

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service****50 CFR Part 17****Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for *Cyathea dryopteroides* and *Ilex cookii*****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Proposed rule.

SUMMARY: The Service proposes to determine two plants, *Cyathea dryopteroides* and *Ilex cookii*, to be endangered species pursuant to the Endangered Species Act (Act) of 1973, as amended. Critical habitat is not proposed. These plants are endemic to elfin forests of the Central Cordillera of Puerto Rico at elevations above 1000 meters (3,280 feet). The species are threatened by construction and expansion of communications facilities and other human activities. This proposal, if made final, would implement the Federal protection and recovery provisions afforded by the Act for *Cyathea dryopteroides* and *Ilex cookii*. The Service seeks data and comments from the public on this proposal.

DATES: Comments from all interested parties must be received by November 24, 1986. Public hearing requests must be received by November 10, 1986.

ADDRESSES: Comments and materials concerning this proposal should be sent to the Field Supervisor, Caribbean Field

Office, U.S. Fish and Wildlife Service, P.O. Box 491, Bonqueron, Puerto Rico 00622. Comments and material received will be available for public inspection, by appointment, at this office during normal business hours, 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 N.L. Britton and S. Brown on Monte Cerrote in 1915, by Sargent on Monte Jayuya in 1943, and R.O. 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 general *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 (4402 feet or 1338 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 (2.5 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 of 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 DeFilippis 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. This proposed rule indicates that the petition action is warranted, and constitutes the next required finding in accordance with section 4(b)(3)(B)(ii) of the Act.

Summary of Factors Affecting the Species

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 set forth the procedures for adding species to the Federal lists. 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 military operations would adversely modify habitat and could cause the direct loss of some 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 suggest 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 propose this rule. 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 seems an accurate assessment of the species' condition. The reasons for not proposing critical habitat for these species are discussed below in the "Critical Habitat" section.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary designate any habitat of a species which is considered to be 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 location 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 will be 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 [see revised regulations at 51 FR 19926 (June 3, 1986)]. Section 7(a)(4) requires Federal agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, 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 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 proposed for either *Cyathea dryopteroides* or *Ilex cookii*, as discussed above. Federal involvement exists with regard to the before mentioned road construction (Federal Highway Administration) and military activity (U.S. Army). Through careful planning, adverse impacts to these two species should be minimal.

The Act and its implementing regulations found at 50 CFR 17.61 and 17.62 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, would apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export any endangered plant, transport it in interstate or foreign commerce in the course of a commercial activity, sell or offer it for sale in interstate or foreign commerce, or remove it from areas under Federal jurisdiction and reduce it to possession. Certain exceptions can apply to agents of the Service and Commonwealth conservation agencies. The Act and 50 CFR 17.62, 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. Request for

copies of the regulations on plants and inquiries regarding them be addressed the Federal Wildlife Permit Office, U.S. Fish and Wildlife Service, Washington DC 20240 (703/235-1903).

Public Comments Solicited

The Service intends that any final rule adopted will be as accurate and as effective as possible. Therefore, any comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning any aspect of this proposed rule are hereby solicited. Comments particularly are sought concerning:

- (1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to *Cyathea dryopteroides* and *Ilex cookii*;
- (2) The location of any additional populations of *Cyathea dryopteroides* and *Ilex cookii*, and the reasons why any habitat should or should not be determined to be critical habitat as provided by Section 4 of the Act;
- (3) Additional information concerning the range and distribution of these species; and
- (4) Current or planned activities in the range of these species and their possible impact on *Cyathea dryopteroides* and *Ilex cookii*.

The final decision on the proposal to list *Cyathea dryopteroides* and *Ilex cookii* will take into consideration the comments and any additional information received by the Services, and such communications may lead to adoption of a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be filed within 45 days of the date of the proposal. Such requests must be made in writing and addressed to the Field Supervisor, Caribbean Field Office, U.S. Fish and Wildlife Service, P.O. Box 491, Boqueron, Puerto Rico 00622.

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, 1986 (48 FR 49244).

References Cited

Ayensu, E.S., and R.A. DeFilipps. 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, G.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 coodi* Britton & Wilson. Unpublished status report submitted to the U.S. Fish and Wildlife Service, Atlanta, Georgia. 44 pp.

Author

The primary author of this proposed 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).

Proposed Regulation Promulgation

PART 17—[AMENDED]

Accordingly, it is hereby proposed to

amend Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, 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. It is proposed to 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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(h) * * *

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

Dated: September 12, 1986.

Susan Recce.

Deputy Assistant Secretary for Fish and Wildlife and Parks.

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