

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Proposal To Determine *Trifolium Stoloniferum* (Running Buffalo Clover) To Be an Endangered Species**AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Proposed rule.

SUMMARY: The Service proposes to list a plant, *Trifolium stoloniferum* (running buffalo clover) as an endangered species. Until perhaps the mid-1800's, this clover ranged from eastern Kansas to West Virginia and was apparently abundant in certain locations. Presently, only two extant populations of *T. stoloniferum* are known. Both occur in West Virginia on private land and are very small, totalling 22 individuals. The status of one of these populations is uncertain. This species is endangered by its rarity alone; additional threats include trampling and other inadvertent destruction by humans and livestock, crushing by off-road vehicles, and competition from weedy species. This proposal, if made final, will implement the protection provided by the Endangered Species Act of 1973, as amended, for *Trifolium stoloniferum*. Critical habitat is not being proposed at this time. The Service seeks data and comments from interested parties on this proposal.

DATE: Comments from all interested parties must be received by May 9, 1986. Public hearing requests must be received April 24, 1986.

ADDRESS: Comments and materials concerning this proposal should be sent to the Annapolis Field Office, U.S. Fish and Wildlife Service, 1825 Virginia Street, Annapolis, Maryland 21401. 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. Judy Jacobs, at the above address (301/269-6324 or FTS 922-4197).

SUPPLEMENTARY INFORMATION**Background**

Running buffalo clover, *Trifolium stoloniferum*, a member of the pea family (Fabaceae), is one of four species of clover native to the eastern United States. This short-lived perennial forms long runners from the base. The flowerheads are terminal and large, up to an inch in diameter. Flowers are white tinged with purple. Flowering normally occurs from mid-April to June and fruits (seed heads) are present into July.

Trifolium stoloniferum was originally named by Henry Muhlenberg in 1813; however, the name was invalid, since it was published without a description. The name was validated by Amos Eaton in his *Manual of Botany for the Northern and Middle States*, published in 1818. *T. stoloniferum* is morphologically similar to the native buffalo clover, *T. reflexum*, but, as the name implies, the former species is stoloniferous (i.e. produces prostrate stems from the base of the plant) while the latter is not. *T. stoloniferum* has also been considered very similar to the introduced stoloniferous species, *Trifolium repens*; however, the former has a chromosome number of $n=16$, while the number for *T. repens* is $n=32$ (Norman Taylor, University of Kentucky Herbarium, pers. comm.).

A detailed character analysis by Brooks (1983) reveals further differences among these three species in growth habit and flower and seed morphology.

Documented specimens of *Trifolium stoloniferum* are available from the states of Arkansas, Illinois, Indiana, Kansas, Kentucky, Missouri, Ohio, and West Virginia, indicating the original range of this plant (Brooks 1983). A recent review of historical accounts indicates that before the arrival of European settlers, this species was abundant in several areas of the Ohio Valley and adjacent regions, and may have been a local dominant within the "bluegrass region" of Kentucky. Running buffalo clover was apparently adapted to rich soils in "relatively stable ecotones, with continual, moderately intense disturbance," between open forest and pastures or prairies (Campbell 1985). Campbell speculates that the vegetation of these areas was likely maintained by "buffalo" (*Bison bison bison*). After the extirpation of bison from the East, the abundance of *T. stoloniferum* apparently decreased. Brooks (1983) indicates that by the late 19th century, populations of running buffalo clover were "limited and widely scattered . . . shortly thereafter . . . the number of collections dwindled rapidly, with a mere five sites documented after 1900." Brooks field checked all the documented locations as well as other likely habitat for *T. stoloniferum* in Missouri and Kansas, without finding any extant populations (R. Brooks, pers. comm.). Extensive field work in Kentucky has also revealed no extant populations of *T. stoloniferum* (J. Campbell, pers. comm.). The plant is also believed to be extirpated in Arkansas, Illinois, Indiana, Missouri and Ohio (pers. comms. with Heritage Programs of the affected States). Based

on this information and his conversations with field botanists, Brooks (1983) concluded that *T. stoloniferum* was possibly extinct.

In 1983 and 1984, two small populations of running buffalo clover were discovered in West Virginia (Bartgis 1985). One of these, a relocation of the most recent historical record (Webster County, 1940), occurs at the margin of a mowed field and in 1984 contained only four plants. During a recent field inspection (summer, 1985), these plants could not be relocated. Therefore the status of this population is questionable; the plants may or may not reappear next spring. The other population, located along an off-road vehicle trail adjacent to the New River in Fayette County, presently contains 18 plants. The Fayette County site, which may be the only remaining population of this species, occurs within the area of an existing hydropower project licensed by the Federal Energy Regulatory Commission. At present, *T. Stoloniferum* is not impacted by any aspect of the hydropower facility. A live shoot from the Fayette County population was sent to the University of Kentucky, where it has been vegetatively propagated; the greenhouse population presently contains some 40 plants. To summarize, based on current information, *T. stoloniferum* is indeed "one of the rarest members of the North American flora" (Bartgis 1985).

Trifolium stoloniferum was first recognized by the Service in the *Federal Register* notice of review published on November 28, 1983 (48 FR 53641). That notice, which covered plants being considered for classification as endangered or threatened, included *Trifolium stoloniferum* in category 2*. Category 2 comprises those taxa for which proposed listing is possibly appropriate but for which conclusive data on biological vulnerability are not currently available to support a proposed rule. The asterisk (*) indicates taxa that are possibly extinct. The Service was informed of the extant populations of this species in December of 1984.

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 *Trifolium stoloniferum* Muhl. ex. Eaton are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* It is difficult to determine the original extent and abundance of running buffalo clover, since elimination of the natural ground cover within its range began during the 1790's, before *T. stoloniferum* was even described, and long before the area was adequately botanized. By 1850, native vegetation of the Kentucky Bluegrass region had been largely replaced by pasture plants, including bluegrass (*Poa pratensis*) and introduced white clover (*Trifolium repens*) (Campbell 1985). Therefore, we must rely on early, nontechnical accounts, such as those summarized by Campbell (1985) to infer the original extent of running buffalo clover. Quotations from early observers in the Kentucky Bluegrass region indicate at least localized abundance: "rich soil . . . adorned with great patches of fine white clover" (Ranck 1901, re 1775), "covered with clover in full bloom" (Walker 1924, re 1775), "a turf of white clover" (Henderson 1775) "an abundance of wild rye, clover and buffalo grass covering vast tracts of country" (Filson 1784) (all quoted in Campbell 1985). Campbell argues that these and other accounts could only have referred to *Trifolium stoloniferum*, the only clover known to have been native to the region. By the late 1800's, when the majority of collections were made, the species was known only from localized, widely scattered localities. Today, *T. stoloniferum* is believed to be extirpated throughout its range, with the exception of the two recently discovered West Virginia populations.

The precise reasons for this striking decline are unclear. It is likely that running buffalo clover was to some extent dependent on bison for soil enrichment, periodic intense disturbance, and seed dispersal (Campbell 1985, Larson 1940, Reynolds *et al.* 1982). In this regard it is interesting that one of the extant West Virginia populations is in the immediate vicinity of the last recorded site for bison in the State, and all other West Virginia records are in the immediate vicinity of known buffalo traces (Bartgis 1985). Other factors contributing to the species' demise could include clearing of its habitat for pasture and agriculture, competition with introduced species, and other habitat changes subsequent to the industrial revolution (Brooks 1983).

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Running buffalo clover is not

known to be used for any commercial or recreational purpose. Because of its rarity, it is subject to collection by botanists and/or curiosity seekers. Given the fact that fewer than thirty individuals of this species are known to exist in the wild, any collection could be considered overutilization. The species could also be largely eliminated in the wild by a single act of vandalism.

C. *Disease or predation.* While *T. stoloniferum* may once have been maintained by grazing, the extant populations are so small that they could easily be eliminated by deer, cattle, or any other herbivore. Similarly, any disease, even if localized in extent, could now virtually render the species extinct.

D. *The inadequacy of existing regulatory mechanisms.* The extant populations of *T. stoloniferum* presently receive no protection under any Federal, State, or local law or regulation.

E. *Other natural or manmade factors affecting its continued existence.* The Fayette County population of running buffalo clover, covering approximately one square yard, is located immediately adjacent to an off-road vehicle path that provides the only public access to a 10-mile stretch of the New River. Due to its location, the population is extremely vulnerable to being run over, trampled, covered by trash, or killed by petroleum pollutants.

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 the running buffalo clover as endangered. The Act defines an endangered species as ". . . any species which is in danger of extinction throughout all or a significant portion of its range. . . ."

Due to the very small population numbers and vulnerability of *Trifolium stoloniferum*, endangered status is most appropriate. The reasons for not designating critical habitat are 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 *Trifolium stoloniferum* because its very restricted distribution makes it vulnerable to extinction from taking. Public access to published habitat descriptions and precise maps

could result in vandalism, which could easily cause the extinction of this species. Therefore, it would not be prudent to determine critical habitat for *Trifolium stoloniferum*.

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 prohibition 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, 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 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 consultation with the Service. The Federal Energy Regulatory Commission has permit jurisdiction over the project area on which the Fayette County population of *T. stoloniferum* occurs. The existing project does not directly impact *T. stoloniferum*; however, any future project developments possibly impacting this species would require section 7 consultation to ensure protection for this species and its habitat.

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 *Trifolium stoloniferum* 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 species under certain circumstances. It is anticipated that few trade permits would ever be sought or issued since the species 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 running buffalo clover. Regulations regarding permits for exceptions to this prohibition were published on September 30, 1985 (50 FR 39681). Because this species is not known to occur on Federal land, it is anticipated that few collecting permits for the species would ever be requested. 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 accuated 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 this proposed rule are hereby solicited. Comments particularly are sought concerning the following:

(1) Biological, commerical trade, or other relevant data concerning any threat (or the lack thereof) to *Trifolium stoloniferum*;

(2) The location of any additional populations of *Trifolium stoloniferum* 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 *Trifolium stoloniferum*.

Final promulgation of a regulation on *Trifolium stoloniferum* will take into consideration the comments and any additional information received by the Service, and such communications may lead to 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 Regional Director, U.S. Fish and Wildlife Service, One Gateway Center, Suite 700, Newton Corner, Massachusetts 02158.

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).

Literature Cited

Bartgis, R. 1985. Rediscovery of *Trifolium stoloniferum* Muhl. ex A. Eaton. *Rhodora* 87: 425-429.
 Brooks, R.E. 1983. *Trifolium stoloniferum*. Running buffalo clover: Description.

distribution and current status. *Rhodora* 85: 343-354.

Campbell, J.J.N. 1985. The land of cane and clover: Pre-settlement vegetation in the so-called Bluegrass Region of Kentucky. Unpubl. ms., Herbarium, University of Kentucky, Lexington, Kentucky, March, 1985.

Larson, F. 1940. The role of the bison in maintaining the shortgrass plains Ecology 21: 113-121.

Reynolds, H.W., R.D. Glaholt, and A.W.L. Hawley. 1982. Bison, pp. 972-1007 *IN* J.A. Chapman and G.A. Feldhamer [eds.], Wild Mammals of North America. Baltimore: The Johns Hopkins Univ. Press. 1147 pp.

Author

The primary author of this proposed rule is Judy Jacobs, Endangered Species Staff, U.S. Fish and Wildlife Service, 1825 Virginia Street, Annapolis, Maryland 21401 (301/269-6324 or FTS 922-4197).

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) for plants by adding the following, in alphabetical order under the family Fabaceae, 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					
Fabaceae—Pea family:						
<i>Trifolium stoloniferum</i>	Running buffalo clover	U.S.A. (AR, IL, IN, KS, KY, MO, OH, WV).....	E		NA	

Dated: February 9, 1986.

P. Daniel Smith,

*Deputy Secretary for Fish and Wildlife and
Parks.*

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