

## 50 CFR Part 17

**Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for *Lysimachia Asperulaefolia*****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Proposed rule.

**SUMMARY:** The Service proposes to list *Lysimachia asperulaefolia* (rough-leaved loosestrife), a perennial herb limited to nine populations in North Carolina, as an endangered species under the authority of the Endangered Species Act (Act) of 1973, as amended. *Lysimachia asperulaefolia* is endangered by suppression of fire, drainage activities associated with silviculture and agriculture, and residential and industrial development. This proposal, if made final, would implement Federal protection provided by the Act for *Lysimachia asperulaefolia*. The Service seeks data and comments from the public on this proposal.

**DATES:** Comments from all interested parties must be received by June 9, 1986. Public hearing requests must be received by May 27, 1986.

**ADDRESS:** Comments and materials concerning this proposal should be sent to Mr. Warran T. Parker, Field Supervisor, Endangered Species Field Station, U.S. Fish and Wildlife Service, 100 Otis Street, Room 224, Asheville,

North Carolina 28801. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

**FOR FURTHER INFORMATION CONTACT:** Ms. Nora Murdock at the above address (704/259-0321 or FTS 672-0321).

**SUPPLEMENTARY INFORMATION:****Background**

The taxonomic history of *Lysimachia asperulaefolia* (rough-leaved loosestrife) was summarized and clarified by Ray (1956) as follows: *Lysimachia asperulaefolia* was described as a new species by Jean Louis Marie Poiret in 1814. The material upon which he based this description was collected in North Carolina, but was mistakenly attributed to an Egyptian collection. In 1817, Stephen Elliott published a description of conspecific material collected by Herbemont near Columbia, South Carolina, naming it *Lysimachia herbemonti*. The only other synonym for this species was *Trydinia herbemonti*, used by E.G. Steudel in his 1841 edition of *Nomenclator botanicus*.

The slender stems of this perennial herb grow from a rhizome and reach heights of 3 to 6 decimeters (1 to 2 feet). Whorls, usually of three to four leaves, encircle the stem at intervals beneath the showy yellow flowers. Flowering occurs from mid-May through June, with fruits present from July through October (Kral 1983; Radford *et al.* 1978). *Lysimachia asperulaefolia* is easily distinguished from the one other similar southeastern species of *Lysimachia*, *Lysimachia loomisii* Torrey, by its broader, glandular leaves and much larger flowers (Kral 1983).

*Lysimachia asperulaefolia* is a species endemic to the coastal plain and sandhills of North and South Carolina. It currently is known from nine locations in North Carolina and is believed extirpated from South Carolina. This species generally occurs in the ecotones or edges between longleaf pine uplands and pond pine pocosins [areas of dense shrub and vine growth usually on a wet, peaty, poorly drained soil (Barry 1980)], on moist to seasonally saturated sands and on shallow organic soils overlying sand. The plant has also been found to occur on deep peat in the low shrub community of large Carolina bays [shallow, elliptical, poorly drained depressions of unknown origin (Mathews *et al.* 1980)]. The grass-shrub ecotone, where *Lysimachia asperulaefolia* is found, is fire-maintained, as are the adjacent plant communities (longleaf pine-scrub oak, savannah, flatwoods, and pocosin). Suppression of naturally occurring fire in these ecotones results in shrubs increasing in density and height and expanding to eliminate the open edges required by *Lysimachia asperulaefolia*. Drainage of these moist depressions in preparation for silvicultural or agricultural activities has also contributed to the decline of the species. Fire suppression, drainage, and, to a lesser extent, residential and industrial development have altered and eliminated habitat for this species and continue to be the most significant threats to the species' continued existence (Carter 1985; Kral 1983).

Although intensive searches have been conducted in numerous areas of suitable habitat, a total of only 19 populations of *Lysimachia asperulaefolia* have been reported in

North and South Carolina. Nine of these (all in North Carolina) remain in existence. The following is a summary of the most current information for this species:

*South Carolina:* According to Rayner (1985), *Lysimachia asperulaefolia* was collected at Columbia, Richland County, around 1817. Extensive development has occurred in this area and neither the habitat nor the species can now be found. Another site was recorded for the species in 1857 near Society Hill, Darlington County. At this location, the habitat currently remains essentially intact, but has not been allowed to burn for many years. Although these locations and other areas of suitable habitat were searched extensively by Rayner in 1984 and 1985, *Lysimachia asperulaefolia* was not found (Rayner 1985).

*North Carolina:* *Lysimachia asperulaefolia* has been reported from 17 sites in North Carolina. The species has been extirpated at eight of these localities. Three populations in Brunswick County, and one population each in Pender, Cumberland, Beaufort, Pamlico, and Onslow Counties, have succumbed to drainage associated with agricultural and silvicultural activities and residential development, as well as fire suppression (Carter 1985; J. Moore, North Carolina Natural Heritage Program, personal communication, 1985). A late-1800's record, from near Statesville in Iredell County, is now believed to have been a misidentification (R. Sutter, North Carolina Plant Protection Program, personal communication, 1985; J. Moore, personal communication, 1985). The distribution of the nine extant populations by county is as follows:

Two populations occur in Carteret County. One population occurs on U.S. Forest Service land. In 1983, a 200-acre tract of the Croatan National Forest, including part of this population of *Lysimachia asperulaefolia*, was designated for a county landfill site. The plants, which existed on the edge of the proposed landfill, were removed from the area. The other colony in this population has experienced a 40 percent decline in numbers of stems since 1980, as a result of silvicultural site preparation, including ditching and drainage (J. Moore, personal communication, 1985; Carter 1985). The second population is on land administered by the U.S. Forest Service, and partly in private ownership. The privately owned portion of this population is on land that is currently for sale and being considered for municipal development (J. Moore,

personal communication, 1985). The entire population is potentially threatened by drainage and other intensive timber management activities, as well as by development.

Two populations occur in Scotland County. Both of these populations are located on land owned by the U.S. Department of Defense that is leased to and managed by the North Carolina Wildlife Resource Commission as part of the Sandhills Game Lands. The first population consists of two very small colonies, covering a total area of less than 10 square meters (12 square yards). The plants here are rapidly being eliminated by shrub encroachment due to fire exclusion; conversion of uplands to pine plantation is also a threat at this site (Carter 1985). The second population is relatively large, but fire suppression has resulted in shrub encroachment; plants here are feeble and not reproducing well (Carter 1985).

Another population is located on the border of Cumberland and Bladen Counties. The population consists of two small colonies which cover a combined total area of less than 6 square meters (7.2 square yards). One colony is owned by the North Carolina Department of Natural Resources and Community Development, while the other is on land that is privately owned and currently for sale. The entire population is endangered by fire suppression (Carter 1985; F. Annand, North Carolina Nature Conservancy, personal communications, 1985).

Two populations occur in Brunswick County. One population exists on land owned by The Nature Conservancy. It is being actively managed with prescribed fire, and is one of the most vigorous populations. However, intensive studies conducted on this population indicate that there is a high turnover in individual stems from year to year for reasons that are currently unknown (Sutter, personal communication, 1985). The second population is located on land owned by the U.S. Department of Defense, Sunny Point Military Ocean Terminal. This population has benefited from a recently begun program of prescribed burning. However, drainage and conversion of pocosins to pine plantation is currently ongoing in other areas of the terminal, and could eventually threaten the species here (Carter 1985).

One population occurs in Pender County on land owned in part by the North Carolina Wildlife Resources Commission and The Nature Conservancy. One private owner retains a small portion of this tract. This population is very small in terms of

numbers and area covered, and is in serious need of fire. The remaining plants are feeble and not reproducing well due to severe shrub encroachment (Carter 1985; F. Annand, personal communication, 1985).

The ninth population is located in Hoke County on land owned by the U.S. Department of Defense, Fort Bragg Military Reservation. This population is relatively vigorous (Carter 1985); however, it is endangered by fire suppression or long-rotation burning (greater than three years), timber harvesting activities, and possibly mechanized military training activities.

On December 15, 1980, the Service published a revised notice of review for native plants in the *Federal Register* (45 FR 82480); *Lysimachia asperulaefolia* was included in that notice as a category-1 species. Category-1 species are those for which the Service presently has sufficient information on hand to support the biological appropriateness of their being listed as endangered or threatened species. A revision on the 1980 notice that maintained *Lysimachia asperulaefolia* in category 1 was published on September 27, 1985 (50 FR 39526).

#### Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (50 CFR Part 424) 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 *Lysimachia asperulaefolia* Poiret (Rough-leaved loosestrife) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* *Lysimachia asperulaefolia* has been and continues to be endangered by destruction or adverse alteration of its habitat. Since discovery of the species, over 50 percent of the known populations have been extirpated largely due to drainage and conversion of the habitat for silvicultural and agricultural purposes. Residential and industrial development has eliminated some habitat directly, and altered water regimes in adjacent areas to the point where the species can no longer survive. Fire suppression is a serious problem for this species and will be discussed in detail under factor "E" below. Of the ten populations that have been extirpated, four were eliminated by drainage and subsequent conversion to

pine plantation or other intensive silvicultural practices, three disappeared due to fire suppression, two were eliminated by residential or industrial development, and one was lost when the area was drained and converted to agricultural use. At least seven of the remaining nine populations are currently threatened by habitat alteration. In addition to the major threats listed above, those populations on military installations are potentially threatened by mechanized military training activities. Although this has not been a documented problem for this species thus far, some of the small, fragile pocosins could easily be destroyed by heavy, tracked vehicles such as tanks. Nonetheless, populations probably persist on military bases, where they have not survived on adjacent privately owned land, because of the Defense Department's prescribed burning programs and periodic fires that are incidental to military training (J. Carter, North Carolina State University, personal communication, 1985). Activities associated with intensive timber management on publicly owned land, such as timber harvesting, road building, and drainage, if done in a manner not consistent with the protection of *Lysimachia asperulaefolia* populations, could adversely affect the species, as has been the case on private lands in the past.

**B. Overutilization for commercial, recreational, scientific, or educational purposes.** *Lysimachia asperulaefolia* is not currently a significant component of the commercial trade in native plants; however, with its showy flowers, the species has potential for horticultural use, and publicity could generate an increased demand.

**C. Disease or predation.** Not applicable to this species at this time.

**D. The inadequacy of existing regulatory mechanisms.** *Lysimachia asperulaefolia* is afforded legal protection in North Carolina by North Carolina General Statutes, §§ 106-202.12 to 106-202.19 (Cum.Supp. 1985), which provides for protection from intrastate trade (without a permit) and for monitoring and management of State-listed species, and prohibits taking of plants without written permission of landowners. *Lysimachia asperulaefolia* is listed in North Carolina as endangered. State prohibitions against taking are difficult to enforce and do not cover adverse alterations of habitat, such as disruption of drainage patterns and water tables, or exclusion of fire. The species is recognized in South Carolina as endangered and of national concern by the South Carolina Advisory

Committee on Rare, Threatened, and Endangered Plants in South Carolina; however, this State offers no official protection. Section 404 of the Federal Water Pollution Control Act (FWPCA) could potentially provide some protection for the habitat of *Lysimachia asperulaefolia*; however, most, if not all, of the sites where it occurs do not meet the wetlands criteria of the FWPCA. The Endangered Species Act would provide additional protection and encouragement of active management for *Lysimachia asperulaefolia*.

**E. Other natural or manmade factors affecting its continued existence.** As mentioned in the "Background" section of this proposed rule, many of the remaining populations are small in numbers of individual stems and in terms of area covered by the plants. In addition, the rhizomatous nature of the species indicates that there are many fewer individual plants in existence than stem counts would indicate, with as many as 50 or more stems arising from a single rhizome or plant (R. Sutter, personal communication, 1985). There is low genetic variability within populations, making it more important to maintain as much habitat and as many of the remaining colonies as possible. In addition, intensive studies have revealed that there is a high turnover in individual stems from year to year; for instance, of 50 individuals marked in 1983 and subsequently monitored, only 8 remained by 1985 (R. Sutter, personal communication, 1985). Although the species seems to have high seed viability and good seed set, in 1985 less than 3 percent of the plants in all populations flowered (Carter 1985; R. Sutter, personal communication, 1985; J. Moore, personal communication, 1985; Moloney 1985). Much remains unknown about the demographics and reproductive requirements of this species. Fire is essential to maintaining the grass-scrub ecotone where *Lysimachia asperulaefolia* occurs. Without periodic fire, this ecotone is gradually overtaken and eliminated by the shrubs of the adjacent pocosins. As the shrubs increase in height and density, they overtop the *Lysimachia asperulaefolia*, which is shade-intolerant. The current distribution of this species is ample evidence of its dependence on fire. Of the nine remaining populations, seven are completely on publicly owned lands, or lands owned by The Nature Conservancy, that are actively managed with prescribed fire or exposed to naturally occurring periodic fires. The two sites which are partially in private ownership are either exposed to

periodic fire or adjacent to areas which are regularly burned. Populations in areas which have not been recently burned tend to be feeble and reproduce poorly.

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 propose this rule. Based on this evaluation, the preferred action is to list *Lysimachia asperulaefolia* as endangered. With more than 50 percent of the species' populations having already been eliminated, and only nine remaining in existence, it definitely warrants protection under the Act. Endangered status seems appropriate because of the imminent serious threats facing most populations. 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 *Lysimachia asperulaefolia* at this time. With its showy flowers, the species has potential for horticultural use. Increased publicity and the provision of specific location information associated with critical habitat designation could result in collecting pressures on the species. Although removal and reduction to possession of endangered plants from lands under Federal jurisdiction are prohibited by the Endangered Species Act, such provisions are difficult to enforce. Publication of critical habitat descriptions would make *Lysimachia asperulaefolia* more vulnerable and would increase enforcement problems for the U.S. Forest Service and the Department of Defense. The populations on private lands would be vulnerable to collection. Increased visits to population locations stimulated by critical habitat designation could therefore adversely affect the species. The Federal and State agencies and landowners involved in managing the habitat of this species have been informed of the plants' locations and of the importance of protection.

#### 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 collection 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 any critical habitat. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402, and are now under revision (see proposal at 48 FR 29990; June 29, 1983). 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 the 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.

The U.S. Forest Service and the U.S. Department of Defense have jurisdiction over portions of this species' habitat. Federal activities that could impact *Lysimachia asperulaefolia* and its habitat in the future include, but are not limited to, the following: silvicultural activities, including timber harvesting and conversion of sites to pine plantations by means of drainage and mechanical site preparation; mechanized military training operations; recreational development; drainage alterations; road construction; permits for mineral exploration; and implementation of timber harvest portions of forest management plans. The Service will work with the involved agencies to secure protection and proper management of the *Lysimachia asperulaefolia* while accommodating agency activities to the extent possible.

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 plant species. With respect to *Lysimachia asperulaefolia*, all trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, would apply. These prohibitions, in part, would make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, or sell or offer for sale this species in interstate or foreign commerce. 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 plant species under certain circumstances. It is anticipated that few trade permits would ever be sought or issued since *Lysimachia asperulaefolia* is not common in cultivation or in the wild.

Section 9(a)(2)(B) of the Act, as amended in 1982, prohibits the removal and reduction to possession of endangered plant species from areas under Federal jurisdiction. This prohibition would apply to *Lysimachia asperulaefolia*. Permits for exceptions to this prohibition are available through regulations published September 30, 1985 (50 FR 39681; to be codified at 50 CFR 17.62). It is anticipated that few, if any, permits will be requested for collecting *Lysimachia asperulaefolia* from Federal lands. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Federal Wildlife Permit Office, U.S. Fish and Wildlife Service, Washington, DC 20240 (703/235-1903).

#### Public Comments Solicited

The Service intends that any final rule adopted will be accurate and as effective as possible in the conservation of endangered or threatened species. 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 these proposed rules are hereby solicited. Comments particularly are sought concerning:

- (1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to *Lysimachia asperulaefolia*;
- (2) the location of any additional populations of *Lysimachia asperulaefolia* 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 this species; and

(4) Current or planned activities in the subject area and their possible impacts on *Lysimachia asperulaefolia*.

Final promulgation of the regulation on *Lysimachia asperulaefolia* will take into consideration the comments and any additional information received by the Service, 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, Asheville Endangered Species Field Station (see the "Addresses" section).

#### 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 outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

#### Literature Cited

- Barry, J.M. 1980. Natural Vegetation of South Carolina. University of South Carolina Press, Columbia. 214 pp.
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- Kral, R. 1983. A Report on Some Rare, Threatened, or Endangered Forest-related Vascular Plants of the South. U.S. Forest Service Tech. Pub. R8-TP2. 1,305 pp.
- Mathews, T.D., F.W. Stapor, Jr., C.R. Richter, J.W. Miglarese, M.D. McKenzie, and L.A. Barclay, eds. 1980. Ecological Characterization of the Sea Island Coastal Region of South Carolina and Georgia. U.S. Fish and Wildlife Service, FWS/OBS-79/40. Vol. 1. 212 pp.
- Moloney, K. 1985. Preliminary Report on the 1985 Census of *Lysimachia asperulaefolia* in the Green Swamp of North Carolina. Report to the North Carolina Department of Agriculture. 15 pp.
- Radford, A.E., H.E. Ahles, and C.R. Bell. 1978. Manual of the Vascular Flora of the Carolinas. UNC Press, Chapel Hill. 1,183 pp.

Ray, J.D. 1956. The genus *Lysimachia* in the New World. Illustrated Biological Monographs 24:1-68.

Rayner, D.A. 1985. Letter to Robert Sutter, North Carolina Department of Agriculture, regarding the status of *Lysimachia asperulaefolia* in South Carolina.

**Author**

The primary author of this proposed rule is Ms. Nora Murdock, Endangered Species Field Station, U.S. Fish and Wildlife Service, 100 Otis Street, Room 224, Asheville, North Carolina 28801 (704/259-0321 or FTS 672-0321).

**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 family *Primulaceae*, to the List of Endangered and Threatened Plants:

**§ 17.12 Endangered and threatened plants.**

\* \* \* \* \*  
(h) \* \* \*

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
PRIMULACEAE—Primrose family.						
<i>Lysimachia asperulaefolia</i>	Hough-leaved loosestrife	U.S.A. (NC, SC)	E		NA	NA

Dated: February 28, 1986.  
**P. Daniel Smith,**  
*Deputy Assistant Secretary for Fish and Wildlife and Parks.*  
 [FR Doc. 86-7932 Filed 4-9-86; 8:45 am]  
**BILLING CODE 4310-55-M**