

SUMMARY: The Service determines *Spigelia gentianoides* (gentian pinkroot), a plant belonging to the logania family, to be an endangered species pursuant to the Endangered Species Act of 1973 (Act), as amended. Three populations of this plant are currently known from Jackson and Calhoun Counties in northwestern Florida. Historically, it was found in adjacent counties. Proximity to recreational activities threatens one population and habitat alteration by forestry practices threatens the others. This final rule implements the protection and recovery provisions afforded by the Act for gentian pinkroot.

EFFECTIVE DATE: December 26, 1990.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours, at the Jacksonville Field Office, U.S. Fish and Wildlife Service, 3100 University Boulevard South, suite 120, Jacksonville, Florida 32216.

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

SUPPLEMENTARY INFORMATION:

Background

Spigelia gentianoides (gentian pinkroot) is a perennial herb belonging to the plant family Loganiaceae (logania or strychnine family). Dr. Alvan Wentworth Chapman of Apalachicola, Florida discovered the plant in May 1837 during a trip to perform an amputation. He distributed herbarium specimens of the plant under the name *Spigelia floridana*, but later settled on *Spigelia gentianoides*, the name that Alphonse de Candolle (1845) published for Chapman. The holotype specimen (which passed from Chapman to Asa Gray to Edmond Boissier to de Candolle) is in the herbarium at Geneva, Switzerland (K. Wurdack, Beltsville, MD, *in litt.* 1988).

Spigelia gentianoides has a single, erect, sharply ridged stem 10-30 centimeters (4-12 inches) tall. The leaves are opposite and sessile, largest at the top of the stem, 3-5 centimeters (1-2 inches) long. Flowers are borne in a short, few-flowered, terminal, spikelike raceme. The flowers, mounted on very short stalks, point upward. Sepals are 4-6 millimeters long. The corolla is 2.5-3.0 centimeters long, consisting of a narrow tube about 1 centimeter long, broadening to a wider tube with five lobes, each 5-6 millimeters long. The corolla is pale pink, slightly darker at the margins of the lobes. The stamens stay inserted within the flower (Kral

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB38

Endangered and Threatened Wildlife and Plants; The Plant "*Spigelia gentianoides*" (Gentian Pinkroot) Determined To Be Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

1983). The corolla lobes tend to stay nearly closed, with five slits opening between the lobes. Rogers (1988b) suspected that "a moth effects pollination when it inserts its proboscis into the slits probing for nectar." He has since observed flowers that were completely open (George Rogers, Missouri Botanical Garden, pers. comm. 1989). The flower resembles those of gentians, which is the reason for the plant's name. Flowering is in May and June.

The closest relative of *Spigelia gentianoides* is pinkroot, *Spigelia marilandica*, a widespread species that grows in clumps rather than as single stems and has brilliant red flowers (Kral 1983). In the nineteenth century, pinkroot was a popular folk cure for intestinal worms in the southern states, although it has been blamed for killing patients (Rogers 1986, p. 161). *Spigelia gentianoides* has not been tested for potential drug uses.

Wurdack has seen nine of Chapman's collections of *Spigelia gentianoides*. The type collection is from the west side of the Apalachicola River, probably in Jackson County. One specimen is labelled "Mariana. Common." (Jackson County). Another is labelled "Quincy. 1836, not seen since.", but the date is incorrect, so the locality is unreliable. Ferdinand Rugel collected the plant near Mount Vernon (now Chhattahoochee, Gadsden County) in 1843 (K. Wurdack, in litt. 1986).

Kral (1983) stated that *Spigelia gentianoides* had been observed only twice since Chapman, in Jackson County. He was apparently unaware of three specimens at the University of Florida, verified by Rogers (pers. comm. 1989), two from Chipley, Washington County (collected by C.E. Pless, 1940 and 1941), and one from 8 miles north of Wewahatchee, Calhoun County (collected by E.S. Ford, 1954). Harry Ahles and David Boufford found one locality in Jackson County in 1973 (Wunderlin et al. 1980). A specimen from Gulf Hammock (Levy County), labelled by its collectors as *Spigelia gentianoides*, has been determined to be *S. loganioides* (R. Wunderlin, University of South Florida, pers. comm. 1986). Godfrey (1979) included Liberty County, Florida in the distribution of this plant.

Recently, Gary Knight, Robert Kral, Angus Gholson, Jr., Wilson Baker, and Kenneth Wurdack relocated one population and found two more (Rogers 1988a, 1988b; Gholson, pers. comm. 1989). Rogers, Robert Bowden (Director of Horticulture, Missouri Botanical Garden) and others revisited the populations in 1989. One population, in Jackson County, had about 30 plants in

1988, one fifth as many as it had 12 years earlier. The second, near the Jackson-Bay County line, has no more than 10 plants (Rogers, pers. comm. 1988). The third population, somewhat larger than the others, is in Calhoun County south of Blountstown, in a pinelands with wiregrass, somewhat drier than flatwoods. The site's trees were cut in 1988 and the landowner planted pines in 1989. The plants had sturdy stems and flowered in 1989, while plants at a shaded site appeared spindly, indicating that this species may actually prefer sun (Rogers, pers. comm. 1989; Bowden, in litt. 1990).

The two sites where Kral (1983) found *Spigelia gentianoides* were in light to heavy shade of oak-pine woods containing mixed loblolly and longleaf pines, water oaks, laurel oaks, and southern red oaks, blackgum, and an understory that included flowering dogwood and blueberries. Neither site showed any sign of having been cultivated, and Kral could not find the plant in cleared areas adjacent to the populations. Angus Gholson now suspects that one currently known site may have been cultivated. Thorough searches would probably find additional populations of *Spigelia gentianoides* in the five counties with records of the species, but the paucity of specimens collected since 1937 and the few sites found recently by experienced field botanists strongly indicate that the plant was never widespread and that it is extremely rare today.

Section 12 of the Endangered Species Act of 1973 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 the Congress on January 9, 1975. 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 in the context of section 4(c)(2) (now section 4(b)(3)) of the Act, as amended, and of its intention to review the status of the plant taxa contained within. On June 16, 1976, the Service published a proposed rule (41 FR 24524) to determine some 1,700 U.S. vascular plant species recommended by the Smithsonian report to be endangered species pursuant to section 4 of the Act. This proposal was withdrawn in 1979 (44 FR 12332). *Spigelia gentianoides* was included in the Smithsonian Report: the July 1, 1975 notice; the June 16, 1976 proposal; and the 1979 withdrawal.

On December 15, 1980, the Service published a notice of review for plants (45 FR 82480), which included *Spigelia gentianoides* as a category 1 candidate

(a taxon for which data in the Service's possession indicates listing is warranted). A supplement to the notice of review published on November 18, 1983 (48 FR 48640) changed *Spigelia gentianoides* to a category 2 candidate (a taxon for which data in the Service's possession indicate listing is possibly appropriate). No one had seen this species in the field since 1973, and confirmation was needed that it was extant. An updated notice of review published September 27, 1985 (50 FR 39528) retained *Spigelia gentianoides* as a category 2 candidate. In 1985, Gary Knight (then a graduate student at Florida State Univ.) discovered a population of the plant. Subsequent field work by several botanists confirms that the plant persists in the wild (Rogers 1988a, 1988b; Rogers in litt. 1988; A. Gholson, Chhattahoochee, FL, pers. comm. 1989). A proposal to list *Spigelia gentianoides* as an endangered species was published in the Federal Register on March 14, 1990 (55 FR 9472).

Section 4(b)(3)(B) of the 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 *Spigelia gentianoides* because the Service had accepted the 1975 Smithsonian report as a petition. In each October from 1983 through 1988, the Service found that the petitioned listing of this species was warranted but precluded by other listing actions of a higher priority, and that additional data on vulnerability and threats were still being gathered. Publication of the proposal constituted the final petition finding required for *Spigelia gentianoides*.

Summary of Comments and Recommendations

In the March 14 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 State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices were published in *The News Herald*, Panama City, April 5; the *Calhoun County Record*, Blountstown, April 5; and *The Monitor*, Marianna (April 29). Five comments were received. The Florida Department of Agriculture's Division of Plant Industry

and Division of Forestry supported the proposal, as did two botanists. The Army Corps of Engineers, Mobile District, acknowledged the need to conserve the plant on its land.

The Florida Farm Bureau Federation opposed listing the plant for the reasons listed below, with the Service's response to each.

Issue 1. Spigelia gentianoides is not threatened by habitat destruction or modification. The proposal assumed a great deal about the habitat requirements of this species; it may seem rare because no one was looking for it, and it appears to be thriving in a pine plantation in the normal course of growth, harvest, and replanting.

Service response: More data on the distribution and habitat preferences of this plant would have been very desirable, but the available information is sufficient to demonstrate the present-day rarity of this plant. The number of specimens collected by Chapman, and his notation that it was "common" contrasts sharply to the plant's present status. Searches by current-day botanists of many sites, including some areas in southeastern Alabama (Robert Kral, Vanderbilt Univ., pers. comm. 1989), have revealed only three sites occupied by the plant. The available information on *Spigelia gentianoides* as explained in the "Background" section is obviously incomplete, but listing is warranted without delay based on the plant's rarity, combined with reasonable concern that the largest known population of the plant could be adversely affected by cutting the native stand of pines and replanting. This site has apparently not previously been managed by produce wood products.

Issue 2. The plant is not threatened by overutilization, disease or predation, or inadequate existing regulatory mechanisms. Existing protection of *Spigelia gentianoides* under Florida law is effective as shown by the willingness of the landowner, when personally contacted, to go to additional expense to hand plant pine seedlings.

Service response: State listing alone, combined with landowner cooperation, might encourage habitat conservation on private land as effectively as Federal listing, but Federal listing provides additional protection to the population on Federal property and the Endangered Species Act's trade restrictions are warranted in view of the plant's rarity and interest in the genus *Spigelia* for pharmaceuticals.

Issue 3. Listing of this species could result in land use restrictions (particularly herbicide use restrictions) being imposed on landowners that have habitat within their property boundaries

and possibly on landowners who do not have the species on their property. Designation of critical habitat to identify only the known population sites was suggested to avoid such overregulation.

Service response: Environmental Protection Agency (EPA) pesticide registrations, including formulations and use patterns, are reviewed by the Service as part of the formal consultation requirements imposed on Federal agencies by section 7 of the Act. If, as part of that process, the Service determines that a particular use or formulation of a pesticide is likely to jeopardize the continued existence of a threatened or endangered species or adversely modify its critical habitat, then the Service must work with the EPA to devise reasonable and prudent alternatives to preclude jeopardy or adverse modification of the critical habitat. In past consultations with the EPA on the registration of pesticides, reasonable and prudent alternatives have generally involved prohibitions or restrictions on use patterns, formulation, method or time of year of application at the sites of known populations of listed species.

Critical Habitat is defined by section 3 of the Act as "the areas on which are found those physical or biological features essential to the conservation of the species and which may require special management consideration or protection." However, it does not follow that restrictions on pesticide use would necessarily be limited to designated critical habitat, since activities that adversely modify critical habitat are prohibited by section 7, even if they actually take place outside the critical habitat. With or without designated critical habitat, reasonable and prudent alternatives are devised to assure that the areas where a given pesticide is restricted are only large enough to protect listed species. The Service notes that the only known pesticide use that might pose a threat to *Spigelia gentianoides* would be from herbicide use to release young pines from competition by herbs and grasses. This potential threat can be handled through direct contact with the landowner.

Designation of critical habitat restricted to known sites for *Spigelia gentianoides* could seriously threaten the species by publicizing their locations, and is thus not prudent.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Spigelia gentianoides* should be

classified as an endangered species. Procedures found at section 4(a)(1) of the 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 endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Spigelia gentianoides* (Chapm. ex A. DC.) (gentian pinkroot) are as follows:

A. The present or threatened destruction, modification, or curtailment of its habitat or range. The currently known populations of *Spigelia gentianoides* occur in mixed upland pine-oak forest, and in an upland pineland where the species is part of a fire-maintained understory dominated by wiregrass (*Aristida stricta* and other grasses). Kral's (1983) appraisal that "certainly the *Spigelia* would not survive mechanical site preparation * * * involved with pine monoculture" was based on his inability to find *Spigelia* in clearcut areas adjacent to a population on an area with no history of cultivation. Kral's views may need modification because the largest known *Spigelia gentianoides* population appears to be surviving cutting and planting, perhaps because the landowner was aware of the presence of the rare plant, had the cutting done with relatively little site disturbance, and had planting done by hand (Gholson, pers. comm. 1989). Gholson suspects that the site of one population may have been cultivated at one time, although the site is adjacent to land that would never have been cultivated. *Spigelia gentianoides* was probably extirpated from some areas by cultivation in the nineteenth and early twentieth centuries; conversion of much of the upland forest land in these countries to pulpwood plantations possibly extirpated other populations.

B. Overutilization for commercial, recreational, scientific, or educational purposes. Other species of the genus have been in demand for their medicinal and/or poisonous properties. "Collecting for medicines has reduced *Spigelia* populations substantially, particularly the striking *S. marilandica*, or pinkroot" (Rogers 1988a). Collecting by botanists or those interested in medicinal plants could easily destroy the very small known populations (Robert Kral, Vanderbilt University, pers. comm. 1989).

C. Disease or predation. None apparent.

D. The inadequacy of existing regulatory mechanisms. *Spigelia*

gentianoides is listed as endangered by the Preservation of Native Flora of Florida Act (Section 581.185-187, Florida Statutes), which regulates taking, transport, and sale of plants but does not provide habitat protection. The Endangered Species Act will add Federal penalties to violations of Florida law, will add additional sanctions against taking of plants from Federal land, and will offer additional protection against taking through sections 7 and 9, and through recovery planning.

E. Other natural or manmade factors affecting its continued existence. The one population on publicly owned land is easily accessible and is vulnerable to inadvertent or deliberate damage by human activities. Another population declined from about 150 plants to 30 in 12 years for unknown reasons (Rogers 1988a, 1988b). The rarity of *Spigelia gentianoides*, its limited geographic range, and extensive alteration of its habitat exacerbate the risks posed by the preceding factors, making it likely that the species could become extinct throughout its entire range in the absence of adequate conservation efforts.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by *Spigelia gentianoides* in determining to make this rule final. Based on this evaluation, the preferred action is to list *Spigelia gentianoides* as endangered. Its limited geographic range, alteration of its known and potential habitat, the small sizes of the three known populations, and the possibility that the largest known population will be adversely affected by forestry practices indicate that the species is in danger of extinction throughout its range, and therefore fits the Act's definition of endangered.

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 *Spigelia gentianoides* at this time. Federal agencies, particularly the agency that owns the site of one population, as well as the two private landowners, can be alerted to the presence of this species without the publication of critical habitat descriptions and maps. Because of the small sizes of the known populations and the potential for collectors to exterminate this plant, publication of

critical habitat maps would increase the threat from taking or vandalism.

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 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 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 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.

The Environmental Protection Agency (EPA) is establishing a national system to prevent the use of herbicides (including herbicides used in forestry) from jeopardizing endangered and threatened species; the State of Florida's Department of Agriculture and Consumer Services is establishing its own system of herbicide regulation in cooperation with the EPA. If herbicide restrictions are adopted to protect gentian pinkroot, they may affect private landowners in this area. The population of gentian pinkroot on land owned by the U.S. Army Corps of Engineers and managed by the Florida Department of Natural Resources requires attention from those agencies to ensure that management and use of the site does not jeopardize the continued existence of the species. These agencies are aware of the plant's presence.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general prohibitions and exceptions that apply

to all endangered plants. 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 any endangered plant, transport it in interstate or foreign commerce in the course of a commercial activity, sell or offer to sell it in interstate or foreign commerce, or remove it from areas under Federal jurisdiction and reduce it to possession. In addition, for endangered plants, the 1988 amendments to the Act (Pub. L. 100-478) prohibit their malicious damage or destruction on Federal lands, and their removal, cutting, digging up, or damaging or destroying in knowing violation any State law or regulation, including State criminal trespass law. 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. The Service anticipates few requests for permits because there is currently no commercial trade in *Spigelia gentianoides*. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 432, Arlington, Virginia 22203 (703/358-2104 or FTS 921-2104).

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).

References Cited

- de Candolle, A. 1845. *Prodromus systematis naturalis regni vegetabilis* 9:5.
- Godfrey, R.K. 1979. Pink-root, *Spigelia loganioides*, in Ward, D.B., ed., *Rare and endangered biota of Florida*. Vol. 5. Plants. Univ. Presses of Fla., Gainesville. xxix + 175 pp.
- Kral, R. 1983. A report on some rare, threatened, or endangered forest-related vascular plants of the South. USDA Forest Service, Technical Publication R8-TP 2. x + 1305 pp.
- Rogers, G.K. 1988. The genera of Loganiaceae in the Southeastern United States. *Jour. Arnold Arboretum* 67:143-185.

Rogers, G.K. 1988a. *Spigelia gentianoides*—a species on the brink of extinction. *Plant Conservation* 3(3):1,6.
 Rogers, G.K. 1988b. Gardening at the Garden: A species that nearly disappeared. *Missouri Bot. Gard. Bull.* 78:7.
 Wunderlin, R.P., D. Richardson, and B. Hansen. 1980. Status report on *Spigelia gentianoides*. Unpublished report submitted to U.S. Fish and Wildlife Service, Jacksonville, Florida. 13 pp.

Author

The primary author of this final rule is David Martin (see "ADDRESSES" section).

List of Subjects in 58 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation 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: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.12(h) by adding the following, in alphabetical order under the family Loganiaceae 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					
Loganiaceae—Logania family:						
<i>Spigelia gentianoides</i>	Gentian pinkroot	U.S.A. (FL)	E	406	NA	NA

Dated: November 8, 1990.
 Richard N. Smith,
 Acting Director, Fish and Wildlife Service.
 [FR Doc. 90-27631 Filed 11-23-90; 8:45 am]
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