended for Federal listing by the Smithsonian Institution (Ayensu and DeFilipps 1978). Both species were included among the plants being considered as endangered or threatened species by the Fish and Wildlife Service, as published in the Federal Register (45 FR 82480) dated December 15, 1980. Both species were designated category 1 (species for which the Service has substantial information supporting the appropriateness of proposing to list them as endangered or threatened), and both were retained in category 1 in the November 28, 1983, update (48 FR 53640) of the 1980 notice, and the September 27, 1985, revised notice (50 FR 39526).

In a notice published in the Federal Register on February 15, 1983 (48 FR 6752), the Service reported the earlier acceptance of the new taxa in the Smithsonian's 1978 book as under petition within the context of section 4(b)(3)(A) of the Act, as amended in 1982. The Service subsequently found on October 13, 1983, October 12, 1984, and October 11, 1985, that listing *Cyathea dryopteroides* and *Ilex cookii* was warranted but precluded by other pending listing actions, in accordance with section 4(b)(3)(B)(iii) of the Act. The Service proposed listing *Cyathea dryopteroides* and *Ilex cookii* on September 25, 1986 (51 FR 34103).

Summary of Comments and Recommendations

In the September 25, 1986, proposed rule 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 agencies of the Commonwealth of Puerto Rico, municipal governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice inviting general public comment was published in *The San Juan Star* on October 19, 1986. A public hearing was neither requested nor held. Three letters of comment were received from the Secretary of the Puerto Rico Department of Natural Resources, the Forest Supervisor of the Caribbean National Forest (U.S. Forest Service), and an administrator of the U.S. Army Corps of Engineers (Jacksonville District Office). The Department of Natural Resources letter supported the proposed listing of *Cyathea dryopteroides* and *Ilex cookii*, while the Forest Service acknowledged the proposal and added that its personnel would look for these

species when conducting surveys of rare plants in similar habitats within the Caribbean National Forest. The Corps of Engineers acknowledged the proposal and stated that no actions proposed or under consideration by the Corps would affect the species.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Cyathea dryopteroides* and *Ilex cookii* should be classified as endangered species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR Part 424) promulgated to implement the listing provisions of the Act 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 *Cyathea dryopteroides* Maxon (elfin tree fern) and *Ilex cookii* Britton & Wilson (Cook's holly) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* Modification of habitat or direct destruction of plants through deforestation, selective cutting, or trampling appear to be the most serious threats to both *Cyathea dryopteroides* and *Ilex cookii*. A significant proportion of the total number of known plants of *Cyathea dryopteroides* was destroyed by construction of a single communications installation on Monte Jayuya. It is likely that individuals of *Ilex cookii* were lost when a similar facility was constructed on Cerro de Punta. Construction of new facilities or expansion of existing ones would affect surviving populations of *Cyathea dryopteroides*, and could lead to the extinction of *Ilex cookii*. In addition, the original construction of Road 143 through the Toro Negro forest undoubtedly affected populations of both species, and the remaining plants in this area are close enough to the road that significant roadwork or the indirect effects of such work (i.e., slope instability) could further reduce their numbers. Finally, repeated trampling or clearing of ground cover during the military training maneuvers which are planned for the general area could adversely modify habitat and cause the direct loss of some plants. Proper planning for both the road construction and military maneuvers will need to include provisions to provide for the survival of these two plants.

B. *Overutilization for commercial, recreational, scientific, or educational*

purposes. Taking for commercial or recreational purposes could become a threat to these two plants, particularly *Cyathea dryopteroides*. Both species are attractive and can be perceived as having ornamental value, and considerable commercial trade in fern species exists. All species of the family Cyatheaceae are listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

C. *Disease or predation.* Disease and predation have not been documented as factors in the decline of these species.

D. *The inadequacy of existing regulatory mechanisms.* The Commonwealth of Puerto Rico has recently adopted a regulation that recognizes and provides protection for certain Commonwealth listed species. However, *Cyathea dryopteroides* and *Ilex cookii* are not yet on the Commonwealth list. Federal listing would provide interim protection and enhance their protection and possibilities for recovery. The listing of *Cyathea dryopteroides* in Appendix II of CITES provides little protection beyond some regulation of international trade.

E. *Other natural or manmade factors affecting its continued existence.* The known populations of *Cyathea dryopteroides* and *Ilex cookii* are confined to geographically small areas and specialized habitats; thus they are more susceptible to natural disturbances, such as hurricanes or landslides. *Ilex cookii* is believed to be dioecious (male and female flowers occur on separate plants), and therefore dependent upon the existence of both male and female plants in close proximity to each other. The fact that male flowers and ripe fruit have never been observed suggests that production of viable seed rarely occurs.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these species in determining to make this rule final. Based on this evaluation, the preferred action is to list *Cyathea dryopteroides* and *Ilex cookii* as endangered. Since there are few individuals remaining and a continuing risk of damage to the plants and/or their habitat, endangered status is believed to be an accurate assessment of the species' condition. It is not prudent to designate critical habitat because doing so would increase the risk to each species, as detailed 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 the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for these species at this time. As discussed under threat factor "B" above, *Cyathea dryopteroides* and *Ilex cookii* may be threatened by collecting (other species of *Cyathea* are endangered for this reason), an activity regulated by the Endangered Species Act with respect to plants only on lands under Federal jurisdiction. Publication of a critical habitat maps would increase the risk of taking or vandalism. The small size of the populations and their close proximity to principal roads and human habitations exacerbate this risk. All involved parties and landowners have been notified of the location and importance of protecting these species' habitat. Protection of these species' habitat will be addressed through the recovery process and through the section 7 jeopardy standard. Thus, determination of critical habitat for *Cyathea dryopteroides* and *Ilex cookii* would not be prudent at this time.

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, Commonwealth, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the Commonwealth 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 collecting 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. 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 such a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the

responsible Federal agency must enter into formal consultation with the Service. No critical habitat is being designated for either *Cyathea dryopteroides* or *Ilex cookii*, as discussed above. Federal involvement exists with regard to the aforementioned road construction and maintenance (Federal Highway Administration) and military maneuvers (U.S. Army) (see discussion under Factor A. of the "Summary of Factors" section). Through careful planning, adverse impacts to these two species can be minimized.

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 plants. With respect to *Cyathea dryopteroides* and *Ilex cookii*, 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 these plants, transport them in interstate or foreign commerce in the course of a commercial activity, sell or offer them for sale in interstate or foreign commerce, or remove them from areas under Federal jurisdiction and reduce them to possession. Certain exceptions can apply to agents of the Service and Commonwealth 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 plant species under certain circumstances. Although there may be some horticultural interest in *Cyathea dryopteroides*, it is

anticipated that few trade permits would ever be sought or issued since neither species is known to be in cultivation and both are uncommon in the wild. 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, DC 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 reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

References Cited

Ayensu, E.S., and R.A. DeFilippis. 1978. Endangered and Threatened Plants of the United States. Smithsonian Institution and World Wildlife Fund, Washington, DC xv + 403 pp.
 Ewel, J.J., and J.L. Whitmore. 1973. The ecological life zones of Puerto Rico and the U.S. Virgin Islands. USDA-Forest Service. Res. Pap. ITF-18. 72 pp.
 Howard, R.A. 1968. The ecology of an elfin forest in Puerto Rico. 1. Introduction and composition studies. J. Arnold Arboretum 49(4): 381-418.
 Proctor, C.R. 1986. Ferns of Puerto Rico and the Virgin Islands. New York Botanical Garden (In Press).
 Vivaldi, J.L., R.O. Woodbury, and H. Diaz-Soltero. 1981a. Status report on *Alsophila*

dryopteroides (Maxon) Tryon. Unpublished status report submitted to the U.S. Fish and Wildlife Service, Atlanta, Georgia. 41 pp.
 Vivaldi, J.L., R.O. Woodbury, and H. Diaz-Soltero. 1981b. Status report on *Ilex cookii* Britton & Wilson. Unpublished status report submitted to the U.S. Fish and Wildlife Service, Atlanta, Georgia. 44 pp.

Author

The primary author of this final rule is Mr. David Densmore, Caribbean Field Office, U.S. Fish and Wildlife Service, P.O. Box 491, Boqueron, Puerto Rico 00622 (809/851-7297).

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 continues to read 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 families indicated, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

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Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Aquifoliaceae—Holly family:						
<i>Ilex cookii</i>	Cook's holly	U.S.A. (PR)	E	277	NA	NA
Cyatheaceae—Tree-fern family:						
<i>Cyathea dryopteroides</i>	Elfin tree fern	U.S.A. (PR)	E	277	NA	NA

Dated: May 29, 1987.

Susan Recce,

Acting Assistant Secretary for Fish and Wildlife and Parks.

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