

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of Endangered Species Status for the Nashville Crayfish (*Orconectes shoupi*)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The service determines the Nashville crayfish (*Orconectes shoupi*) to be an endangered species under the Endangered Species Act of 1973 (Act), as amended. This species is currently known to exist only in the Mill Creek basin in Davidson and Williamson Counties, Tennessee. The species is threatened by siltation, stream alterations, and general water quality deterioration resulting from development pressures in the urbanized areas surrounding Nashville, Tennessee. The species' limited distribution also makes it vulnerable to a single catastrophic event, such as a toxic chemical spill or other contamination. This determination of endangered species status implements the protection provided by the Act for the Nashville crayfish.

EFFECTIVE DATE: October 27, 1986.

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

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

SUPPLEMENTARY INFORMATION:**Background**

The Nashville crayfish (*Orconectes shoupi*), described by Hobbs (1948), is currently known only from Mill Creek and five of its tributaries in Davidson and Williamson Counties, Tennessee (O'Bara 1985, Bouchard 1984). The land along these watercourses are in private or municipal (City of Nashville) ownership. Historic collection records indicate that the Nashville crayfish has been taken from three other Tennessee localities: (1) Big Creek (Elk River system), Giles County; (2) South Harpeth River (Harpeth River system), Davidson County; and (3) Richland Creek (a Cumberland River tributary), Davidson County.

The three historic localities outside the Mill Creek drainage were surveyed

as part of a recently completed Service funded status survey (O'Bara 1985), but the Nashville crayfish was not found. O'Bara (1985) also surveyed crayfish populations at 96 other sites outside the Mill Creek watershed and found no additional Nashville crayfish populations. Bouchard (1976, 1984) collected extensively in the Nashville basin and elsewhere in Tennessee, but was unable to find the species outside of the Mill Creek watershed.

The Nashville crayfish, which attains a length of over 6 inches (15 centimeters), has been observed to inhabit pools and riffle areas with moderate current. Very little is known concerning the species' biology, but, like related crayfish, it probably feeds on vegetation fragments and animal matter. Reproduction occurs in the winter months, and females have been observed carrying eggs in the spring. The species' restricted range makes it vulnerable to toxic chemical spills. The species is also subjected to water quality and other habitat deterioration associated with urban runoff, land disturbance, and development within the Mill Creek watershed. A flood control project being planned for the Mill Creek basin by the U.S. Army Corps of Engineers (COE) could also impact the species, although it is not likely that this project, as currently planned, would jeopardize the species' continued existence.

The Nashville crayfish was proposed for listing as an endangered species on January 12, 1977 (42 FR 2507). That proposal was withdrawn on December 10, 1979 (44 FR 70796), under provisions of the 1978 amendments to the Endangered Species Act of 1973 that required withdrawal of all pending proposals that were not made final within two years of being proposed or within one year after passage of the amendments, whichever date came later. A notice of review was published on May 22, 1984 (49 FR 21664), announcing that the Service considered the Nashville crayfish a potential candidate for Endangered Species Act protection. On January 3, 1985, the Service notified Federal, State, and local governmental agencies and interested parties that the Service was reviewing the species' status. That notification requested information on the species' status and threats to its continued existence.

Three agencies, (1) U.S. Department of the Army, Corps of Engineers, Nashville District (COE), (2) Tennessee Valley Authority (TVA), and (3) Federal Energy Regulatory Commission (FERC), provided comments. COE informed the

Service that it was conducting a flood protection study of Mill Creek. TVA and FERC stated that they were unaware of any of their projects that would be affected by listing the species.

Summary of Comments and Recommendations

In the January 24, 1986, proposed rule (51 FR 3229) 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 interested parties were contacted (the City of Nashville, Mayor's Office; U.S. Army Corps of Engineers; Tennessee Wildlife Resources Agency; and Tennessee Department of Conservation were also contacted in person or by phone) and requested to comment. A newspaper notice that invited general public comment was published in the *Nashville Banner* and the *Nashville Tennessean* papers on February 17, 1986. A news release summarizing the proposed rule and requesting comments was also provided to newspapers in Tennessee. Seven comments were received and are discussed below.

COE (two comments), Tennessee Wildlife Resources Agency (TWRA), Tennessee Department of Conservation, and a private individual responded that they supported the proposed rule. COE also provided additional biological information on the species and related this information to potential impacts of its proposed flood control projects. TWRA further stated:

Since USFWS [the U.S. Fish and Wildlife Service] announcement of the proposal . . . it has received widespread coverage in Nashville newspapers and television, including at least two TV interviews with our agency personnel. To my knowledge, we have not received negative comments on this proposal to date.

The U.S. Department of Housing and Urban Development stated that it had "no project activities that would affect the proposed listing." The Federal Energy Regulatory Commission concluded that listing the crayfish would have no effect on any hydroelectric projects under its jurisdiction.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the Nashville crayfish 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 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 Nashville crayfish *Orconectes shoupi* are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* Results of recent studies indicate that the Nashville crayfish is restricted to Mill Creek and five of its tributaries in Davidson and Williamson Counties, Tennessee. The species has previously been reported from three other watersheds but has not been collected from these areas in recent years (O'Bara 1985, Bouchard 1976, 1984), as discussed in the Background section.

The species is endangered by water quality deterioration from development within the watershed. According to a COE report (COE 1984), about 40 percent of the Mill Creek watershed has been developed. The lower watershed lies within the highly urbanized Nashville, Tennessee, metropolitan area. The Tennessee Department of Public Health (TDPH) (1978) characterized this area of Mill Creek as follows: "The stream's main problem stems from urban commercialization that is gradually overtaking the whole watershed." The TDPH also reported that the diversity of organisms in Mill Creek, ". . . does not look good. The number of taxa found was severely limited and decreased as one moved downstream." The upper portion of the Mill Creek watershed has less residential and industrial development, but agricultural activity is extensive. COE (1981) concluded that the uppermost segment of Mill Creek was degraded by organic enrichment and had very poor water quality. In that same report, COE stated that, "biological communities inhabiting Mill Creek during the 1981 survey indicated water of fair to very poor quality and the influence of moderate to extensive enrichment and disturbance." Threats to the species could also come from other activities in the watershed such as road and bridge construction, stream channel modifications, impoundments, land use changes, and other projects, if such activities are not planned and implemented with the survival of this geographically restricted species in mind.

B. *Overutilization for commercial, recreational, scientific, or educational*

purposes. Crayfish are frequently taken in the southeastern United States for food or bait. Overutilization for these purposes could become a problem if the species' specific habitat were identified to the extent required for designation of critical habitat.

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

D. *The inadequacy of existing regulatory mechanisms.* Tennessee State law provides limited protection for this species by requiring a State permit to collect crayfish for scientific purposes. However, there is currently no State law that provides specific protection for the species' habitat. Federal listing will provide additional protection for the species by requiring Federal agencies to consult with the Service when projects they fund, authorize, or carry out may affect a listed species.

E. *Other natural or manmade factors affecting its continued existence.* The Nashville crayfish's restricted range makes it very vulnerable to a single catastrophic event, such as a chemical spill. COE (1984) reported that occasional spills and discharges have occurred along Mill Creek in the past.

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 the Nashville crayfish as endangered. The crayfish's restricted range, along with pressure on the species and its remaining habitat from the rapid development of the Mill Creek basin, makes the species in danger of extinction at the present time; therefore, threatened status is inappropriate. Critical habitat designation (see Critical Habitat section below) would not be prudent for the Nashville crayfish, as defining its exact range and specific habitat could further endanger the species by increasing the incidence or illegal take or vandalism. A decision to take no action would exclude the Nashville crayfish from needed protection available under the Endangered Species Act.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for this species at this time. Crayfish are frequently taken in the southeastern United States for food or bait. Much of the Nashville's habitat is

adjacent to a large human population. Human interest in the species is expected to increase as a result of this final rule and subsequent Federal actions. The Service believes a detailed description of the species' habitat, including maps and text detailing the crayfish's specific habitat and constituent elements of that habitat, as required for any critical habitat designation, would increase the species' vulnerability to illegal taking and/or vandalism, increase the law enforcement problem, and further endanger the species. Therefore, it is not prudent to designate critical habitat for this species at this time. Doing so would draw attention to the Nashville crayfish and thereby increase the intensity of threats to its populations.

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 States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. Protection required of Federal agencies and 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 designated. Regulations implementing this interagency cooperation provisions of the Act are codified at 50 CFR Part 402 and were recently revised at 51 FR 19926 (June 3, 1986). Section 7(a)(2) requires Federal agencies to ensure that activities they authorized, 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. The Service is aware of only one Federal project that may affect the species. COE is proposing to construct two flood control facilities in the Mill Creek watershed. The Service and COE have conferred regarding these projects,

and the Service has concurred with COE's determination that the projects, as planned, are not likely to jeopardize the species' continued existence. This conference report will become the basis of the Service's formal biological opinion when the species is listed if no new information becomes available and if no significant project changes are made. Other Federal activities that could impact the species and its habitat include, but are not limited to, the carrying out of, or the issuance of permits for, hydroelectric development, reservoir construction, stream alteration, wastewater facility development, or road and bridge construction on Mill Creek or its tributaries. 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 can be 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, import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions 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

Bouchard, R.W. 1976. Investigations on the status of fourteen species of freshwater decapod crustaceans in the United States Part I. Troglobitic shrimp and western North American crayfishes. Report to Office of Endangered Species, Department of the Interior. 26 pp.

Bouchard, R.W. 1984. Distribution and status of the endangered crayfish *Orconectes shoupi* (Decapoda: Cambaridae). U.S. Fish and Wildlife Service, Tennessee Cooperative Fishery Research Unit, Tennessee Tech University, Cookeville, Tennessee. 27 pp.

Hobbs, H.H., Jr. 1948. On the crayfishes of the *Limosus* section of the genus *Orconectes* (Decapoda, Astacidae). *Journal of the Washington Academy of Science* 38(1): 14-21.

O'Bara, C.J. 1985. Final report; status survey of the Nashville caryfish (*Orconectes shoupi*). Report to U.S. Fish and Wildlife Service, Asheville, North Carolina. 17 pp.

Tennessee Department of Public Health. 1978. Mill Creek survey, Davidson County, Tennessee. Tennessee Department of

Public Health, Division of Water Quality Control, Nashville Basin. Unpublished report. 7 pp.

U.S. Army Corps of Engineers, Nashville District. 1981. Water quality along Mill Creek, Nashville, Tennessee. 35 pp.

U.S. Army Corps of Engineers, Nashville District. 1984. Mill Creek, Wimpole Drive areas, Nashville, Davidson County, Tennessee. Final detailed project report and environmental assessment. 331 pp.

Author

The primary author of this final rule is Richard G. Biggins, Asheville Endangered Species 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

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. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

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

§ 17.11 Endangered and threatened wildlife.

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(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
CRUSTACEANS							
Crayfish, Nashville.....	<i>Orconectes shoupi</i>	U.S.A. (TN).....	NA.....	E.....	242.....	NA.....	NA.....

Dated: September 12, 1986.

Susan Recce,

Deputy Assistant Secretary for Fish and Wildlife and Parks.

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