Species		Historic Range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
MAMMALS							
*	*	*	*	*	*	*	
Deer, Visayan	*Cervus alfredi*	Philippines	Entire	E	320	NA	NA
*	*	*	*	*	*	*	

Dated: August 18, 1988.

Susan Recce,

Acting Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 88-19941 Filed 8-31-88; 8:45 am]

BILLING CODE 4310-55-M

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for Asclepias Meadii (Mead's Milkweed)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines *Asclepias meadii* (Mead's milkweed), a prairie perennial, to be a threatened species under the authority of the Endangered Species Act (Act) of 1973, as amended. Approximately 81 populations are currently known; 59 in Kansas, 3 in Illinois, 2 in Iowa, and 17 in Missouri. The plant is believed extirpated from Indiana and Wisconsin. It is threatened by destruction and modification of the "tall grass" prairie due to agricultural expansion, urban growth, and agricultural practices such as mowing and grazing, which are detrimental to the plant's reproductive cycle. This action will implement Federal protection provided by the Act for *Asclepias meadii*.

EFFECTIVE DATE: October 3, 1988.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Service's Regional Office of Endangered Species, Federal Building, Fort Snelling, Twin Cities, MN 55111.

FOR FURTHER INFORMATION CONTACT: James M. Engel, Endangered Species Coordinator (see ADDRESSES section) at 612/725-3276 or FTS 725-3276.

SUPPLEMENTARY INFORMATION:

Background

Asclepias meadii (Mead's milkweed) was first collected by Dr. Samuel Barnum Mead in Hancock County, Illinois, in 1843, and subsequently described by John Torrey in an 1856 addendum to the second edition of *Gray's Manual of Botany* (Betz 1967).

Asclepias meadii is a perennial that usually occurs in virgin prairie as a solitary plant or with a few closely associated individuals (Kurz and Bowles 1981). Ronald McGregor (University of Kansas, pers. comm. 1985) has found *Asclepias meadii* only in tall grass prairies. Morgan (1980) reports that Missouri populations are found in unplowed bluestem prairie in the unglaciated region of the State where the soils are deep silt loam. Betz and Hohn (1978) report that this species occurs on virgin mesic silt loam prairies and occasionally on limestone glade prairies in Missouri and southern Illinois. Betz and Hohn (1978), and Kurz and Bowles (1981) report that very few individual plants are found at any given population, with most populations containing less than a dozen plants. Ralph Brooks (Kansas Biological Survey, pers. comm. 1986) reports that populations in Kansas seem to average about 20 plants each. Craig Freeman (Kansas Natural Heritage Program, pers. comm. 1988) recently reported that approximately 20 percent of the known Kansas populations contained over 100 plants, and were of high quality. Associated species found with *Asclepias meadii* are *Sorghastrum nutans, Andropogon gerardii, Petalostemum candidum, Gentiana puberula, Ruellia humilis,* and *Silphium laciniatum* (Betz and Hohn 1978). *Platanthera praeclara* (Western prairie fringed orchid) recently segregated as an allopatric species from *Platanthera leucophaea* (Eastern prairie fringed orchid) and considered as a candidate for Federal listing is also associated with *Asclepias meadii* at several locations in Kansas (Sheviak and Bowles, pers. comm. 1986).

Asclepias meadii usually commences its seasonal growth in mid to late April. It has a solitary, slender, unbranched stalk, 8–16 inches (20–40 centimeters) high, without hairs, but with a whitish, waxy covering. The leaves are opposite, broadly ovate, 2–3 inches (5–7.5 centimeters) long, 3/8–2 inches (1–5 centimeters) broad, without hairs and also with a whitish, waxy covering. A solitary umbel at the top of a long stalk has 6–15 greenish ivory/cream colored flowers which appear in late May and early June. Young green fruit pods appear by late June and reach their maximum length of 1.5–3 inches (4–8 centimeters) by late August or early September. As these pods mature they darken and the hairy seeds borne within are mature by mid October (Morgan 1980, Kurz and Bowles 1981).

Historically *Asclepias meadii* ranged throughout much of the "tall grass" prairie. It is now restricted to 81 known sites in 23 counties within Illinois, Iowa, Kansas, and Missouri. It is thought to be extirpated in Indiana and Wisconsin (Bacone et al 1981, Alverson 1981). In Illinois the plant's former range of seven counties has been reduced to two; Ford and Saline Counties, where two of the three populations are found on public land administered by the U.S. Forest Service. The other population occurs within a railroad right-of-way (Kurz and Bowles 1981). The plant's range in Missouri, once covering 11 counties, as reported by Betz and Hohn (1978), has now been reduced to seven counties: Barton, Benton, Dade, Pettis, Polk, St. Clair, and Vernon (S.Morgan Missouri Department of Conservation, pers. comm. 1986). Nine of the 17 extant Missouri populations are in public ownership. Watson (1983) reported that *Asclepias meadii* was historically known from five counties in Iowa, but all had been extirpated. A recent report by M. Leoschke (Iowa Department of Natural Resources, pers. comm. 1986) reveals one population with one plant in Warren County, Iowa. Larry Wilson (Iowa Department of Natural Resources, pers. comm. 1987) reports another population with six plants in Adair County. All of the Iowa plants are on private land and unprotected from habitat alteration. McGregor (pers. comm. 1985) reported 11 populations of *Asclepias meadii* in 9 Kansas counties (Anderson, Bourbon, Coffey, Douglas, Franklin, Jefferson, Johnson, Leavenworth, and Miami). Brooks (pers. comm. 1986) reports that field survey work conducted in these nine counties, as well as Allen and Linn counties during the summer of 1986, resulted in the discovery of 29 additional populations. More recent survey results show 19 new populations, with one of these in Neosho county (C. Freeman, pers. comm. 1988). Only the population

in Jefferson county is protected. A population in Douglas county and another in Leavenworth county have been destroyed.

Federal Government actions on Mead's milkweed 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), now section 4(b)(3)(A) and of its intention thereby to review the status of the plant taxa named within. 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. *Asclepias meadii* (Mead's milkweed) was included in the July 1, 1975, notice of review and the June 16, 1976 proposal. General comments received in relation to the 1976 proposal were summarized in the **Federal Register** on April 26, 1978 (43 FR 17909).

On December 10, 1979, the Service published a notice (44 FR 70796) withdrawing the portion of the June 16, 1976, proposal that had not been made final, along with four other proposals that had expired due to a procedural requirement of the 1978 Amendments to the Act. On December 15, 1980, the Service published a revised notice of review for native plants in the **Federal Register**. *Asclepias meadii* was included in that notice as a category 1 species.' Category 1 species are those for which data in the Service's possession indicate that proposing to list is warranted. On September 27, 1985 (50 FR 39525) the Service again published a revised notice for native plants in the **Federal Register**; *Asclepias meadii* was included in that notice as a category 2 species. Category 2 species are those for which the Service believes additional data must be obtained before a proposal to list is warranted. Status information received since the September 27, 1985 (50 FR 39525) notice indicated that proposing to list *Asclepias meadii* as a threatened species was warranted. On October 21, 1987, the Service published in the **Federal Register** (52 FR 39255) a proposal to list *Asclepias meadii* as a threatened species. The Service now determines *Asclepias meadii* to be a threatened species with the publication of this final rule.

Summary of Comments and Recommendations

In the October 21, 1987, proposed rule (52 FR 39255) 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 following newspapers: *The Daily Register*, Harrisburg, Illinois; *Paxton Record*, Paxton, Illinois; *Record Herald and Indianola Tribune*, Indianola, Iowa; *Coffee County Today*, Burlington, Kansas; *The Lawrence Daily Journal-World*, Lawrence, Kansas; *The Leavenworth Times*, Leavenworth, Kansas; *Ottawa Herald*, Ottawa, Kansas; *Benton County Enterprise*, Warsaw, Missouri; *Bolivar Herald-Free Press*, Bolivar, Missouri; *The Daily Mail*, Nevada, Missouri; *Greenfield Vedette*, Greenfield, Missouri; *Lamar Democrat*, Lamar, Missouri; *Springfield News-Leader*, Springfield, Missouri, and *St. Clair County Courier*, Osceola, Missouri. Eight comments were received and are discussed below.

Comments supporting the listing were received from the U.S. Forest Service, The Nature Conservancy, Iowa Department of Natural Resources, Missouri Department of Conservation, Indiana Department of Natural Resources, and two private citizens. The Nebraska Statewide Arboretum did not take a position on the listing, but did offer findings from germination studies. The Missouri Department of Conservation requested that critical habitat not be designated because publishing a critical habitat map may result in further population decline due to collecting. The U.S. Forest Service reported that a recovery effort for Mead's milkweed has begun on the Shawnee National Forest in Saline County, Illinois, where burning and vegetation control measures are being initiated. The Iowa Department of Natural Resources provided information about a recently discovered population of Mead's milkweed in Adair County.

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 set forth the procedures for adding species to the Federal lists. A species may be determined to be endangered or threatened due to one or more of the five factors described in Section 4(a)(1). These factors and their application to *Asclepias meadii* Torr. (Mead's milkweed) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range. Asclepias meadii* is threatened by the elimination of its "tall grass" prairie habitat due to urban development, agricultural expansion and detrimental agricultural practices. McGregor (pers. comm. 1985) reports that over the last 40 years he has observed the slow elimination of prairie hay meadows through plowing, conversion to grazing, and development. Betz and Hohn (1978) also note that prairie hay meadows are being plowed and put into grain crops; even those hay meadows remaining, are mowed once or twice each year before *Asclepias meadii* plants are able to set seeds. McGregor (pers. comm. 1985) also reports that yearly mowing of these tall grass prairies where *Asclepias meadii* is found severely restricts the plants reproduction and any chance for increased distribution. Kurz and Bowles (1981) report that *Asclepias meadii* populations occurring within railroad rights-of-way in Ford County, Illinois, are threatened by erosion, lack of fire, use of herbicides and plowing, while the populations in Saline County are threatened by woody encroachment and trampling by hikers. McGregor (pers. comm. 1985) reports that one of the best Kansas populations, the one in which Brooks counted 800–1,000 plants in 1985, is in an area certain to be developed for housing in the next few years. Another large population of Mead's milkweed may be threatened if a proposed perimeter highway around Lawrence, Kansas, is constructed. Larry Gale (Missouri Department of Natural Resources, pers. comm. 1987) believes the principal threat to the species in Missouri, has been the loss of suitable habitat, combined with continual hay mowing and intensive grazing.

B. *Overutilization for commercial, recreational, scientific or educational purposes.* Commercial trade of this plant is not known to exist, but collection could reduce populations in more accessible sites.

C. *Disease or predation.* McGregor (pers. comm. 1985) reports that it is not unusual to find aerial portions of *Asclepias meadii* plants suddenly wilting and dying because of infestation of a beetle larvae (Curculionidae) in the rootstalk. McGregor (pers. comm. 1985) also notes that other insects puncture the peduncle, killing the inflorescence just at the blooming period. Betz and Hohn (1978) report that the larvae of *Tetraopes femoratus* are destructive to the small root system of *Asclepias meadii*, but not to the larger milkweeds such as *Asclepias syriaca* and *Asclepias sullivantii* which seems to tolerate more infestation than *Asclepias meadii*.

D. *The inadequacy of existing regulatory mechanisms. Asclepias meadii* is officially listed as endangered by the States of Illinois, Iowa, and Missouri. Kansas does not have specific legislation or rules to protect endangered or threatened plants. Illinois law protects those endangered and threatened plants found on State property and prohibits taking State endangered plants without written permission of the owner; it also prohibits sale of State endangered plants. State permits are required for taking or possessing Federal endangered plants. Iowa regulations prohibit removal, possession, and sale of any plant species on the Federal or State lists. The Missouri regulations prohibit exportation, transportation, or sale of plants on the State or Federal lists; collecting, digging, or picking any rare or endangered plant without permission of the property owner is prohibited. Although *Asclepias meadii* is offered various forms of protection under these State laws, monitoring and enforcement are difficult due to limited personnel. While approximately 15 percent of the known populations of *Asclepias meadii* are located on public lands and receive some form of protection, the majority of the known populations are, as yet, unprotected. The Conservation Reserve Program provision of the Food Security Act of 1985 (Pub. L. 99–198) provides an opportunity for landowners to take highly erodible land out of annual crop production and receive annual rental payments for applying soil conservation measures. However, virgin prairies where *Asclepias meadii* is found, do not qualify for this type of conservation treatment, and hence, afforded protection from annual mowing is limited. We are not aware of any populations of *Asclepias meadii* in the Conservation Reserve Program. The "Sodbuster" provision of the Food Security Act of 1985 is aimed at reducing the conversion of highly erodible lands to agriculture production. Some virgin prairies where *Asclepias meadii* occurs could be protected under this regulation. The Endangered Species Act offers possibilities for additional protection of this taxon through Section 6 by cooperation between the States and the Service, and through Section 7 (interagency cooperation) requirements. The Endangered Species Act would afford additional protection to *Asclepias meadii.*

E. *Other natural or manmade factors affecting its continued existence.* Betz and Hohn (1978) report that the low number of individual plants at any one site do not attract potential pollinators, possibly the cause for low reproduction success. Betz and Hohn (1978) also report that studies at the Morton Arboretum indicate five to eight years are necessary for plants to mature from seed. McGregor comments that Kansas populations of *Asclepias meadii* tend to have larger numbers of plants in some years and fewer in others. Betz and Hohn (1978) have also observed that individual plants produce flowers for two or three years and then rest, and in some cases completely disappear for a few years. Research is needed to better understand this fluctuation phenomenon in order to maintain and promote the species. James Locklear (Nebraska Statewide Arboretum, pers. comm. 1987) has found the germination and survival rates of *Asclepias meadii* to be poor, ranging from 23–33 percent. Locklear believes poor germination success may substantiate the theory that the plant is self-sterile. L.R. Gale (pers. comm. 1987) also reports low germination and seed production in Missouri. Gale also mentions that the plant's inability to produce high levels of latex to repulse herbivores, may be a detriment to survival.

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 *Asclepias meadii* as threatened. Eighty-one populations of this species are known to exist. Eighty-five percent of the populations are on privately owned property and receive no protection or management designed to enhance the species' continued existence. Threatened status is appropriate because without protection and further research the vulnerability of this species will continue. For reasons detailed below, it is not considered prudent to designate critical habitat.

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 that is considered to be critical habitat at the time the species is determined to be endangered or threatened. The designation of critical habitat is not considered to be prudent when such designation would not be of net benefit to the species involved (50 CFR 424.12). The Service believes that designation of critical habitat for *Asclepias meadii* would not be prudent because no benefit to the species can be identified that would outweigh the potential threat of vandalism or collection, which might be exacerbated by the publication of a detailed critical habitat map.

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, if necessary, and cooperation with the States. It also requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following the listing. The protection required of Federal agencies and the prohibitions against collecting 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)(4) of the Act requires Federal agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of such a species or result in destruction or adverse modification of critical habitat, if any is being designated. Section 7(a)(2) of the Act, 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, the responsible

Federal agency must enter into formal consultation with the Service.

The Food Security Act of 1985 (Pub. L. 99–198) also provides, at sections 1314 and 1318, opportunities for the Service and State conservation agencies to acquire restrictive easements beneficial to endangered and threatened species on lands acquired by the Farmers Home Administration from farm foreclosures. Upon notification by the Farmers Home Administration of pending foreclosures, the Service is continually reviewing possible areas where restrictive easements would benefit endangered and threatened species.

The U.S. Forest Service has jurisdiction over the *Asclepias meadii* population in Saline County Illinois. Federal activities that could affect the species and its habitat in the future could include forest management practices and recreational and interpretive development. The Forest Service has conferred with the Service regarding a proposal to initiate management actions which will include prescribed burns, and cutting and removal of woody species to improve the Mead's milkweed habitat. The Service believes these are the types of management actions necessary to enhance the survival of the species and has advised the Forest Service that the Service has no objections to this activity. It has been the experience of the Service that the majority of section 7 consultations are resolved so the species is protected and the project can continue.

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 endangered plant species. These prohibitions, in part, 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, or remove it from areas under Federal jurisdiction and reduce it to possession. Seeds from cultivated specimens are exempt from these prohibitions provided that a statement of "cultivated origin" appears on their containers. Certain exceptions would apply to agents of the Service and State conservation agencies. The Act and 50 CFR and 17.72 also provide for the issuance of permits to carry out otherwise prohibited activities involving threatened species under certain circumstances. International and interstate commerce in *Asclepias meadii* is not known to exist. It is anticipated that few trade permits would ever be sought or issued, since this plant 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 Office of Management Authority, U.S. Fish and Wildlife Service, P.O. Box 27239, Washington, DC 20038–7329 (202/343–4955).

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. The reasons for this determination were published in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

Alverson, W.S. 1981. Status Report on *Asclepias meadii*. Wisconsin Department of Natural Resources. Unpubl. ms. 4 pp.

Bacone, J.A., Crovello, T.J., and Hauser, L.A. 1981. Status Report on *Asclepias meadii*. Indiana Department of Conservation. Unpubl. ms. 10 pp.

Betz, R.F. 1967. The Ecology of *Asclepias*, especially *Asclepias meadii* Torrey, and a study of the factors contributing to their possible extinction as a wild plant. A Research proposal to the National Science Foundation, Washington, DC.

Betz, R.F. and Hohn, J.E. 1978. Status Report for *Asclepias meadii* Torr. prepared for the U.S. Fish and Wildlife Service. 9 pp.

Kurz, D.R. and Bowles, M.L. 1981. Report on the status of Illinois vascular plants potentially endangered or threatened in the United States. Natural Land Institute, Rockford, Illinois. Unpubl. ms. 10 pp.

Morgan, S.W. 1980. Status Report on *Asclepias meadii*. Missouri Department of Conservation. Unpubl. ms. 15 pp.

Watson, W.C. 1983. Status Report of *Asclepias meadii*. Iowa Conservation Commission. Unpubl. ms. 11 pp.

Author

The primary author of this rule is William F. Harrison (see **ADDRESSES** section) (612/725–3276 or FTS 725–3276).

List of Subjects in 50 CFR Part 17

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

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 (16 U.S.C. 1531 *et seq.*); Pub. L. 99–625, 100 Stat. 3500 (1986), unless otherwise noted.

2. Amend § 17.12(h) by adding the following, in alphabetical order under the family Asclepiadaceae, 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					
Asclepiadaceae—Milkweed family						
*	*	*	*	*	*	*
Asclepias meadii	Mead's milkweed	U.S.A. (IL, IN, IA, KS, MO, WI)	T	321	NA	NA
*	*	*	*	*	*	*

Dated: August 11, 1988.

Susan Recce,

Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 88-19942 Filed 8-31-88; 8:45 am]

BILLING CODE 4310-55-M

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of Endangered Species Status for the Boulder Darter

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service designates a small fish, the boulder darter (*Etheostoma* (*Nothonotus*) sp.), formerly referred to by the Service as the Elk River darter, as an endangered species under the Endangered Species Act (Act) of 1973, as amended. This species is presently known from only about 25 miles (46 kilometers) of the lower Elk River system in Giles County, Tennessee, and Limestone County, Alabama. The species' decline has resulted primarily from habitat alteration associated with water impoundment. Due to the species' limited distribution, any factor that adversely modifies habitat or water quality in the short river reach it now inhabits could further threaten its survival. Determination of endangered species status implements the protection of the Act of the boulder darter.

EFFECTIVE DATE: October 3, 1988.

ADDRESSES: A complete file of this rule is available for public inspection, by appointment, during normal business hours at the Asheville Field Office, U.S. Fish and Wildlife Service, 100 Otis Street, Room 224, Asheville, North Carolina 28801.

FOR FURTHER INFORMATION CONTACT: Mr. Richard G. Biggins at the above address (704/259-0321 or FTS 672-0321).

SUPPLEMENTARY INFORMATION:

Background

The boulder darter (*Etheostoma* sp.) is an undescribed species in the subgenus *Nothonotus* (a manuscript describing it is in preparation, Dr. David Etnier, University of Tennessee, personal communications, 1988). It attains a maximum length of about 3 inches (7.6 centimeters) (Dr. David Etnier, personal communications, 1987). The body of males is olive to gray, and they lack the red spots that are characteristic of closely related species. The female's color is similar but lighter. Both sexes have a gray to black bar located below the eye and a similar colored spot behind the eye. Because of the species' rarity (less than 50 specimens have ever been collected), its biology is unknown. This darter has historically been collected from the Elk River as far upstream as Fayetteville, Lincoln County, Tennessee (at approximately river mile 90), and downstream through Giles County, Tennessee, into Limestone County, Alabama (at approximately river mile 30); from two Elk River tributaries, Indian Creek and Richland Creek, Giles County, Tennessee; and from Shoal Creek, Lauderdale County, Alabama (O'Bara and Etnier 1987). Based on knowledge of the species' preferred habitat (fast-moving water runs over large boulder and slab rock substrate), it is believed the species once also inhabited the southern bend of the Tennessee River, at least in areas near its confluence with the Elk River and Shoal Creek (Dr. David Etnier, personal communications, 1987).

Based on a recently completed status survey of the species' historic range and potential distribution in other Tennessee River tributaries in Tennessee and Alabama (O'Bara and Etnier 1987), the species is presently restricted to about 23 miles (43 kilometers) of the Elk River in Giles County, Tennessee (20 miles or 37 kilometers), and Limestone County, Alabama (3 miles or 6 kilometers), and just over 2 miles (3 kilometers) of Richland Creek and Indian Creek (Giles County, Tennessee). The species' extirpation from the upper Elk River, Lincoln County, Tennessee, was likely due to the impacts of cold water releases from Tims Ford Reservoir. The loss of the Shoal Creek population and any Tennessee River populations resulted from water impoundments behind Wheeler and Wilson Dams. The Shoal Creek population loss also may be partially attributed to past pollution from a large manufacturing plant. Because of the species' present limited distribution (about 25 river miles or 46 kilometers) and the limited availability of boulder darter habitat (fast-moving water with boulder substrate) in the Elk River system, any factor that modifies or degrades the habitat or water quality in these short river reaches could further threaten the species' survival.

On September 18, 1985, the Service announced in the **Federal Register** (50 FR 37958) that the boulder darter (referred to as the Elk River darter in that notice), along with 136 other fish species, was being considered as a candidate for addition to the List of Endangered and Threatened Wildlife. On February 10, 1987, the Service notified Federal, State, and local governmental agencies by mail (State fish and wildlife agencies and affected county governments were also contacted by phone) that a status review of the boulder darter was being conducted and that the species could be proposed for listing. Four responses to the February 10, 1987, notification were received. Support for the proposal was received from the Tennessee Wildlife Resources Agency and the Tennessee Department of Conservation. The Tennessee State Planning Office stated that "State and local government evaluation . . . indicated no conflicts with existing activities." The Department of Housing and Urban Development indicated that it had no information on the species. The boulder darter was proposed for listing as endangered on November 17, 1987 (52 FR 43921).

Summary of Comments and Recommendations

In the November 17, 1987, proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to development of a final rule. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and interested parties were contacted and requested to comment. A newspaper notice was published in the Pulaski (Tennessee) Citizen on December 15, 1987. One written comment was received. The U.S. Army Corps of Engineers (Nashville

District) said that they had no programs that would be impacted beyond their normal regulatory programs. They also stated that they felt there were no imminent threats to the species at this time, but they added that the area was within the cotton belt and that the current resurgence in demand for cotton may lead to an increased risk of catastrophic fish kills and chronic pesticide problems.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the boulder darter 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 the boulder darter (*Etheostoma* sp.) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The boulder darter is presently known to occur in disjunct segments on about 23 miles (43 kilometers) of the Elk River (from river mile 29.7 to 52.5) in Giles County, Tennessee, and Limestone County, Alabama, and about 2 miles (3 kilometers) total in two Elk River tributaries (Richland Creek and Indian Creek) in Giles County, Tennessee (O'Bara and Etnier 1987). The present distribution represents a substantial reduction over its historically known range, and is only a fraction of the fish's likely range prior to the construction of impoundments on the Elk and Tennessee Rivers.

Historically the fish has been collected in the Elk River upstream as far as river mile 90 in Lincoln County, Tennessee. Recent surveys of the Elk River in Lincoln County have failed to recollect the fish in the county even though suitable habitat is still present (O'Bara and Etnier 1987). It is believed this population segment was extirpated and has not been repopulated because of the cold water releases from Tims Ford Reservoir. Historical records of this species also exist for Shoal Creek, Lauderdale County, Alabama. Sampling in this creek during the summer of 1983 and the fall of 1986 failed to verify presence of the fish. It is believed the Shoal Creek population was lost due to flooding of lower Shoal Creek by Wilson Dam and due to pollution from an upstream industrial complex. Although this discharge has been substantially improved, the boulder darter apparently has not recolonized the area.

Although data are lacking, it is believed, based on the historical availability of suitable habitat, that the boulder darter once inhabited the Tennessee River and the lower portion of some Tennessee River tributaries in the southern bend area of the Tennessee River from the Paint Rock River downstream to at least Shoal Creek (Dr. David Etnier, personal communications, 1987). These main Tennessee River and tributary populations would have been eliminated when the Tennessee River impoundments (Wheeler and Wilson Dams) inundated the preferred habitat of the fish.

No water impoundments are planned for the Elk River in the area presently occupied by the species. However, other factors, such as increased levels of siltation from major land use changes, improper pesticide use, toxic chemical spills, and/or uncontrolled mining of phosphate in the watershed, could further threaten the species in the short river reaches and limited habitat it now occupies.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* The specific areas inhabited by the species are presently unknown to the general public. As a result, overutilization of the species has not been a problem. However, there is the potential for vandalism to become a problem because of publicity associated with listing.

C. *Disease or predation.* Although the boulder darter is undoubtedly consumed by predators, there is no evidence that predation is a threat to the species.

D. *The inadequacy of existing regulatory mechanisms.* The States of Tennessee and Alabama prohibit taking wildlife and fish for scientific purposes without a State collecting permit. However, these State laws do not protect the species' habitat from the potential impacts of Federal actions. Federal listing will provide the species additional protection under the Endangered Species Act by requiring a Federal permit to take the species and by requiring Federal agencies to consult with the Service when projects they fund, authorize, or carry out may affect the species.

E. *Other natural or manmade factors affecting its continued existence.* The boulder darter requires deep (greater than 2 feet or 0.6 meters), fast-moving water over boulder habitat. Because the Elk River's substrate is primarily sand and gravel and many river reaches consist of long, slow pools, the boulder darter's required habitat is extremely limited. The scarcity of this fish's preferred habitat further restricts the species' range and increases its vulnerability to habitat alteration at these sites.

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 final rule. Based on this evaluation, the preferred action is to list the boulder darter (*Etheostoma* sp.) as an endangered species. The species presently ranges over only about 25 river miles (46 kilometers), and within this river reach, it is restricted to very specific habitat areas that are scarce. This restricted range and habitat limitation makes the species vulnerable to extinction. Therefore, the listing of this species as endangered, as opposed to threatened, is most appropriate. See the following section for reasons why critical habitat is not being designated.

Critical Habitat

Section 7(a)(2) of the Endangered Species Act, as amended, 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. Section 4(a)(3) requires that critical habitat be designated, to the maximum extent prudent and determinable, concurrent with the determination that a species is endangered or threatened. The Service finds that a determination of critical habitat for the boulder darter is not prudent at this time. Such a determination would result in no known benefit to the species. As part of the development of and subsequent to the publication of the proposed rule, Federal agencies were notified of the boulder darter's distribution and requested to provide data on proposed Federal projects that might adversely affect the species. No projects were identified. Should any potential adverse effects arise from future projects, the involved Federal agencies will already have the species' distributional data needed to determine if the species may be impacted by their action. The listing of a species and the publicity that arises creates the potential for vandalism. Through the designation of critical habitat and the requirement for maps and specific habitat descriptions, the threat to this species from vandalism would increase. Protection of this

species' habitat will be addressed through the recovery process and through the section 7 jeopardy standard of the Act. Therefore, it would not be prudent to determine critical habitat for the boulder darter 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 and harm 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 proposed or 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 such a 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. The Service has notified Federal agencies that may have programs that affect the species. As a result of this notification, no Federal agencies identified any current programs that may impact the boulder darter. However, Federal activities that could occur in the future and impact the species include, but are not limited to, the carrying out of or the issuance of permits for hydroelectric facilities construction, reservoir construction, stream alteration, wastewater facility development, and road and bridge construction. It has been the experience of the Service, however, that nearly all section 7 consultations are resolved so that the species is protected and the project objectives are met.

The Act and implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take any listed species, import or export it, ship it in interstate commerce in the course of commercial activity, or sell or offer it for sale in interstate or foreign commerce. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions would apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship that would be suffered if such relief were not available.

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

O'Bara, C.J., and D.A. Etnier. 1987. Status survey of the boulder darter. Final report submitted to U.S. Fish and Wildlife Service, Asheville Field Office, 100 Otis Street, Room 224, Asheville, NC. May 1987. 13 pp.

Author

The primary author of this final rule is Richard G. Biggins, Asheville Field Office, 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).

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 (16 U.S.C. 1531 *et seq.*); Pub. L. 99-625, 100 Stat. 3500 (1986), unless otherwise noted.

2. Amend § 17.11(h) by adding the following, in alphabetical order under "FISHES," to the List of Endangered and Treatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Fishes:							
*	*	*	*	*	*		
Darter, boulder (=Elk River)	*Etheostoma (Nothonotus)* sp.	U.S.A. (TN,AL)	Entire	E	322	NA	NA
*	*	*	*	*	*		

Dated: August 11, 1988.

Susan Recce,

Acting Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 88-19943 Filed 8-31-88; 8:45 am]

BILLING CODE 4310-55-M