

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service****[50 CFR Part 17]****Endangered and Threatened Wildlife and Plants; Proposed Endangered Status and Critical Habitat for the Kentucky Cave Shrimp****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Proposed rule.

SUMMARY: The Service proposes to determine the Kentucky cave shrimp (*Palaemonias ganteri*) to be an Endangered species. This action is being taken in response to a petition which indicates that this species is not extinct, as previously suspected, and that its remaining population is restricted by unseasonal flooding of its habitat and endangered by groundwater contamination. The Kentucky cave shrimp is now known to occur only in the Roaring River passage of the Flint Mammoth Cave System, Mammoth Cave National Park, Edmonson County, Kentucky. The proposed rule would provide protection to wild populations of this species. Critical Habitat is included with this proposed rule. Comments and other information are sought from the public.

DATES: Comments from the public and from the Governor of Kentucky must be received by January 15, 1981. A public meeting on this proposal will be held on Wednesday, December 10, 1980 at 7:00 PM in Room 305, Downing University Center, Western Kentucky University, Bowling Green, Kentucky.

ADDRESSES: Interested persons or organizations are requested to submit comments to Directors (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240. Comments and materials relating to this rule are available for public inspection by appointment during normal business hours at the Service's Office of Endangered Species, Suite 500, 1000 North Glebe Road, Arlington, Virginia. The time and place of a public meeting on this proposal is presented above.

FOR FURTHER INFORMATION CONTACT: For further information on the proposed rule, contact Mr. John L. Spinks, Jr., Chief, Office of Endangered Species (703/235-2771).

SUPPLEMENTARY INFORMATION:**Background**

The Kentucky cave shrimp (*Palaemonias ganteri*) is a crustacean that has been found only in the Flint Mammoth Cave System of Kentucky. Its reduced eyes and lack of body pigment indicate that the species has had a long history of subterranean existence. Its preferred habitats within the cave system are pools that are exposed to seasonal flooding. The Kentucky cave shrimp is a member of the family Atyidae. Only three existing species of this family are known from North American north of Mexico.

On April 28, 1975, the Service published in the Federal Register (40 FR 18476-18477) a notice that it was reviewing the status of 57 species of freshwater crustaceans, including the Kentucky cave shrimp. The Kentucky cave shrimp was proposed to be listed as a threatened species on January 12, 1977 (42 FR 2507). That proposal was withdrawn on December 10, 1979 (44 FR 70796) under a provision of the 1978 amendments to the Endangered Species Act of 1973 which required withdrawal of all pending proposals if they were not finalized one year after passage of the amendments.

On March 28, 1980 the Service published a notice (45 FR 20502-20503) announcing the acceptance of a petition submitted by Dr. Raymond W. Bouchard to list the Kentucky cave shrimp as an Endangered or Threatened species. By this action, the Service determined that the petition contained sufficient new evidence to repropose listing this species as Endangered or Threatened. This notice also solicited comments from interested persons having knowledge of this species, threats to the species or possible impacts of listing. One comment on this notice was received from the Kentucky Nature Preserves Commission. This comment supported listing and cited threats to this species from sewage pollution and disruption of breeding pools by premature opening of floodgates.

Factors Affecting the Species

The Service's listing regulations (Section 424.11(b), Title 50, Code of Federal Regulations) state:

A species shall be listed if the Director determines on the basis of the best scientific and commercial data available to him after conducting a review of the species' status that the species is Endangered or Threatened because of any one or a combination of the following factors:

(1) The present or threatened destruction, modification, or curtailment of its habitat or range;

(2) Utilization for commercial, sporting, scientific, or educational purposes at levels that detrimentally affect it;

(3) Disease or predation;

(4) Absence of regulatory mechanisms adequate to prevent the decline of a species or degradation of its habitat; and

(5) Other natural or manmade factors affecting its continued existence.

These findings are summarized herein under each of the five criteria of 50 CFR 424.11. These factors, and their application to the Kentucky cave shrimp, are as follows:

1. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The Kentucky cave shrimp's preferred habitats are quiet silt bottom pools associated with seasonal sediment deposits (Poulson and Kane, 1977; Bouchard, 1979). Such pools containing the Kentucky cave shrimp were formerly known in the Golden Triangle area and the Styx and Echo River passages of the Flint Mammoth Cave System. Year round backflooding from Lock and Dam 6 on the Green River has eliminated these preferred habitats in the Styx and Echo Rivers passages.

The species has not been found in recent years in areas where it was formerly abundant. On September 1, 1979, a single dead specimen was found in the shrimp pools of the Roaring River passage, where the previous last find was recorded in 1967. There is some evidence (Duchon and Lisowski, 1980) that backflooding from Lock and Dam 6 also causes siltation and flooding of the Roaring River passage.

Another possible factor affecting the habitat is groundwater contamination. A recent incident of groundwater contamination caused a kill of crayfish and other animals in a part of the cave system. Such incidents have the potential of endangering organisms, including the Kentucky cave shrimp, that are found in other parts of the interconnecting cave system.

2. *Utilization for commercial, sporting, scientific or educational purposes at levels that detrimentally affect it.* Not applicable to this species.

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

4. *Absence of existing regulatory mechanisms adequate to prevent the decline of a species or degradation of its habitat.* Wildlife are protected by the National Park Service within Mammoth Cave National Park. The threats to the

habitat of the Kentucky cave shrimp are located outside the park.

The Kentucky cave shrimp is listed as threatened on the Kentucky Nature Preserves Commission Natural Heritage Program Species Element List. However, this designation carries no legal protection.

5. *Other natural or man-made factors affecting its continued existence.* Not applicable to this species.

Critical Habitat

50 CFR Part 424 defines "Critical Habitat" to include (a) areas within the geographical area occupied by the species, at the time that species is listed, which are essential to the conservation of the species and which may require special management considerations or protection; and (b) specific areas outside the geographic area occupied by the species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species.

Proposed Critical Habitat for the Kentucky cave shrimp is the Roaring River passage of the Flint Mammoth Cave System, Mammoth Cave National Park, Edmonson County, Kentucky. This area contains the last preferred habitat of this species which receives nutrient inflow from seasonal flooding that leaves quiet pools for feeding, breeding and larval growth. The Roaring River passage is the only remaining area where the species is known to occur and all of the physical and biological constituents necessary for its survival can be found. The activities which may adversely modify such habitat are described in the above discussion.

Effect of This Proposal if Published as a Final Rule

Endangered Species regulations already published in Title 50 Sections 17.21 and 17.31 of the Code of Federal Regulations set forth a series of general prohibitions and exceptions which apply to all Endangered and Threatened species, respectively. These prohibitions, in part, would 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 this species in interstate or foreign commerce. It also would be illegal to possess, sell, deliver, carry, transport, or ship any such wildlife which was illegally taken. 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 species under certain circumstances. Regulations governing permits are at 50 CFR 17.22, 17.23. Such permits are available for scientific purposes or to enhance the propagation or survival of the species. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship which would be suffered if such relief were not available.

Section 7(a) of the Act requires all Federal agencies to evaluate their actions with respect to Endangered species. If published as a final rule this proposal would require Federal agencies not only to insure that activities they authorize, fund, or carry out, are not likely to jeopardize the continued existence of the Kentucky cave shrimp, but also would require them to insure that their actions do not result in the destruction or adverse modification of the Critical Habitat which has been determined by the Director. Provisions for Interagency Cooperation are codified at 50 CFR Part 402.

The proposed Critical Habitat may be affected by backflooding from Lock and Dam 6 on the Green River and by releases of water by Nolin Dam on the Nolin River that contribute to backflooding from Lock and Dam 6. The U.S. Army Corps of Engineers is now considering dismantling Lock and Dam 6 as part of a navigation plan for the Green River. If backflooding from Lock and Dam 6 is found to affect the proposed Critical Habitat, then this portion of the navigation plan would be a subject of consultation. If Lock and Dam 6 is not dismantled and releases from Nolin Dam are found to affect the proposed Critical Habitat, then release schedules for Nolin Dam could be a subject of consultation between the Corps of Engineers and the Service. Water treatment facilities that affect the groundwater entering the Flint Mammoth Cave System may require consultation between the Service and the Environmental Protection Agency. The National Park Service would have to enter into consultation with the Service over any change in use of the Critical Habitat, if determined, that might affect the Kentucky cave shrimp.

The usual result of such consultation is modification of activities rather than their curtailment.

The Service is required to consider economic and other impacts of specifying a particular area as Critical Habitat. The Service has prepared a draft impact analysis. The Service is notifying Federal agencies that may have jurisdiction over the land and water under consideration in this proposed action. These Federal agencies and other interested persons or organizations are requested to submit information on economic or other impacts of this proposed action.

Public Comments Solicited

The Director intends that the rules finally adopted will be as accurate and effective as possible in the conservation of any Endangered or Threatened species. Therefore, any comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, private interests, or any other interested party concerning any aspect of these proposed rules are hereby solicited. Comments particularly are sought concerning:

- (1) Biological, commercial, or other relevant data concerning any threat (or the lack thereof) to the species included in this proposal;
- (2) The location of and the reasons why any habitat of this species should or should not be determined to be Critical Habitat as provided for by Section 4 of the Act;
- (3) Additional information concerning the range and distribution of this species;
- (4) Current or planned activities which

may adversely modify the subject area which is being considered for Critical Habitat; and

(5) The foreseeable economic and other impacts of the Critical Habitat designation of federally funded or authorized projects.

Public Meeting

The Service hereby announces that a public meeting will be held on this proposed rule. The public is invited to attend this meeting and to present opinions and information on the proposal. This meeting will be held on Wednesday December 10, 1980 at 7:00 p.m. in Room 305, Downing University Center, Western Kentucky University, Bowling Green, Kentucky.

National Environmental Policy Act

A draft environmental assessment has been prepared in conjunction with this proposal. It is on file in the Service's Office of Endangered Species, 1000 North Glebe Road, Arlington, Virginia, and may be examined by appointment during regular business hours. A determination will be made at the time of final rulemaking as to whether this is a major Federal action which would significantly affect the quality of the human environment within the meaning of Section 102(2)(C) of the National Environmental Policy Act of 1969 (40 CFR Parts 1500-1508).

The Service has determined that this is not a significant rule and does not require preparation of a regulatory analysis under Executive Order 12044 and 43 CFR Part 14.

Primary Author

The primary author of this proposed

rule is Dr. Steven M. Chambers, Office of Endangered Species, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240 (703/235-1975).

References

Bouchard, Raymond W. 1979. Conservation status report on the Mammoth Cave shrimp, *Palaemonias ganteri*. Submitted as part of a petition to the Office of Endangered Species. December 12, 1979.
 Duchon, K., and E. A. Lisowski. 1980. Draft environmental assessment of lock and dam six, Green River navigation project on Mammoth Cave National Park.
 Hixon, W. 1979. Cave discovery causing concern. *Daily News*, Bowling Green, Kentucky, October 2, 1979.
 National Park Service. 1976. Final Environmental Statement: Mammoth Cave National Park Master Plan and Wilderness Suitability Study. Denver, CO.
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 Poulson, T. L., and T. C. Kane. 1977. Ecological diversity and stability: Principles and management. In T. Aley and D. Rhodes (eds.), *Proceedings National Cave Management Symposium*. Speleobooks, Albuquerque.
 U.S. Army Corps of Engineers. 1978. Green and Barren Rivers, Kentucky Navigation Study: Preliminary Feasibility Report U.S. Army Corps of Engineers, Louisville District.
 U.S. Army Corps of Engineers. 1979. Green and Barren Rivers, Kentucky Navigation Study: An Information Brochure. U.S. Army Corps of Engineers, Louisville District.

Regulations Promulgation

1. It is proposed to amend § 17.11 by adding, in alphabetical order the following to the list of animals (crustaceans):

§ 17.11 Endangered and threatened wildlife.

Species		Historic range	Vertebrate ¹	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Shrimp, Kentucky Cave	<i>Palaemonias ganteri</i>	U.S.A. (Kentucky)	NA	E		Yes	NA

¹ Vertebrate population where endangered or threatened.

§ 17.95h Crustaceans. [Amended]

2. It is further proposed that § 17.95h, crustaceans, be amended by adding Critical Habitat of the Kentucky cave shrimp as follows:

Kentucky Cave Shrimp

(*Palaemonias ganteri*)

Kentucky, Edmonson County: The Roaring River passage of the Flint Mammoth Cave

System in Mammoth Cave National Park. Known constituent elements include quiet silt-bottomed pools that are seasonally flooded.

KENTUCKY CAVE SHRIMP
Edmonson County, KENTUCKY



Dated: October 3, 1980.

Lynn A. Greenwalt,
Director, Fish and Wildlife Service.

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