

50 CFR Part 17

**Endangered and Threatened Wildlife and Plants; Endangered Status for Three Florida Shrubs**

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

**ACTION:** Final rule.

**SUMMARY:** The Service determines *Deeringothamnus pulchellus* (beautiful pawpaw), *Deeringothamnus rugelii* (Rugel's pawpaw), and *Asimina tetramera* (four-petal pawpaw) to be endangered species pursuant to the Endangered Species Act of 1973 (Act). *Deeringothamnus pulchellus* is restricted to Pine Island, Lee County and Charlotte County, Florida. *Deeringothamnus rugelii* is known from Volusia County, Florida. Both species of *Deeringothamnus* are endangered by the destruction of their habitats for residential, commercial, and agricultural purposes. *Asimina tetramera* inhabits scrub vegetation on dunes near the Atlantic coast in Martin and Palm Beach

Counties, Florida. It is endangered by destruction of its habitat for commercial and residential construction, and by successional changes in its habitat. This rule will implement the protection and recovery provisions afforded by the Act for these three shrubs.

**EFFECTIVE DATE:** The effective date of this rule is October 27, 1986.

**ADDRESS:** The complete file for this rule is available for inspection, by appointment, during normal business hours at the Endangered Species Field Station, U.S. Fish and Wildlife Service, 2747 Art Museum Drive, Jacksonville, Florida 32207.

**FOR FURTHER INFORMATION CONTACT:** David J. Wesley, Endangered Species Field Supervisor, at the above address (904/791-2580 or FTS 946-2580).

**SUPPLEMENTARY INFORMATION:**

**Background**

These three species of pawpaw are shrubs of the custard-apple family (Annonaceae), a family that includes a dozen trees and shrubs of the southwestern United States. John K. Small (1924) established the genus *Deeringothamnus* to accommodate the newly-discovered *D. pulchellus*, which differs from *Asimina* in several features of the flowers. He later transferred *Asimina rugelii* to *Deeringothamnus*. Rehder and Dayton (1944) and Wilbur (1970) merged *Deeringothamnus* into *Asimina* but the distinctness of *Deeringothamnus* has been upheld in studies by Kral (1960) and Walker (1971). A recent study of leaf anatomy in the Annonaceae shows *Deeringothamnus* to be very distinctive (John L. Roth, Jr., University of Massachusetts, pers. comm. July 1984). The genus *Deeringothamnus* consists of only the two Florida endemic species covered here. Both species inhabit poorly-drained slash pine-saw palmetto flatwoods. They are low shrubs with stout taproots. The leaves are oblong and leathery. The fruits are cylindrical berries with pulpy flesh, 3-6 centimeters (1-3 inches) long, and yellow-green when ripe. Seeds are about the shape and size of brown beans. The annual or biennial stems are 10-20 centimeters (4-8 inches) tall. The plants resprout readily from the roots after the tops are destroyed by fire or mowing. The absence of such disturbance leads to the eventual demise of *Deeringothamnus* (Norman and Brothers 1981).

*Deeringothamnus pulchellus* has flowers with linear, creamy white petals that are straight when the flower opens, becoming recurved. The flowers are pleasantly scented. J.K. Small (1926a) coined the whimsical common name of "squirrel banana." It was discovered "in the uninhabited pineland wilderness between Punta Gorda and Fort Myers" (Small 1924), probably near Tuckers Corner in what is now the Cecil M. Webb Wildlife Management Area (L. Campbell, Webb Area manager, pers. comm. March 1985). Subsequently, it was found at several sites in southern Charlotte County and in Lee County near Fort Myers (Wunderlin *et al.* 1981). Despite searches by botanists, *Deeringothamnus* has not been collected in these sites since the 1950's. Urbanization has destroyed several known sites in the Fort Myers area. A

population has been known on Pine Island, Lee County. Since 1930, where this species presently is known from Immokalee sand and Punta fine sand soils in grassy flatwoods. It is relatively abundant on road edges and partly developed subdivision lots that are occasionally mowed, but where chopping or other soil disturbances have not occurred. A second population is known from grassy flatwoods and a road edge on Myakka fine sand soil along county highway 765 near Pirate Harbor in southern Charlotte County (R.W. Repenning, report to Florida Natural Areas Inventory, May 2, 1985). Until recently, the flatwoods inhabited by *Deeringothamnus* were kept relatively free of large shrubs and saw palmetto by frequent ground fires. With the coming of development, fires were controlled and mechanical means have been used to clear and maintain open areas. Infrequent mowing of undeveloped lots and road edges has replaced fire as an acceptable means of removing larger shrubs that can shade out *Deeringothamnus*. Frequent low mowing would prove detrimental.

*Deeringothamnus rugelii* has flowers with straight, oblong, canary yellow petals. It was first collected by Ferdinand Rugel in 1848. It was not validly described as a species until B.L. Robinson published the name *Asimina rugelii*, based on Rugel's specimens, in 1897. J.K. Small rediscovered this plant in 1924, assigned it to his genus *Deeringothamnus*, and called it the "yellow squirrel banana" (Small 1930). The next collections were made by R. Kral in 1956 and 1958 (Wunderlin *et al.* 1980). The present distribution of these plants has been determined by Norman and Brothers (1981). They found seven populations containing a total of fewer than 500 plants. About half of the plants were in pine flatwoods used for cattle pasture. Most of the rest were in a powerline right-of-way and a recently-burned flatwoods. All of these populations are in southern Volusia County, Florida. One population is 12 miles southwest of New Smyrna Beach. The rest are in an area of about 3 square miles, about 5 miles west of the center of New Smyrna Beach.

*Asimina tetramera* is a large shrub or small tree, 1-3 meters (3-9 feet) tall, with one to several upright main stems. The flowers have 4 sepals (occasionally 3 or 5), and usually 6 petals in 2 sets of 3 each. The petals are pink to maroon, and the flowers have a fetid odor. The four-petal pawpaw inhabits sand pine scrub on old dunes inland from the present Atlantic coast in Martin and northern Palm Beach Counties. It was

discovered by J.K. Small in 1924 at Rio, just north of Stuart and was subsequently named by him (Small 1926b). Small (1933) placed six species of *Asimina*, including *A. tetramera*, in a new genus, *Pityothamnus*. This genus has been rejected by other taxonomists (Kral 1960). *Asimina tetramera* responds well to the occasional severe fires and hurricane damage that typify its habitat, because new sprouts grow readily from the roots. In the absence of such disturbance, *Asimina tetramera* is usually shaded out by evergreen oaks and sand pines. Most of its habitat has been destroyed by urban development (Austin and Tatje 1979, Austin *et al.* 1980). As few as 200 plants exist in the wild at the present time (R. Moyroud, Mesozoic Landscapes, Inc., pers. comm. 1985). Over 100 plants were destroyed through land development in 1984 alone (P. Quincy, Florida Power and Light, pers. comm. December 10, 1984).

Federal Government actions on these species began with Section 12 of the Endangered Species Act of 1973, which directed the Secretary of the Smithsonian Institution to prepare a report on 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. In this report, *Asimina tetramera* was considered as endangered, and *A. pulchella* and *A. rugelii* (as they were then called) were considered threatened. On July 1, 1975, the Service published a notice in the **Federal Register** (40 FR 27823) of its acceptance of the report as a petition within the context of section 4(c)(2) of the Act (petition acceptance is now covered by section 4(b)(3) of the Act, as amended). 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 pursuant to Section 4 of the Act. The list of 1,700 plant taxa 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. *Asimina tetramera* was included in the proposed rule. The 1978 Endangered Species Act Amendments required the withdrawal of all proposed rules over two years old, except that a 1-year grace period was allowed for proposals then already over two years old. On December 10, 1979, the Service withdrew that portion of the June 16, 1976, proposal that had expired (44 FR 70796). On December 15, 1980, the Service published a notice of review for plants (45 FR 82480), which included

*Asimina tetramera* and *Deeringothamnus rugelii* as category-1 candidates (species for which data in the Service's possession indicate listing is warranted). *Deeringothamnus pulchellus* was included as a category-2 candidate (species for which data in the Service's possession indicate listing is possibly appropriate but for which additional biological information is needed to support a proposed rule). One comment on *Deeringothamnus* was received in response to the 1980 plant notice, favoring action to ensure the survival of these species. On November 28, 1983, the Service published in the Federal Register (48 FR 53640) a supplement to the 1980 notice of review, which upgraded *Deeringothamnus pulchellus* to a category-1 candidate, based on field work by Wunderlin *et al.* (1981). All three species were included as category-1 species in the Service's September 27, 1985 (50 FR 39526), updated Notice of Review of Plant Candidates.

Section 4(b)(3)(B) of the Endangered Species Act, as amended in 1982, requires the Secretary to make findings on certain pending petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 Amendments further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. This was the case for *Asimina tetramera* and for both species of *Deeringothamnus* because the Service had accepted the 1975 Smithsonian report as a petition. On October 13, 1983, October 12, 1984, and October 11, 1985, the Service found that the petitioned listing of these three species was warranted, and that, although other pending proposals had precluded their proposal, expeditious progress was being made to list these species. Publication of the proposal to list these species on November 1, 1985, constitutes the next 1-year finding requirement that would have been due October 13, 1986.

In the proposed rule, *Asimina tetramera* was proposed to be listed as threatened. The Service now believes, based on information received during the comment period, that endangered status is appropriate.

#### Summary of Comments and Recommendations

In the November 1, 1985, proposed rule (50 FR 45634) 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, county governments, Federal agencies, scientific organizations, and other interested

parties were contacted and requested to comment. Newspaper notices that invited general public comment were published in the *Stuart News*, *Fort Myers News-Press*, and *Daily Herald-News* (Punta Gorda) on November 16, 1985; and in the *Palm Beach Post* and *New Smyrna Beach News & Observer* on November 17, 1985. Four communications were received on the proposal. The Lee County Department of Community Development and the Florida Game and Fresh Water Fish Commission supported the proposal. The environmental coordinator for Florida Power and Light Company provided additional information on a tract of land owned by the company and managed to protect *Asimina tetramera*, and on the status of the species on private land. The president of a specialized plant nursery in Delray Beach, Florida, urged that *Asimina tetramera* be listed as an endangered species because of the "very small number of remaining individuals, questionable reproductive success, narrow endemism, and escalating pressure on public and private land use." His comments included information on the reproductive biology of the pawpaw, on a disease which affects the species, on the present distribution of the species, and on the destruction of its habitat over the past several years. This information has been incorporated into the final rule.

#### Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Deeringothamnus pulchellus*, *Deeringothamnus rugelii*, and *Asimina tetramera* 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 *Deeringothamnus pulchellus* Small (= *Asimina pulchella* (Small) Rehder & Dayton), beautiful pawpaw; *Deeringothamnus rugelii* (B.L. Robinson) Small (= *Asimina rugelii* B.L. Robinson), Rugel's pawpaw; and *Asimina tetramera* Small (= *Ptyothamnus tetramerus* (Small) Small), four-petal pawpaw are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The former

geographic ranges of the two species of *Deeringothamnus* are somewhat uncertain because few herbarium specimens were ever collected. A single specimen of *Deeringothamnus* that cannot be determined to species, collected at Bithlo, Orange County, Florida in 1929, indicates wider former distributions. Efforts to relocate the Bithlo plants have failed (Norman and Brothers 1981). *Deeringothamnus pulchellus* has disappeared from most its former range, which included what now the Fort Myers urban area. The existing populations are quite vulnerable to real estate development (Wunderlin *et al.* 1981), since Fort Myers is one of the fastest-growing urban areas in Florida. *Deeringothamnus rugelii* has declined greatly in numbers since Kra collected specimens in 1956-1958. Real estate development is now a severe threat to this plant because all but one of the populations are within 1 mile of Interstate 95 at New Smyrna Beach. Areas that are not developed may become unsuitable for *Deeringothamnus* due to modification of the vegetation. Both species of *Deeringothamnus* are adapted to grassy flatwoods, where ground fires destroy the above-ground parts of the plants every several years. The plants resprout from the roots. *Deeringothamnus* can tolerate occasional mowing, but disruption of root system is fatal. *Deeringothamnus rugelii* thrives in flatwoods converted cattle pasture with bahia grass (*Paspalum notatum*), but conversion of pastures to turf grass farming destroys the plants. Pine plantations, with fire protection and dense understory vegetation, cause *Deeringothamnus rugelii* to be shaded out. One population of *Deeringothamnus rugelii* is threatened by expansion of a cemetery (Norman and Brothers 1981). Also, *Deeringothamnus pulchellus* is affected by trash dumping within part of its range.

Most of the original and pine scrub habitat of *Asimina tetramera* is now urbanized. The species is now restricted to limited remaining areas of scrub, some of them protected. Up to 100 plants exist in Jonathan Dickinson State Park where the habitat is protected except small areas used for military communications facilities that could be altered in the future. Some plants have been found on Hobe Sound National Wildlife Refuge; and pawpaw may occur on Refuge land where the Army Corp Engineers holds easements for disposal of dredge spoils from the Intracoastal Waterway. In addition, approximately 60 plants exist on several acres of scrub that are managed as a biological

preserve on the grounds of an office building in Palm Beach County. Also, a Palm Beach County park has roughly 40 plants, but they are threatened by the development of recreational facilities and by illegal dumping (R. Moyroud, Mesozoic Landscapes, Inc., pers. comm. 1985). The remaining areas of *Asimina tetramera* habitat in northern Palm Beach County are along U.S. Highway 1, where the few remaining tracts of native vegetation are rapidly being developed. One estimate is that of roughly 100 plants seen in June 1985, in Palm Beach and southernmost Martin Counties, outside of parks or preserved areas, 25 to 30 have been lost to residential development (F. Reeder, Florida Power and Light Co., pers. comm. 1985). Others feel the loss of plants and their habitat has been considerably greater (D. Austin, Florida Atlantic University, pers. comm. 1986). In the limited areas where scrub vegetation is allowed to remain, survival of the pawpaws is uncertain in the long run, because *Asimina tetramera* is a root-sprouting shrub that may be rejuvenated by having its above-ground stems destroyed. In the absence of fires or hurricanes, scrub oaks are likely to shade out *Asimina tetramera*.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* *Deeringothamnus pulchellus*, *Deeringothamnus rugelii*, and *Asimina tetramera* are so limited in distribution and population size that indiscriminate scientific or other collecting could adversely affect these species. Collecting is not known to occur at this time, but caution will be necessary to ensure that increased publicity does not spark such collecting.

C. *Disease or predation.* *Deeringothamnus rugelii* is heavily damaged by the caterpillars of an unknown moth (Norman and Brothers 1981). *Deeringothamnus pulchellus* also shows insect damage to leaves and flowers (Wunderlin *et al.* 1981). No herbivory has been reported on *Asimina tetramera*, but some plants are affected by fungus infections on the branches. The consequences of the infection are not known (R. Moyroud, Mesozoic Landscapes, Inc., pers. comm. 1985).

D. *The inadequacy of existing regulatory mechanisms.* These three shrubs are listed as endangered under the Preservation of the Native Flora of Florida Law (section 581.185 of the Florida Statutes). The Florida law regulates taking, transport, and the sale of plants, but it does not provide habitat protection. The few plants of *Asimina tetramera* in Hobe Sound National Wildlife Refuge are protected from collecting (50 CFR 27.51).

E. *Other natural or manmade factors affecting its continued existence.* *Deeringothamnus pulchellus* is affected by all-terrain vehicles within part of its range. *Deeringothamnus pulchellus* and *Deeringothamnus rugelii* are both vulnerable to successional changes in the vegetation. Both species require frequent fire (or its equivalent, such as bush-hogging or mowing) to maintain an open, grassy understory vegetation, and to stimulate the production of new flowering shoots (Wundelin *et al.* 1981, Norman and Brothers 1981). *Asimina tetramera* in evergreen oak-sand pine scrub habitats where fires are infrequent but intense. *Asimina tetramera* recovers quickly from fires by sprouting from its roots. Eventually scrub oaks or sand pines overtop and shade out the pawpaws. As a result, protecting the vegetation from fire constitutes a threat to *Asimina tetramera*. Both Jonathan Dickinson State Park and Hobe Sound National Wildlife Refuge are implementing plans for prescribed burning of vegetation. Tracts of scrub on private land may have to be renewed by other methods, such as cutting (Austin and Tatje 1979). The large seeds of *A. tetramera* have oily endosperm and apparently a limited period of viability. Seed collected from fresh, ripe fruit planted immediately germinated well, but older seeds did not germinate. Cultivated seedlings, grown for four years, have grown slowly, with most growth concentrated in the root system, which is sensitive to transplanting disturbance. This indicates that the shrub has a limited reproductive capacity, that long-term germplasm storage may be impractical, and that artificial propagation is not easily accomplished (R. Moyroud, Mesozoic Landscapes, Inc. pers. comm. 1985), and it appears that this shrub's reproductive capacity in the wild is very limited. Restriction to specialized habitats and small geographic ranges tends to intensify any adverse effects upon the populations of any rare plant. This is certainly true of these three species and is exacerbated by the loss of habitat which has already taken place.

The Service has carefully assessed the best scientific 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 *Deeringothamnus pulchellus*, *Deeringothamnus rugelii*, and *Asimina tetramera* as endangered. The two former species have been extirpated from most of their historic ranges. The remaining habitat is on private land vulnerable to development,

so these species could become extinct in the near future. Most of the historic range of *Asimina tetramera* is now urbanized. The remaining protected habitat of this species contains fewer than 200 individual plants, and requires management to prevent encroachment and to ensure its continued suitability for the pawpaw. Critical habitat has not been determined for these species for the reasons described in the next section.

#### 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. The Service finds that designation of critical habitat is not prudent for these species at this time. *Asimina tetramera*, *Deeringothamnus pulchellus*, and *Deeringothamnus rugelii* are so limited in numbers and range that excessive scientific collecting or vandalism could seriously damage the remaining populations of these species. Publication of critical habitat maps in the **Federal Register** would increase the likelihood of such activities. Similarly, it would not be prudent to publish maps of the known sites for *Asimina tetramera*. While collecting is generally prohibited in Jonathan Dickinson State Park and in Hobe Sound National Wildlife Refuge, these prohibitions are difficult to enforce. The Service believes that Federal involvement in the areas where these plants occur can be identified without the designation of critical habitat. 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. Therefore, the Service finds that designation of critical habitat for these plants is not 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, State, and private agencies, 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 requires 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, published at 51 FR 19926, June 3, 1986. 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 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. Since all presently known sites for both *Deeringothamnus pulchellus*, and *Deeringothamnus rugelii* are on privately-owned land, there will be no effect on Federal agencies from the above requirements unless the private owners request some Federal involvement in managing their lands. *Asimina tetramera* occurs primarily on State and private property, except for a few plants existing on Hobe Sound National Wildlife Refuge. Existing management plans on the Refuge for prescribed fire should help to ensure these plants survival. The Army Corps of Engineers holds easements for dredge spoil disposal on the Refuge. Four-petal pawpaw may occur in scrub vegetation on these disposal areas. Section 7 consultation may be required if spoil is to be deposited at the sites.

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 *Deeringothamnus pulchellus*, *Deeringothamnus rugelii*, and *Asimina tetramera*, 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 species, transport them in interstate or foreign commerce in the course of a commercial activity, sell them 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 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. It is anticipated that few trade permits will be sought or issued; although *Asimina tetramera* is already in cultivation, it is expected to be of limited use as an ornamental. Neither *Deeringothamnus pulchellus* nor *D. rugelii* is likely to be popular in cultivation. 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 by 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).

**References Cited**

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Wunderlin, R.P., D. Richardson, and B. Hansen. 1981. Status report on *Deeringothamnus pulchellus*. Unpublished report prepared for U.S. Fish and Wildlife Service.

**Author**

The primary author of this final rule is David Martin, Endangered Species Field Station, U.S. Fish and Wildlife Service, 2747 Art Museum Drive, Jacksonville, Florida 32207 (904/791-2580 or FTS 946-2580).

**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 Annonaceae, to the List of Endangered and Threatened Plants.

**§ 17.12 Endangered and threatened plants:**

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(h) \* \* \*

Scientific name	Common name	Historic range	Status	When listed	Critical habitat	Special rules
Annonaceae—Custard-apple family: <i>Asimina tetramera</i>	Four-petal pawpaw	U.S.A. (FL)	E	244	NA	NA

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
<i>Deeringothamnus pulchellus</i>	Beautiful pawpaw	U.S.A. (FL)	E	244	NA	NA
<i>Deeringothamnus rugelii</i>	Rugel's pawpaw	U.S.A. (FL)	E	244	NA	NA

Dated: September 12, 1986.

Susan Recce,

Deputy Assistant Secretary for Fish and  
Wildlife and Parks.

[FR Doc. 86-21753 Filed 9-25-86; 8:45 am]

BILLING CODE 4310-55-M