

SUMMARY: The Service determines a plant, *Sarracenia rubra* ssp. *alabamensis* (Alabama canebrake pitcher-plant), to be an endangered species under the authority contained in the Endangered Species Act (Act) of 1973, as amended. *Sarracenia rubra* ssp. *alabamensis* is currently known from only 12 sites in 3 central Alabama counties. However, only four of these are of significant size and two sites are imminently threatened. Over 50 percent of this species' populations have been lost through habitat destruction, succession (due to fire exclusion), over-collecting, and adverse land use practices. Extant populations continue to be degraded by these factors. This action will extend the Act's protection to *Sarracenia rubra* ssp. *alabamensis*.

EFFECTIVE DATE: April 10, 1989.

ADDRESSES: The complete file for this rule is available for public inspection, by appointment, during normal business hours at the Jackson Field Office, U.S. Fish and Wildlife Service, Jackson Mall Office Center, Suite 316, 300 Woodrow Wilson Avenue, Jackson, Mississippi 39213.

FOR FURTHER INFORMATION CONTACT: Ms. Cary Norquist at the above address (601/965-4900 or FTS 490-4900).

SUPPLEMENTARY INFORMATION:

Background

Sarracenia rubra ssp. *alabamensis*, a member of the pitcher-plant family, is a carnivorous herb arising from a rhizome. This species produces two types of pitchers (hollow leaves) and occasional phyllodia (flattened leaves) each season. Spring pitchers, appearing with flowers, are 20-50 centimeters (cm) (7.87-19.7 inches) in length and recurved; the summer pitchers are larger [20-70 cm (7.87-27.6 inches)] and erect. Flowers are maroon in color and borne singly on scapes up to 60 cm (2 feet) tall. The fruit is a capsule. Flowering occurs from late April through early June (Case and Case 1974 and 1976; Kral 1983; McDaniel 1986; McDaniel and Troup 1982).

Sarracenia rubra ssp. *alabamensis* is endemic to a three county area in central Alabama. The first collections of this species were made during the early 1900's by Pollard and Maxon (McDaniel and Troup 1982) and Harper (1918, 1922). However, Case and Case (1974) were the first to formally recognize these plants as a distinct taxon.

There has been considerable disagreement regarding the proper taxonomic disposition of this taxon and the *Sarracenia rubra* complex in general. The taxonomic history of *Sarracenia rubra* ssp. *alabamensis* has been discussed in detail by various

authors (Case and Case 1976, McDaniel 1986, McDaniel and Troup 1982). *Sarracenia rubra* ssp. *alabamensis* was given no recognition within *Sarracenia rubra* by Bell (1949). In other studies it has been referred to as a regional variant (McDaniel 1966, 1971), a subspecies (Schnell 1977, 1979), and a species (Case and Case 1974, 1976; McDaniel 1986). According to Case and Case (1976) and McDaniel (1986), confusion regarding its taxonomic validity stems from the presence of alleged "intermediates" which are actually ecologically induced variants or introgressed hybrids. Hybridization has been well documented in *Sarracenia* species (Bell 1952, Bell and Case 1956, McDaniel 1971).

Detailed comparisons of *Sarracenia rubra* ssp. *alabamensis* with other members of the *Sarracenia rubra* complex (*Sarracenia rubra* ssp. *jonesii*, *Sarracenia rubra* ssp. *wherryi*, *Sarracenia rubra* ssp. *gulfensis*, *Sarracenia rubra* ssp. *rubra*) are given by Case and Case (1976), Schnell (1977), and McDaniel (1986). Leaf shape is accepted as the most significant diagnostic character in *Sarracenia* (Bell 1949; Case and Case 1976; McDaniel 1971, 1986; Schnell 1977). Authors agree that *Sarracenia rubra* ssp. *alabamensis*' distinctiveness is best displayed in its large summer pitchers which are distinctively shaped, puberulent, yellow-green in color and inconspicuously veined and aerolate in the upper portion (Case and Case 1974, 1976; McDaniel 1986; Schnell 1977). *Sarracenia rubra* ssp. *alabamensis* and other members of the *Sarracenia rubra* complex maintain their morphological distinction when grown under standardized conditions (Case and Case 1976, Schnell 1977).

Sarracenia rubra ssp. *alabamensis* occurs in sandhill seeps, swamps, and bogs along the fall-line of central Alabama. Soils are acidic, highly saturated, deep peaty sands or clays. Historically, *Sarracenia rubra* ssp. *alabamensis* occurred in open boggy areas with little woody competition (Case and Case 1974, Harper 1922). However, due to fire exclusion, much of this habitat has become invaded by woody vegetation. Populations which have survived in these areas are weak and declining due to increased competition and shading. Other remaining habitat has been adversely modified by changes in land use, particularly increased agricultural usage, and are now located in pastures or on rights-of-way.

This pitcher-plant grows in full sun or light shade in association with cinnamon fern (*Osmunda cinnamomea*),

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Endangered Status for *Sarracenia rubra* ssp. *alabamensis*

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

pipeworts (*Eriocaulon* sp.), orchids (*Calopogon*, *Cleistes*, *Pogonia*), yellow-eyed grasses (*Xyris* sp.), beak rushes (*Rhynchospora* sp.), sundews (*Drosera* sp.), and butterworts (*Pinguicula* sp.). Woody associates may include cane (*Arundinaria tecta*), bamboo-vine (*Smilax laurifolia*), sweet bay (*Magnolia virginiana*), alder (*Alnus* sp.), red maple (*Acer rubrum*), poison sumac (*Rhus vernix*), and wax myrtle (*Myrica* sp.).

Sarracenia rubra ssp. *alabamensis* has been reported from 28 sites in central Alabama; however, 16 of these populations have been destroyed through habitat destruction, herbicide application, over-collecting, and/or succession (due to fire exclusion). Extensive searches of suitable habitat for additional populations have been conducted for over 20 years by F. Case (personal communication 1987), McDaniel and Troup (1982) and many others. Currently, *Sarracenia rubra* ssp. *alabamensis* is known to exist at only 12 sites in central Alabama including 5 populations in Autauga County, 5 in Chilton County, and 2 in Elmore County. Only 4 populations are of significant size, having from 70 to 300 plants. Of the remaining sites, 2 have limited populations (25-50 individuals) and 6 have poor populations (2-20 individuals). As previously discussed, most populations occur in impacted areas, resulting in individuals often being lost due to adverse land use practices. All sites are on privately-owned lands.

Federal actions involving *Sarracenia rubra* ssp. *alabamensis* began with section 12 of the Endangered Species Act of 1973, which directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975. On July 1, 1975, the Service published a notice in the *Federal Register* (40 FR 27823) of its acceptance of the report of the Smithsonian Institution as a petition within the context of section 4(c)(2), now Section 4(b)(3)(a), of the Act and of its intention thereby to review the status of those plants. On June 16, 1976, the Service published a proposed rule in the *Federal Register* (41 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to section 4 of the Act. *Sarracenia rubra* ssp. *alabamensis* was included in the Smithsonian petition and the 1976 proposal. General comments received in relation to the 1976 proposal were summarized in an April 26, 1978,

Federal Register publication (43 FR 17909).

The Endangered Species Act Amendments of 1978 required that all proposals over 2 years old be withdrawn. A 1-year grace period was given to proposals already over 2 years old. In the December 10, 1979, *Federal Register* (44 FR 70796), the Service published a notice of withdrawal of the June 16, 1976, proposal, along with four other proposals that had expired. *Sarracenia rubra* ssp. *alabamensis* was included as a category 1 species in a revised list of plants under review for threatened or endangered classification published in the December 15, 1980, *Federal Register* (45 FR 82480). Category 1 comprises taxa for which the Service presently has sufficient biological information to support their being proposed to be listed as endangered or threatened species.

On November 28, 1983, the Service published a supplement to the notice of review for native plants in the *Federal Register* (48 FR 53640); the plant notice was again revised September 27, 1985 (50 FR 39526). *Sarracenia rubra* ssp. *alabamensis* was included as a category 2 species in the 1983 supplement and the 1985 revised notice. Category 2 species are those for which listing as endangered or threatened species may be warranted but for which substantial data on biological vulnerability and threats are not currently known or on file to support a proposed rule. Data obtained over the last few years now support its reevaluation to category 1 and listing as endangered. The data demonstrate a limited distribution and continuing threats to the species.

Section 4(b)(3) of the Endangered Species Act, as amended in 1982, requires the Secretary to make certain findings on 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 *Sarracenia rubra* ssp. *alabamensis* because of the acceptance of the 1975 Smithsonian report as a petition. In October of 1983, 1984, 1985, 1986, and 1987, the Service found that the petitioned listing of *Sarracenia rubra* ssp. *alabamensis* was warranted, but that listing this species was precluded due to other higher priority listing actions. On April 21, 1988, the Service published in the *Federal Register* (53 FR 13230), a proposal to list *Sarracenia rubra* ssp. *alabamensis* as an endangered species. The Service now determines *Sarracenia rubra* ssp. *alabamensis* to be an endangered

species with the publication of this final rule.

Summary of Comments and Recommendations

In the April 21, 1988, 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. A newspaper notice inviting public comment was published in the "Montgomery Advertiser" (Montgomery, Alabama) on May 9, 1988.

Two comments were received and both were supportive of the listing, including one from a conservation organization and one from a private individual. The conservation organization noted that this species receives some legal protection under the Convention on International Trade in Endangered Species of Wild Fauna and Flora which had not been addressed under "Summary of Factors * * *," Factor D. The individual supplied additional distributional and threat information, which has been incorporated into the appropriate sections of the rule. In addition, he expressed his discontent with its listing as a subspecies, instead of as a full species. There is disagreement regarding the exact taxonomic rank of this species (see "Background"). In the most recent peer-reviewed journal, this species was presented as *Sarracenia rubra* ssp. *alabamensis*. If formally redescribed as a full species, as recommended by McDaniel (1986), an editorial change will be made to the List of Endangered and Threatened Wildlife and Plants, to reflect this nomenclatural change.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Sarracenia rubra* ssp. *alabamensis* should be classified as an 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 *Sarracenia rubra* Walt. ssp. *alabamensis* (Case and Case)

Schnell (Alabama canebrake pitcher-plant) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* *Sarracenia rubra* ssp. *alabamensis* occurs in small, localized colonies at only 12 sites in central Alabama (see "Background" for more detailed distributional information). Most of the species' habitat has been destroyed or adversely modified through clearing and drainage for agricultural usage (e.g., pastureland, row crops). The intensive pressure from agricultural utilization of the habitat is evident in the fact that half of the extant populations occur in converted pastureland. Use of habitat as unimproved pasture may benefit plants by eliminating competing vegetation (Folkerts 1976), as long as the drainage is unaffected and the area is not overgrazed. However, with overgrazing, the soils become highly compacted and the plants are more likely to be trampled by cattle. One site supporting a vigorous population is imminently threatened by attempts to drain the area and convert it to pastureland. Many of the hillside bogs have served as sites for the construction of farm ponds. One of the largest populations known for *Sarracenia rubra* ssp. *alabamensis* has declined from several hundred plants to less than 20 individuals due to direct destruction and soil moisture alterations associated with the construction of one such farm pond (Gibson *in litt.*). All populations in agricultural sites have been degraded and several have lost individuals from such agricultural practices as outlined above.

Gravel mining poses a threat to this species and its habitat due to the gravel subsurface of many of the bogs. One area containing *Sarracenia rubra* ssp. *alabamensis* is presently an active mining site, and one of the four largest extant populations is imminently threatened by plans for such an operation.

A number of populations were once located near railroad rights-of-way in Elmore and Autauga Counties, Alabama. Herbicide spraying along the rights-of-way contributed to the loss of many of these populations (R. Troup personal communication 1987) and poses a threat to extant populations on rights-of-way.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Like many carnivorous plants, *Sarracenia rubra* ssp. *alabamensis* is vulnerable to over-collection by commercial plant dealers and hobbyists. Taking is a well-documented threat to this species (F. Case personal communication 1987, Folkerts 1976,

Gibson *in litt.*, Kral 1983, McDaniel and Troup 1982, Troup personal communication 1987) and has contributed to the destruction of several historical populations and significantly degraded many existing populations. In 1975, a collector ran an advertisement in a local newspaper offering a \$20 reward for locational information and additional fees for collecting specimens.

C. *Disease or predation.* Although cattle have been known to feed on pitcher plants (Folkerts 1976), predation is not considered to be a significant threat to this species. *Sarracenia rubra* ssp. *alabamensis* is not known to be threatened by disease.

D. *The inadequacy of existing regulation mechanisms.* A measure of protection is provided for this species due to its inclusion in Appendix I of CITES. Such legislation restricts international trade of wild-collected plants, unless such would specifically contribute to its survival in the wild. There are no other State or Federal laws protecting this species or its habitat. The Act would provide protection (see "Available Conservation Measures" below) and encourage active management for this species.

E. *Other natural or manmade factors affecting its continued existence.* This species occurs in a specialized habitat type which evolved under the influence of periodic fires. Suppression of these naturally occurring fires from this habitat has resulted in succession and eventual elimination of plants through shading and overcrowding. As discussed in the "Background" section, much of this species' habitat has been degraded through succession. The loss of as many as five populations has been attributed to this factor (F. Case personal communication 1987, McDaniel and Troup 1982, R. Troup personal communication 1987) and many existing populations face a similar fate. Plants in sites which have been without fire for a period are weak and rarely flowering. Conservation of this species will require active site management through prescribed fire and hand-clearing. The water table is believed to have been significantly lowered in this species' general range, thereby reducing the number of seeds which are suitable habitat for this species. In addition, this lowered water table permits the encroachment of competitors in those seeps which support populations (Case personal communication). The relatively recent invasion of Japanese honeysuckle (*Lonicera japonica*) into this species' habitat (Case and Case 1974, Folkerts 1976, Kral 1983) is considered to be a significant threat.

This pitcher plant is vulnerable due to its restricted range and limited amount of suitable habitat. Local extinction through natural causes is possible at those sites supporting few individuals.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list *Sarracenia rubra* ssp. *alabamensis* as an endangered species. Over 50 percent of the species' populations have been destroyed and remaining populations are imminently threatened, including two of the four remaining sites that support large, vigorous populations. No sites are protected. *Sarracenia rubra* ssp. *alabamensis* is in danger of extinction throughout all or significant portions of its range, and is thus an endangered species as defined by the Act. Critical habitat is not being designated for the reasons discussed below.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate 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 the species at this time. As discussed under Factor B in the "Summary of Factors Affecting the Species," *Sarracenia rubra* ssp. *alabamensis* is threatened by taking. Publication of critical habitat descriptions would make this species even more vulnerable, as violations of the protective regulations are difficult to enforce against. Confidentiality of locations is considered a key factor in its protection. The major landowners have been contacted and informed of the locations and importance of protecting this species and its habitat. Protection of this species' habitat will be addressed through the recovery process and through the section 7 jeopardy standard. Therefore, it would not be prudent to determine critical habitat for this species 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, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking are discussed, in part, below.

Section 7(a) of the Act, as amended requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402. 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 adversely affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

All presently known populations of this pitcher plant are on private land. Currently, no activities to be authorized, funded, or carried out by Federal agencies are known that would affect this species.

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. 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 it for sale in interstate or foreign commerce, or remove it from areas under Federal jurisdiction and reduce it to possession. In addition, for listed plants the 1988 amendments (Pub. L. 100-478) to the Act prohibit their malicious damage or destruction on Federal lands, and their removal, cutting, digging up, or damaging or destroying in knowing violation of 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. 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, P.O. Box 27329, Central Station, Washington, DC 20038-7329 (202/343-4955).

On June 8, 1981, *Sarracenia rubra* ssp. *alabamensis* was included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The effect of this listing is that both export and import permits are required before international shipment may occur. Such shipment is strictly regulated by CITES member nations to prevent it from being detrimental to the survival of the species, and cannot be allowed if it is for primarily commercial purposes. If plants are certified as artificially propagated, however, international shipment requires only export documents under CITES, and commercial shipments may be allowed.

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

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- Kral, R. 1983. A report on some rare, threatened, or endangered forest-related vascular plants of the South. USDA, Forest Service, Tech. Pub. R8-TP2, pp. 549-552.
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- McDaniel, S.T. 1986. Taxonomic study of three *Sarracenia* subspecies (*S. rubra* ssp. *alabamensis*, *S. rubra* ssp. *wherryi*, and *S. rubra* ssp. *provident*) under contract to the U.S. Fish and Wildlife Service, Southeast Region, Atlanta, Georgia. 15 pp.
- McDaniel, S.T., and R.L. Troup. 1982. Status report on *Sarracenia alabamensis* subsp. *alabamensis*. Provided under contract to the U.S. Fish and Wildlife Service, Southeast Region, Atlanta, Georgia. 17 pp.
- Schnell, D.E. 1977. Intraspecific variation in *Sarracenia rubra* Walt.: some observations. *Castanea* 42:149-170.
- Schnell, D.E. 1979. *Sarracenia rubra* Walter ssp. *gulfensis*; a new subspecies. *Castanea* 44:217-223.

Author

The primary author of this final rule is Cary Norquist (see ADDRESSES section (601/965-4900 or FTS 490-4900)).

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

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

PART 17—[AMENDED]

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; Pub. L. 100-478, 102 Stat. 2306; Pub. L. 100-653, 102 Stat. 3825 (16 U.S.C. 1531 *et seq.*); Pub. L. 99-625, 100 Stat. 3500, unless otherwise noted.

2. Amend § 17.12(h) by adding the following, in alphabetical order under Sarraceniaceae, 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					
Sarraceniaceae—Pitcher plant family:						
<i>Sarracenia rubra</i> ssp. <i>alabamensis</i> (= <i>S. alabamensis</i> ssp. <i>alabamensis</i>).	Alabama canebrake pitcher-plant	U.S.A. (AL)	E	346	NA	NA

Dated: January 30, 1989.

Becky Norton Dunlop,
 Assistant Secretary for Fish and Wildlife and
 Parks.

[FR Doc. 89-5595 Filed 3-9-89; 8:45 am]

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