

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Threatened Status for *Geocarpon Minimum*

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines a plant, *Geocarpon minimum*, to be a threatened species under the authority contained in the Endangered Species Act (Act) of 1973, as amended.

Geocarpon minimum is only known from four sites in Arkansas (four counties) and thirteen sites in southwestern Missouri (six counties). However, of these 17 sites, only four Missouri sites and one Arkansas site contain vigorous populations. This species is threatened by its limited distribution and by habitat destruction or modification from pasturing, off-road vehicle (ORV) use, forestry practices, and succession. This action will extend the Act's protection to *Geocarpon minimum*.

DATES: The effective date of this rule is July 16, 1987.

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

FOR FURTHER INFORMATION CONTACT: Mr. Dennis B. Jordan (see **ADDRESSES** section) at 601/965-4900 or FTS 490-4900.

SUPPLEMENTARY INFORMATION:**Background**

Geocarpon minimum is a small, succulent annual, 1-4 centimeters (0.4-1.6 inches) in height. The stems, which may be simple or branched near the base, extend from a slender taproot. Leaves are opposite, sessile, joined at base, 3-4 millimeters (0.1-0.2 inches) long, and narrowly oblong in shape. The flowers, which are inconspicuous in the leaf axils, are apetalous, and have a greenish-red calyx. The fruit, a capsule, dehisces into three parts at maturity, releasing numerous seeds measuring 0.5 millimeter (0.02 inch) long. Young plants are dull gray and turn reddish-purple at maturity. The species is ephemeral, usually completing its life cycle within a 4-week period (Morgan 1980, Kral 1983, Tucker 1983).

Geocarpon minimum, the only species of a monotypic genus, was first collected in 1913 by E.J. Palmer in Jasper County, Missouri. MacKenzie (1914) described this new taxon and placed it in the family Aizoaceae. Palmer and Steyermark (1950) later transferred the genus to the family Caryophyllaceae based on the following characters: Staminal rudiments, apetalous flowers, lack of stipules, gamophyllous calyx, 5 perigynous stamens, 1-celled ovary, and free-central placentation. Chemotaxonomic studies on *Geocarpon* by Bogle *et al.* (1971) revealed the presence of anthocyanins, which provided further support for its placement in the Caryophyllaceae family.

In Missouri, *Geocarpon* grows on moist, sandy soils on exposed sandstone outcrops which are primarily of the Channel sands formation (Morgan 1980). Arkansas sites are characterized as sandy-clay prairies occurring in otherwise savanna-type areas. In these areas, *Geocarpon* occurs on bare mineral soils of the Lafe or Wing Series (high in sodium and magnesium) which may represent relict Pleistocene Lake beds (Tucker 1983, Kral 1983). Species diversity is low at these sites. Species commonly associated with *Geocarpon* include *Houstonia minima*, *Nothoscordum bivalve*, *Plantago hybrida*, *Plantago elongata*, *Krigia occidentalis*, *Krigia virginica*, and *Oenothera linifolia* (Morgan 1980, Tucker 1983, Kral 1983). Sites in Arkansas are also characterized by prominent colonies of blue-green algae (Tucker 1983).

Extensive searches of suitable habitat for *Geocarpon* have been conducted by Steyermark *et al.* (1959), Rettig (1983), Tucker (1983), S. Orzell (Texas Natural Heritage Program, pers. comm., 1986), E. Bridges (The Nature Conservancy, pers. comm., 1986), and S. Morgan (Missouri Department of Conservation, pers. comm., 1985). Currently, populations are known at 13 sites in Missouri including five in Dade County; two each in Polk, St. Clair, and Cedar Counties; and one each in Lawrence and Greene Counties. However, only four of these 13 sites support vigorous populations (S. Morgan, pers. comm., 1985). *Geocarpon* has not been observed at the type locality in Jasper County, Missouri (the location where the species was first collected) since 1949 and is believed extirpated from this site (S. Morgan, pers. comm., 1985). Four populations of *Geocarpon* are known in Arkansas: a large one at Warren Prairie in parts of Bradley and Drew Counties (Warren Prairie), two small depauperate populations in Cleveland County

(Kingsley Prairie), and one recently discovered moderate-sized population in Franklin County (S. Orzell, pers. comm., 1986; Smith 1986). The Warren Prairie site contains the largest population of *Geocarpon*, with plants occurring locally in parts of five contiguous sections (Tucker 1983). Population structure consists of solitary individuals or small groups within these communities. Morgan (1980) reports that in Missouri the colonies range in size from 1 to 6 square meters (1.2 to 7.2 square yards) while Tucker (1983) states the largest colonies do not exceed 1 square meter in Arkansas. However, larger colonies have been observed at several areas in Missouri by Chaplin (1986) and in Arkansas by the author. The majority of the sites are on privately-owned lands; four sites are located on public lands. Many of these sites continue to be damaged by grazing and off-road vehicles (ORVs), which threaten the continued existence of *Geocarpon*.

Federal Government actions on this species began with section 12 of the Endangered Species Act of 1973 (Act), 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 Smithsonian Institution report as a petition within the context of section 4(c)(2) of the Act (petition acceptance is now governed by section 4(b)(3)(A) of the Act), and of its intention thereby to review the status of the plant taxa named therein. 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. 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. *Geocarpon minimum* was included in the Smithsonian petition and the June 16, 1976, proposal, as amended. General comments received in relation to the 1976 proposal were summarized in the **Federal Register** on April 26, 1978 (43 FR 17909).

The Endangered Species Act Amendments of 1978 required that all proposals over 2 years old be withdrawn. On December 10, 1979, the Service published a notice (44 FR 70796) withdrawing the June 16, 1976, proposal

along with four other proposals that had expired. On December 15, 1980, the Service published a revised notice of review for native plants in the **Federal Register** (45 FR 82480); *Geocarpon minimum* was included in that notice as a category-1 species. *Geocarpon minimum* was maintained in category 1 in the Service's updated plant notice of September 27, 1985 (50 FR 39526). Category 1 comprises taxa for which the Service presently has substantial biological information to support their being proposed to be listed as endangered or threatened 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 *Geocarpon minimum* because of the acceptance of 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 *Geocarpon minimum* was warranted. On April 10, 1986, The Service published in the **Federal Register** (51 FR 12460), a proposal to list *Geocarpon minimum* as a threatened species. The Service now determines *Geocarpon minimum* to be a threatened species with the publication of this final rule.

Summary of Comments and Recommendations

In the April 10, 1986, proposed rule (51 FR 12460) 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 inviting public comment were published in the *Pine Bluff Commercial*, Pine Bluff, Arkansas, on May 1, 1986, and in the *Springfield Daily News*, Springfield, Missouri, on May 4, 1986. Eight comments were received and are discussed below. No public hearing was requested or held. Seven comments were received expressing support for the proposal, four from State agencies, and three from conservation organizations. One State agency and one private organization provided additional information on the distribution of and threats to *Geocarpon*. This information has been incorporated into appropriate sections of the rule. The eighth comment from the Department of the Army

(Office of the Chief of Engineers) stated that the two populations of *Geocarpon* on Corps of Engineers (COE) land in the Kansas City District are managed as Natural Areas and that no future development is proposed that would affect this species or its habitat.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Geocarpon minimum* should be classified as a threatened 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 *Geocarpon minimum* MacKenzie are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* *Geocarpon minimum* is only known from Missouri and Arkansas (see "Background" section for number of populations). A major threat to *Geocarpon* is the destruction or adverse modification of its habitat. In Missouri, some sites have been damaged by trampling and grazing by cattle (S. Morgan, pers. comm., 1985); however, Chaplin (1986) suggests that the physical disturbance associated with cattle grazing may actually benefit *Geocarpon* at some sites by maintaining bare substrate for seedling establishment. A more serious threat concerns pasture improvement, which, coupled with the invasion of prairie species, is thought to have destroyed *Geocarpon* at the type locality (Chaplin 1986). The habitat of *Geocarpon* has been damaged by ORVs, and this problem is amplified by the easy access to many of the sites from adjacent roads (Tucker 1983). Suitable habitat for *Geocarpon* is limited, and most such areas have been heavily disturbed. In southern Arkansas many of the areas have been adversely modified by silvicultural practices (Tucker 1983, pers. comm., 1985). Populations in close proximity to roads are further threatened by future road expansions and improvements. Even though habitat is of low agricultural quality, some areas have been cultivated in the past or are presently in pasture (Kral 1983). *Geocarpon* appears to require some type of natural disturbance to maintain bare substrate for seedling establishment (Tucker 1983). Research on the biology

of this species would increase the likelihood that management plans developed would be effective.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Taking for these purposes poses a risk to *Geocarpon minimum* due to the ease of access to the sites and its desirability due to its taxonomic uniqueness (*Geocarpon* is a monotypic genus; genus contains only one species).

C. *Disease or predation.* *Geocarpon* is not known to be threatened by disease or predation.

D. *The inadequacy of existing regulatory mechanisms.* *Geocarpon* is considered endangered by the Missouri Department of Conservation and the Arkansas Natural Heritage Commission; however, it is afforded legal protection only in Missouri. Missouri legislation prevents commercial exploitation of rare and endangered plants without a permit. However, the Missouri law does not provide protection against habitat loss, the major threat to *Geocarpon*. Of the four publicly owned sites, three are designated as Natural Areas (NA) and are thereby afforded protection. The Arkansas Natural Heritage Commission owns and manages the Warren Prairie NA (300 acres, 125 hectares) in Bradley County, which contains a portion of the largest known population of *Geocarpon*; however, no protection is provided for the plants and their habitat outside the NA in adjacent Drew County. The other two NAs are in Missouri: The Bona Glade NA (Dade County), owned by the U.S. Army Corps of Engineers and supporting a large, healthy population; and the Taberville Prairie NA (St. Clair County), owned and managed by the Missouri Department of Conservation, but a less suitable site with a smaller population. At these areas, collecting is prohibited except for scientific or educational purposes under permit, but these regulations are difficult to enforce. The Act would enhance the existing protection through section 7 (interagency cooperation) and section 9, which prohibits removal and reduction to possession from Federal lands and restricts interstate commercial activity.

E. *Other natural or manmade factors affecting its continued existence.* *Geocarpon* is vulnerable due to the small amount of available habitat, its limited range, and low numbers at many of the sites. Furthermore, the species is susceptible to inadvertent destruction because of its diminutive size, ephemeral nature, and localized distribution. As with all annuals, population size may fluctuate from year to year due to variable reproductive success. For example, *Geocarpon* does

not germinate every year, a condition perhaps related to moisture availability (Morgan 1980, Tucker 1983). Successful germination from a seed bank can reestablish populations following reproductive failure; however, local extirpation is likely in areas as populations decrease in size. *Geocarpon* is a pioneer species that tolerates little competition from other species. Overcrowding and shading by invading plants which occur with succession pose a major threat to this species (Tucker 1983), and are especially evident in Missouri (Chaplin 1986).

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 *Geocarpon minimum* as threatened. Threatened status seems appropriate since two populations and a portion of a third population are located in designated Natural Areas and are thus protected. Critical habitat is not being determined for reasons discussed in the following section.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate any habitat of a species which is considered to be critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for *Geocarpon minimum* at this time. The involved State agencies and the U.S. Army Corps of Engineers are aware of the locations for this species. Publication of exact locations of *Geocarpon* would increase public interest and possibly lead to additional threats for the species from collecting and vandalism. The sites where *Geocarpon* occurs are easily accessible. *Geocarpon* is a monotypic genus and may be desired for plant collections or for study. No benefit can be identified through critical habitat designation that would outweigh these potential threats. 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 or beneficial to determine critical habitat for *Geocarpon minimum* 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 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 its critical habitat. 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.

Two populations of *Geocarpon minimum* occur on lands under jurisdiction of the U.S. Army Corps of Engineers (Dade County, Missouri). Both are managed as Natural Areas, thereby supporting the preservation of *Geocarpon* (Blakey 1986). Currently, no activities to be authorized, funded, or carried out by Federal agencies are known to exist that would affect *Geocarpon*.

The Act and its implementing regulations found at 50 CFR 17.71 and 17.72 set forth a series of general trade prohibitions and exceptions that apply to all threatened plant species. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export any threatened 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. Seeds from cultivated specimens of threatened plant species are exempt from these prohibitions provided that a statement of "cultivated origin" appears on their containers. Certain exceptions can apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.72 also provide for the issuance of permits to

carry out otherwise prohibited activities involving threatened species under certain circumstances. It is anticipated that few trade permits would be sought or issued since *Geocarpon minimum* is not common in cultivation or in the wild. 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).

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

- Blakey, L.H. 1986. Letter to J.M. Engel, Endangered Species Coordinator, U.S. Fish and Wildlife Service, on the proposal to list *Geocarpon minimum* as a threatened species.
- Bogle, A.L., T. Swain, R.D. Thomas, and E.D. Kohn. 1971. *Geocarpon*: Aizoaceae or Caryophyllaceae? *Taxon* 20(4):473-477.
- Chaplin, S.J. 1986. Letter to D.B. Jordan, Field Supervisor, Jackson Endangered Species Office, on the proposal to list *Geocarpon minimum* as a threatened species.
- Kral, R. 1983. A report on some rare, threatened, or endangered forest-related vascular plants of the South. USDA, Forest Service, Technical Publication R8-TP2. Pp. 409-412.
- MacKenzie, K.K. 1914. A new genus from Missouri. *Torreya* 14:67-68.
- Morgan, S.W. 1980. Status report on *Geocarpon minimum* in Missouri. Missouri Department of Conservation, Jefferson City, Missouri. 16 pp.
- Palmer, E.J., and J. Steyermark. 1950. Notes on *Geocarpon minimum* MacKenzie. *Bull. Torrey Bot. Club* 77:268-273.
- Rettig, J. 1983. A new Arkansas station for *Geocarpon minimum* MacKenzie. *Bull. Torrey Bot. Club* 110.
- Smith, K.L. 1986. Letter to D.B. Jordan, Field Supervisor, Jackson Endangered Species Office, on the proposal to list *Geocarpon minimum* as a threatened species.
- Steyermark, J., J.W. Voigt, and R.H. Mohlenbrock. 1959. Present biological status of *Geocarpon minimum* MacKenzie. *Bull. Torrey Bot. Club* 86:228-235.
- Tucker, G.E. 1983. Status report on *Geocarpon minimum* MacKenzie. Provided under contract to the U.S. Fish and Wildlife Service, Southeast Region, Atlanta, Georgia. 41 pp.

Author

The primary author of this final rule is Cary Norquist (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

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

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: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat.

3751; Pub. L. 96-158, 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 Caryophyllaceae, 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					
Caryophyllaceae—Pink family:						
<i>Geocarpon minimum</i>	None	U.S.A. (AR, MO)	T	275	NA	NA

Dated: May 27, 1987.

Susan Recce,

Acting Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 87-13662 Filed 6-15-87; 8:45 am]

BILLING CODE 4310-55-M