

(relating to investigations and inquiries), and § 391.31 (relating to road tests) do not apply to a driver who has been a regularly employed driver (as defined in § 390.5 of this subchapter) of a motor carrier for a continuous period which began before January 1, 1971, as long as he/she continues to be a regularly employed driver of that motor carrier. Such a driver is qualified to drive a motor vehicle if he/she fulfills the requirements of paragraphs (b)(1) through (b)(9) of § 391.11 (relating to qualifications of drivers).

11. Section 391.67 is revised to read as follows:

§ 391.67 Drivers of articulated (combination) farm vehicles.

The following rules in this part do not apply to a farm vehicle driver (as defined in § 390.5) who is 18 years of age or older and who drives an articulated motor vehicle:

(a) Section 391.11(b)(1), (b)(8), (b)(10), and (b)(11) (relating to driver qualifications in general);

(b) Subpart C (relating to disclosure of, investigation into, and inquiries about the background, character, and driving record of, drivers);

(c) Subpart D (relating to road tests);
(d) So much of §§ 391.41 and 391.45 as require a driver to be medically examined and to have a medical examiner's certificate on his person before January 1, 1973; and

(e) Subpart F (relating to maintenance of files and records).

12. Section 391.68 is revised to read as follows:

§ 391.68 Private motor carrier of passengers (nonbusiness).

(a) The following rules in this part do not apply to a private motor carrier of passengers (nonbusiness) and their drivers:

(1) Section 391.11(b)(8), (b)(10), (b)(11), and (b)(12), (relating to driver qualifications in general).

(2) Subpart C (relating to disclosure of, investigation into, and inquiries about the background, character, and driving record of, drivers).

(3) Subpart D (relating to road tests).

(4) So much of §§ 391.41 and 391.45 as require a driver to be medically examined and to have a medical examiner's certificate on his/her person.

(5) Subpart F (relating to maintenance of files and records).

(6) Subpart H (relating to controlled substances testing).

(b) The following rules in this part do not apply to a private motor carrier of passengers (business) driver: Subpart D (relating to road tests).

13. Section 391.69 is revised to read as follows:

§ 391.69 Drivers operating in Hawaii.

The provisions of § 391.21 (relating to application for employment), § 391.23 (relating to investigations and inquiries), and § 391.31 (relating to road tests) do not apply to a driver who has been a regularly employed driver (as defined in § 390.5 of this subchapter) of a motor carrier operating in the State of Hawaii for a continuous period which began before April 1, 1975, as long as he/she continues to be a regularly employed driver of that motor carrier. Such a driver is qualified to drive a motor vehicle if he/she fulfills the requirements of paragraphs (b)(1) through (b)(9) of § 391.11 (relating to qualifications of drivers).

§ 391.71 [Amended]

14. In § 391.71, paragraph (a) is amended by removing the words "and § 391.35 (relating to written examination)" and adding the word "and" before the reference to "§ 391.31."

15. Section 391.73 is revised to read as follows:

§ 391.73 Private motor carrier of passengers (business).

The provisions of § 391.21 (relating to applications for employment), § 391.23 (relating to investigations and inquiries), and § 391.31 (relating to road tests) do not apply to a driver who has been a regularly employed driver (as defined in § 390.5 of this subchapter) of a private motor carrier of passengers (business) as of July 1, 1994, so long as the driver continues to be a regularly employed driver of that motor carrier. Such a driver is qualified to drive a motor vehicle if that driver fulfills the requirements of paragraphs (b)(1) through (b)(9) of § 391.11 (relating to qualifications of drivers).

PART 392—DRIVING OF MOTOR VEHICLES

16. The authority citation for part 392 is revised to read as follows:

Authority: 49 U.S.C. 31136 and 31502; and 49 CFR 1.48.

§§ 392.9a, 392.12, 392.18, 392.21, 392.30, 392.31, 392.32, 392.40, 392.41, 392.61, 392.62, 392.65, and 392.69 [Removed and Reserved]

17. Sections 392.9a, 392.12, 392.18, 392.21, 392.30, 392.31, 392.32, 392.40, 392.41, 392.61, 392.62, 392.65, and 392.69 are removed and reserved.

18. The heading of subpart E is revised to read, "Subpart E—License Revocation; Duties of Driver".

PART 395—HOURS OF SERVICE OF DRIVERS

19. The authority citation for part 395 is revised to read as follows:

Authority: 49 U.S.C. 31136 and 31502; and 49 CFR 1.48.

§ 395.2 [Amended]

20. The definition of *On duty time* is amended by removing paragraph (6) and redesignating paragraphs (7) through (9) as paragraphs (6) through (8), respectively.

PART 396—INSPECTION, REPAIR, AND MAINTENANCE

21. The authority citation for part 396 is revised to read as follows:

Authority: 49 U.S.C. 31136 and 31502; and 49 CFR 1.48.

§ 396.3 [Amended]

22. Section 396.3 is amended by removing paragraph (b)(4) and redesignating paragraph (b)(5) as paragraph (b)(4), and by adding the word "and" at the end of paragraph (b)(3).

Appendices A and C to Subchapter B [Removed and Reserved]

23. In chapter III, subchapter B, appendices A and C are removed and reserved.

[FR Doc. 94-28534 Filed 11-22-94; 8:45 am] BILLING CODE 4910-22-P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB97

Endangered and Threatened Wildlife and Plants; Appalachian Elktoe Determined To Be an Endangered Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) determines the Appalachian elktoe (*Alasmidonta raveneliana*) to be an endangered species under the Endangered Species Act of 1973, as amended (Act). The Appalachian elktoe is endemic to the upper Tennessee River system in the mountains of western North Carolina and eastern Tennessee. It was once fairly widely distributed in western North Carolina, but it has been

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eliminated from the majority of its historic range and is now found only in short reaches of the Little Tennessee River, Nolichucky River, Toe River, and Cane River. In Tennessee, the species is known only from its present distribution in the Nolichucky River. The species' range has been seriously reduced by impoundments and the general deterioration of habitat and water quality resulting from siltation and other pollutants contributed by poor land use practices and toxic discharges. Due to the species' limited distribution, any factors that adversely modify habitat or water quality in the stream reaches it now inhabits could further threaten the species. This final rule implements the Act's protection and recovery provisions for the Appalachian elktoe.

EFFECTIVE DATE: December 23, 1994.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at U.S. Fish and Wildlife Service, 330 Ridgefield Court, Asheville, North Carolina 28806.

FOR FURTHER INFORMATION CONTACT: Mr. John Fridell at the above address (704/665-1195, Ext. 225).

SUPPLEMENTARY INFORMATION:

Background

The Appalachian elktoe (*Alasmidonta raveneliana*) (Lea, 1834) is a freshwater mussel with a thin, but not fragile, kidney-shaped shell, reaching up to about 3.2 inches in length, 1.4 inches in height, and 1 inch in width (Clarke 1981). Juveniles generally have a yellowish-brown periostracum (outer shell surface) while the periostracum of the adults is usually dark brown in color. Although rays are prominent on some shells, particularly in the posterior portion of the shell, many individuals have only obscure greenish rays. The shell nacre (inside shell surface) is shiny, often white to bluish-white, changing to a salmon, pinkish, or brownish color in the central and beak cavity portions of the shell; some specimens may be marked with irregular brownish blotches (adapted from Clarke 1981). A detailed description of the species' shell, with illustrations, is contained in Clarke (1981). Soft parts are discussed in Ortman (1921).

Because of its rarity, little is known about the autecology of the Appalachian elktoe. The species has been reported from relatively shallow, medium-sized creeks and rivers with cool, moderate-to fast-flowing water. It has been observed in gravelly substrates often mixed with cobble and boulders, in

cracks in bedrock (Gordon 1991), and occasionally in relatively silt-free, coarse, sandy substrates (J. Alderman, North Carolina Wildlife Resources Commission, personal communication, 1992; personal observations, 1989 and 1991). Like other freshwater mussels, the Appalachian elktoe feeds by filtering food particles from the water column. The specific food habits of the species are unknown, but other freshwater mussels have been documented to feed on detritus, diatoms, phytoplankton, and zooplankton (Churchill and Lewis 1924). The reproductive cycle of the Appalachian elktoe is similar to that of other native freshwater mussels. Males release sperm into the water column; the sperm are then taken in by the females through their siphons during feeding and respiration. The females retain the fertilized eggs in their gills until the larvae (glochidia) fully develop. The mussel glochidia are released into the water, and within a few days they must attach to the appropriate species of fish, which they then parasitize for a short time while they develop into juvenile mussels. They then detach from their "fish host" and sink to the stream bottom where they continue to develop, provided they land in a suitable substrate with the correct water conditions. Recent studies funded by the U.S. Forest Service and conducted by personnel with the Tennessee Technological University at Cookeville, Tennessee, have identified the banded sculpin (*Cottus carolinae*) as a host species for glochidia of the Appalachian elktoe (M. Gordon, Tennessee Technological University, personal communication, 1993).

The mussel's life span, and many other aspects of its life history, are unknown.

The Appalachian elktoe is known to be endemic to the upper Tennessee River system in western North Carolina and eastern Tennessee. Historical records for the species in North Carolina exist for the Little Tennessee River system (Talula Creek, Graham County) and the French Broad River system, including the Nolichucky River (county unknown); the Little River (Transylvania County), the Swannanoa River (county unknown), the Pigeon River (Haywood County), and the main stem of the French Broad River (Buncombe County and an unknown county) (Clarke 1981). An additional historical record of the Appalachian elktoe in the North Fork Holston River, Tennessee (S.S. Haldeman collection) is believed to represent a mislabeled locality (Gordon 1991).

From 1986 through the spring of 1992, biologists with the Service, the

Tennessee Valley Authority, the North Carolina Wildlife Resources Commission, and the Tennessee Technological University conducted surveys in both historic and potential habitat of the species. Surveys of the French Broad River and its tributaries in Transylvania, Henderson, Haywood, Buncombe, and Madison Counties, North Carolina, failed to locate any specimens of the Appalachian elktoe (R. Biggins, U.S. Fish and Wildlife Service, personal communications, 1989 and 1991; Alderman, North Carolina Wildlife Resources Commission, personal communication, 1990; M. Gordon, Tennessee Technological University, personal communications, 1991 and 1992; personal observations, 1986 through 1991). The species has also been extirpated from Talula Creek in the Little Tennessee River system (personal observations, 1987 and 1992) and could not be found in any of the other major tributaries to the Little Tennessee River (Gordon, personal communication, 1991; S. Ahlstedt, Tennessee Valley Authority, personal communication, 1992). If the historic record for the species in the North Fork Holston River in Tennessee was a good record, then the species has been eliminated from this river as well. Only two populations of the species are known to survive. One population, discovered in 1987 by Tennessee Valley Authority biologists (Steven Ahlstedt and Charles Saylor), exists in the main stem of the Little Tennessee River in Swain and Macon Counties, North Carolina (Tennessee Valley Authority 1987; J. Widlak, U.S. Fish and Wildlife Service, personal communication, 1988; Biggins 1990; Gordon 1991; personal observations, 1988, 1991, 1992, 1993). The second population occurs in the Nolichucky River system. This population is restricted to scattered locations along a short reach of the Toe River in Yancey and Mitchell Counties in North Carolina (personal observations, 1991 and 1992) and the main stem of the Nolichucky River, Yancey and Mitchell Counties, North Carolina (Alderman, personal communication, 1991; personal observation, 1992, 1993), extending downriver into Unicoi County, Tennessee (personal observation, 1992). A single specimen of the Appalachian elktoe was also found in the Cane River in Yancey County, North Carolina (C. McGrath, North Carolina Wildlife Resources Commission, personal communication, 1992).

Habitat and water quality degradation/alteration resulting from impoundments; stream channelization;

dredging; industrial and sewage effluent; and the runoff of silt and other pollutants from poorly implemented mining, construction/development, agricultural, and past logging activities are believed to be the primary factors resulting in the elimination of the species from the majority of its historic range. Many of these factors threaten the only two remaining populations of the species.

Previous Federal Action

The Appalachian elktoe was recognized by the Service in the May 22, 1984, *Federal Register* (49 FR 21664) and again in the January 6, 1989, *Federal Register* (54 FR 554) as a species being reviewed for potential addition to the Federal List of Endangered and Threatened Wildlife and Plants. This mussel was designated as a category 2 candidate for Federal listing on these candidate lists. Category 2 represents those species for which the Service has some information indicating that the taxa may be under threat, but sufficient information is lacking to prepare a proposed rule. Since that time, both historic and potential habitat of the species has been surveyed. Only two populations of the Appalachian elktoe are known to survive, and both of these populations are threatened by many of the same factors that are believed to have resulted in the extirpation of the species elsewhere within its historic range. Accordingly, on June 10, 1992, the Service designated the Appalachian elktoe as a category 1 candidate. Category 1 represents those species for which the Service has enough substantial information on biological vulnerability and threats to support proposals to list them as endangered or threatened species. The Service has met and been in contact with various Federal and State agency personnel and private individuals knowledgeable about the species, concerning the species' status and the need for protection provided by the Act. On April 20, 1992, and again on August 21, 1992, the Service notified appropriate Federal, State, and local government agencies in writing that a status review was being conducted and that the species might be proposed for Federal listing. A total of six written comments were received on these two notices. The North Carolina Wildlife Resources Commission (two written comments), the North Carolina Natural Heritage Program (two written comments), and an interested biologist expressed their support for the species' being proposed for protection under the Act; the U.S. Soil Conservation Service stated that they did not have any

additional information on this species. No negative comments were received.

On September 3, 1993, the Service published in the *Federal Register* (58 FR 46940) a proposal to list the Appalachian elktoe as an endangered species. That proposal provided information on the species' biology, status, and threats to its continued existence.

Summary of Comments and Recommendations

In the September 3, 1993, proposed rule, the January 21, 1994, notice of public hearing and reopening of the comment period (59 FR 12353), the February 8, 1994, public hearing, and through associated notifications, comments or suggestions concerning the proposed rule were solicited from the public, concerned governmental agencies, the scientific community, industry, or any other interested party. Appropriate Federal and State agencies, county governments, scientific organizations, and interested parties were contacted by letters dated September 14, 1993, and January 27, 1994, and were requested to comment. A legal notice, which invited general public comment, was published in the following newspapers: "The Erwin Record," Erwin, Tennessee, September 22, 1993; the "Mitchell News Journal," Spruce Pine, North Carolina, September 22, 1993; the "Yancey Journal," Burnsville, North Carolina, September 22, 1993; the "Smoky Mountain Times," Bryson City, North Carolina, September 23, 1993; and the "Franklin Press," Franklin, North Carolina, September 24, 1993.

In response to three formal requests, a public hearing on the proposal to list the Appalachian elktoe as an endangered species was held on February 8, 1994, at the Mitchell High School, Bakersville, North Carolina. A legal notice announcing the public hearing and reopening of the comment period was published in the newspapers listed above.

All written comments and oral statements presented at the public hearing and those received during the comment periods are covered in the following discussion.

Four written responses to the proposed rule were received during the initial comment period. One of these was from a State agency, and the others were from the mining industry in Mitchell County, North Carolina. The State of Tennessee, Department of Environment and Conservation expressed support for the listing of the Appalachian elktoe as endangered, and stated that their Heritage Program

records concurred with the information presented in the proposed rule. The Unimin Corporation, Feldspar Corporation, and K-T Feldspar Corporation expressed concern about the potential listing and requested that a public hearing on the Service's proposal be held.

Nineteen verbal statements were made at the public hearing. Fifteen respondents (a representative of Congressman Taylor's office, the Mitchell County Board of Commissioners, the Mayor of the Town of Spruce Pine, the Mitchell County Soil and Water Conservation District, the Mitchell County Economic Development Commission, the Mitchell County Christmas Tree Growers Association, representatives of three mining companies, and six individuals) expressed opposition to the listing of the Appalachian elktoe. Four respondents (representatives of two businesses, a civic group, and a representative for 31 children in east Tennessee) supported the listing. Ten written comments were received at the public hearing, nine of which were copies of verbal statements given. A written statement was also received from Congressman Cass Ballenger. Congressman Ballenger expressed his interest in the matter and stated that he had sent a representative of his office to the hearing.

Forty additional written comments were received during the comment period extension (thirty-one letters were received from children in Chucky, Tennessee, but are counted in this total as one comment from the children in east Tennessee). Nine of these respondents (Congressman Charles Taylor, Congressmen Cass Ballenger, The K-T Feldspar Corporation, The Unimin Corporation, and five individuals) opposed the listing; thirty respondents (members of the League of Women Voters, Save our Rivers, a registered forester, and 26 other respondents) supported the listing; one respondent (Nantahala Power and Light Company) expressed neither support for nor opposition to the listing.

Following is a summary of comments, concerns, and questions (referred to as "Issues" for the purpose of this summary) expressed orally at the public hearing or in writing during the reopened comment period. Issues of similar content have been grouped together. These issues and the Service's response to each are presented below.

Issue 1: Congressman Taylor, Congressman Ballenger, the Mitchell County Soil and Water Conservation District, the Mitchell County Economic Development Commission, the Mayor of

the town of Spruce Pine, three mining companies in Mitchell County, North Carolina and several other respondents questioned the need for the Service to list the Appalachian elktoe because the species is already listed by the State of North Carolina and is protected under North Carolina's environmental laws.

Service Response: While the species is currently listed by the State of North Carolina as an endangered species, State regulations pertaining to State listed fish and wildlife, including freshwater mussels, prohibit only the take of such species. These regulations do not specifically protect State endangered and threatened species from other threats. Federal listing will provide additional protection for the Appalachian elktoe throughout its range by requiring Federal agencies, under Section 7 of the Act, to insure that their actions are not likely to jeopardize the continued existence of the Appalachian elktoe. Federal actions subject to Section 7 of the Act that could occur and impact the species include, but are not limited to, the carrying out or issuance of permits for road and bridge construction, forestry activities on National Forest lands, reservoir construction, river channel maintenance or other dredging activities, stream and wetland alterations, and potentially harmful wastewater discharges in relatively close proximity to the occupied habitat of the species. If the species was not listed, there would be no legal requirement for Federal agencies under the Act, involved in these types of activities to give the species any special consideration in their project planning or authorization. In the majority of the cases involving listed mussels (particularly the majority of highway and bridge projects, forestry activities, and other land disturbance projects), only minor project changes or modifications are necessary to protect the species (i.e., a commitment for the implementation and maintenance of adequate erosion and sedimentation control measures). These measures benefit not only the listed species involved but also the entire river ecosystem and the river's aesthetic and recreational values.

Further, Federal listing of the Appalachian elktoe will help to make the species, and areas where the species still exists, a high priority for potential Federal (and in some cases State and private) funding sources to help implement recovery actions for the species and corrective measures at problem sites within the watersheds where the species exists.

Issue 2: The Mayor of Spruce Pine questioned whether the Service felt the

State of North Carolina is not adequately protecting the Appalachian elktoe.

Service Response: Protection and recovery of the Appalachian elktoe cannot be achieved by the efforts of the States of North Carolina and Tennessee alone or by efforts of the Service and other Federal agencies alone. Protection and recovery of this species requires a cooperative effort and will depend on assistance and support of the local landowners, communities, private industries, businesses, and interest groups, as well as the local, State, and Federal agencies.

Issue 3: Congressman Taylor, Congressman Ballenger, the Mayor of the Town of Spruce Pine, one mining company, and two individuals questioned the factors cited by the Service as having contributed to the decline of the Appalachian elktoe, in particular pollution from industrial and municipal sources and siltation.

Service Response: Siltation has been documented to adversely affect native freshwater mussels both directly and indirectly. Siltation degrades water and substrate quality limiting available habitat for freshwater mussels (and their fish hosts), irritates and clogs the gills of filter-feeding mussels resulting in reduced feeding and respiration, smothers mussels if sufficient accumulation occurs, and increases the potential exposure of the mussels to other pollutants (Ellis 1936, Marking and Bills 1979, Kat 1982). Ellis (1936) found that less than one inch of sediment deposition caused high mortality in most mussel species. Sediment accumulations which are less than lethal to adults may adversely affect or prevent recruitment of juvenile mussels into the population.

The Appalachian elktoe has not been found in the Nolichucky River system in substrates with accumulations of silt and shifting sand; the species is restricted to small, scattered pockets of stable, relatively clean, gravelly substrates. The same is true of the population surviving in the Little Tennessee River.

Mussels are also known to be sensitive to numerous other pollutants, including but not limited to a wide variety of heavy metals, high concentrations of nutrients, and chlorine (Havlik and Marking 1987)—pollutants commonly found in many domestic and industrial effluents. In the early 1900's Ortmann (1909) noted that unionids (mussels) are the most reliable indicator of stream pollution. Keller and Zam (1991) concluded that mussels were more sensitive to metals than commonly tested fish and aquatic insects. The life cycle of native mussels

makes the reproductive stages especially vulnerable to pollutants (Ingram 1957, Stein 1971, Fuller 1974, Gardner *et al* 1976). The toxicity of chlorinated sewage effluents to aquatic life is well documented (Brungs 1976, Tsai 1975, Bellanca and Bailey 1977, U.S. Environmental Protection Agency 1985, Goudreau *et al* 1988), and mussel glochidia (larvae) rank among the most sensitive invertebrates in their tolerance to toxicants present in sewage effluents (Goudreau *et al* 1988).

The evidence available demonstrates that habitat deterioration (resulting from sedimentation and pollution from numerous point sources), when combined with the effects of other factors (including non-point source pollution, habitat destruction/alteration resulting from impoundments and channelization projects, etc.), has played a significant role in the decline of the Appalachian elktoe. The Service believes this is particularly true of the extirpation of the species from the Pigeon, Swannanoa, and French Broad Rivers. These factors (primarily sedimentation) likely also contributed to the extirpation of the species from the Little River and Talula Creek. Habitat loss and alteration resulting from impoundments, channel modification projects, and (in the case of Talula Creek) excavation activities within the creek channel are believed to have had a severe adverse effect on the species.

Issue 4: One mining company and one individual asked whether predation posed a threat to the Appalachian elktoe. One of these respondents inquired about the effects of predation by brown trout, "muskie" (muskellunge), and otter; the other inquired concerning the effects of muskrat predation.

Service Response: Shells of the Appalachian elktoe are often found in muskrat middens along the reach of the Little Tennessee River where the species still exists and occasionally in middens along the Nolichucky River. The species also is presumably consumed by other mammals, such as raccoons, mink, and otter. Plankton feeding fish (including hatchling trout and muskellunge) likely occasionally feed on the sperm and glochidia (which are expelled by freshwater mussels directly into the water column), and bottom feeding fish may occasionally feed on mussels, particularly juvenile mussels. However, larger trout and muskellunge feed primarily on insects, crustaceans, amphibians and other fish (mobile aquatic organisms).

While predation is not thought to be a significant threat to a healthy mussel population, it could, as suggested by

Neves and Odum (1989), limit the recovery of endangered mussel species or contribute to the local extirpation of mussel populations already reduced by other factors (see "Summary of Factors Affecting the Species," Part C. *Disease or Predation*, below).

Issue 5: One of the mining companies inquired concerning whether disease posed a threat to freshwater mussels.

Service Response: The Service does not currently have any information to indicate whether disease is a significant threat to freshwater mussels. Since 1982, biologists and commercial mussel fishermen have reported occasional and localized, though extensive, mussel die-offs in rivers and lakes throughout the United States. Pesticides have been implicated as the cause of one of the die-offs that occurred in North Carolina, but the cause(s) of many of these die-offs is unknown and disease has been suggested as a possible factor. (See "Summary of Factors Affecting the Species, factor C. *Disease or Predation*, below)

Issue 6: One of the mining companies inquired about the effect high or low water levels or extreme temperature changes have on the mussel (Appalachian elktoe).

Service Response: Normal water and temperature fluctuations are not believed to have any significant adverse effect on the Appalachian elktoe. However, significant changes in water levels and/or temperature, especially rapid changes, do pose a threat.

The Appalachian elktoe is found in cool, (it has not been recorded from extremely cold or warm waters) moderate to fast-flowing water over stable, relatively silt-free rocky (gravel, cobble, boulder, etc.) substrates (see "Background" section above). Such suitable substrates are generally found in areas where the water current is swift enough to help keep silt and other sediments from accumulating. Lessening these flows increases the potential for siltation of the substrate. Also, these areas are often located in relatively shallow water. Because mussels are basically sedentary, de-watering of these areas traps the mussels and subjects them to heat or cold stress (depending on the time of year), desiccation, and increased predation. Low water or drastic increases in water levels within the river can result in temperature and chemical changes within the water, thus adversely affecting the Appalachian elktoe. Rapid increases in water levels can result in increased scouring and erosion of streambanks and river channel resulting in increased sedimentation of the river.

Issue 7: Nantahala Power and Light Company asked whether surveys had been conducted to determine the species distribution, and one individual suggested the species may occur in other areas.

Service Response: From 1986 through the spring of 1992, biologists with the Service, the North Carolina Wildlife Resources Commission, the Tennessee Valley Authority, and the Tennessee Technological University surveyed both historic and potential habitat of the species (see "Background" section above). Based on the results of these surveys, the Service concludes that it is not likely that additional populations of the Appalachian will be discovered outside of the present known range.

Issue 8: One respondent for the mining industry suggested that the surveys conducted for the species may have been in the wrong habitat type.

Service Response: The surveys that were conducted included the use of scuba and snorkeling equipment, view buckets (glass bottom buckets), and collection of shell middens (accumulations of shells from mussels fed upon by muskrats). Surveys were conducted in deep and shallow water, riffles, shoals, pools, and runs. The species was observed in stable, relatively silt-free gravelly substrates often mixed with cobble and boulders, and in cracks in bedrock (see "Background" section above). On three occasions single individuals were found in relatively clean, coarse sandy substrates. Water currents in the areas where the species was most often observed was moderate to swift. The swift currents helped to keep the substrate flushed of sediments. Deeper and slacker water habitats generally contained accumulations of unstable silt, sand, and other sediments (particularly in the case of the Nolichucky River system), which is believed to help explain the species' absence from these areas.

Issue 9: Several respondents provided information concerning the efforts that have been undertaken by the town of Spruce Pine, the industries in the Spruce Pine area, the local landowners, and others in the Mitchell County area to improve the quality of the North Toe, Toe, and Nolichucky Rivers. Many of these respondents state that because of these efforts, Federal listing of the Appalachian elktoe is not necessary.

Service Response: The Service recognizes that many of the industries, landowners, developers, builders, etc., in these watersheds are implementing measures for controlling the runoff of sediments and other pollutants into the river and its tributaries and commends

those actions. The Service also recognizes that these efforts have resulted in improvements in the condition of some areas of the upper Nolichucky River system in recent years. However, while there have been improvements, there are still activities occurring within the watershed that continue to adversely affect the quality of the Toe, Cane, and Nolichucky Rivers, and there are other activities proposed that have the potential to affect these rivers.

The Service believes that the Appalachian elktoe meets the definition of endangered and warrants the protection of the Act. In making this determination the Service has to look at what has happened or is happening to the species throughout the species' range, and what threats there are to the species throughout its range. The Service cannot look at just one area, nor can it look at the threats from just one or a few sources. The Service believes there are numerous ongoing and planned activities, as well as natural threats, in both river systems where the species still survives (see "Summary of Factors Affecting the Species" below) that have the potential to adversely affect the surviving populations.

Issue 10: One representative of the mining industry suggested a cooperative effort (reintroduction of the species into tributaries of the Toe and Nolichucky Rivers) among the Service and the local mining industry might be used to protect the Appalachian elktoe without listing the species.

Service Response: Recovery of the Appalachian elktoe cannot be achieved without reestablishment of the species throughout a significant portion of its historic range. Because the majority of the areas from which the species has been eliminated are isolated from existing populations, natural reestablishment of these areas by the species is impossible and will require human assistance. However, before reintroduction activities can be carried out with confidence that such reintroductions can be successful, additional research is necessary to determine the range of environmental requirements of the species. Artificial propagation of the species may be necessary in order to obtain sufficient numbers of the species for the successful reintroductions—the existing populations, especially the Nolichucky river population, currently appear too small to support removals for reintroductions. Several agencies and institutes are conducting research on artificial propagation and relocation of freshwater mussels, though efforts to date have met with only limited

success. Much more work is needed to perfect these techniques before they can be applied to endangered mussels. Recovery of decimated populations of native freshwater mussels through reintroductions will be an extremely slow and difficult process and will require long-term commitment of funds and effort to carry out and monitor.

Issue 11: Congressman Taylor and Congressman Ballenger, the Mitchell County Board of Commissioners, the Mitchell County Economic Development Commission, the Mayor of the Town of Spruce Pine, and several other respondents expressed economic concerns associated with Federal listing of the Appalachian elktoe.

Service Response: Under section 4(b)(1)(A) of the Act, a listing determination must be based solely on the best scientific and commercial data available concerning the status of a species. The legislative history of this provision clearly states the intent of Congress to ensure that listing decisions are "based solely on biological criteria and to prevent non-biological considerations from affecting such decisions" H.R. Rep. No. 97-835, 97th Cong. 2nd Sess. 19 (1982). As further stated in the legislative history, "economic considerations have no relevance to determinations regarding the status of the species". The Service is prohibited by law from withholding a listing based on concerns regarding economic impact.

While the Service cannot consider economic concerns in determining whether a species is endangered or threatened, other provisions of the Act do allow for the consideration of the potential economic effects of actions or determinations made pursuant to the Act. For instance, in developing a biological opinion under Section 7 of the Act, the Service develops (through consultation with the lead Federal agency and the applicant, if there is one) "reasonable and prudent alternatives" for actions that are determined to be likely to jeopardize the continued existence of a federally listed species, and "reasonable and prudent measures" for actions that are likely to result in incidental take of a federally listed species. In order to be "reasonable and prudent" these alternatives/measures must be technically and economically feasible. If it was determined that a proposed action was likely to jeopardize the continued existence of a federally listed species and there were no reasonable and prudent alternatives to avoid jeopardy, the Act provides a mechanism for the action to be elevated to a cabinet-level Endangered Species Committee for review. If, through this

review, it is determined that the benefits of the proposed action to the public outweigh the potential extinction of the species, an exemption from the provisions of the Act can be granted for the project.

The Service is well aware of the economic importance of the Nolichucky River system to Mitchell County. The Service sees no reason why conservation of the Appalachian elktoe cannot be integrated with existing industrial and domestic uses of the river and its tributaries.

Issue 12: Congressman Taylor and Congressman Ballenger, the Mitchell County Board of Commissioners, the Mitchell County Economic Development Commission, the Mayor of the town of Spruce Pine, and several individuals expressed concerns about potential effects to wastewater discharges (in particular discharges from the Town of Spruce Pine and from mining industry in Mitchell County) associated with Federal regulations resulting from listing of the Appalachian elktoe.

Service Response: Section 9 of the Act sets 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 (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect; or to attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is 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.

The Service is not aware of any information currently available that indicates existing discharges associated with mining industry in Mitchell County, North Carolina, or the town of Spruce Pine are either adversely affecting the Appalachian elktoe or resulting in a "take" of the species where it presently exists in the Nolichucky River system. Therefore, the Service does not believe regulations

under Section 9 of the Act will have any effect on the mining industry or on the town of Spruce Pine into the foreseeable future.

Section 7 of the Act places a requirement on Federal agencies to evaluate their actions (projects that they authorize, fund, or carry out) with respect to any species that is listed as endangered or threatened, and to insure that their actions are not likely to jeopardize the continued existence of a listed species (see Available Conservation Measures below). The requirements under Section 7 of the Act apply only to Federal agencies and therefore would affect only those actions and activities that have Federal involvement (i.e., projects that utilize Federal funding, require Federal permits or authorization, or are carried out by a Federal agency). The Service's role under Section 7 of the Act is to assist other Federal agencies in meeting their obligations with respect to endangered and threatened species.

While National Pollution Discharge Elimination System (NPDES) permits are issued by the North Carolina Department of Environmental Management (NCDEM), the U.S. Environmental Protection Agency (EPA) does have overview authority of the State's NPDES permit program. Therefore, EPA would be required to satisfy its obligations under Section 7 of the Act if it were determined that permit renewal or potential permitting of a new or expanded discharge associated with the mining industry or the town of Spruce Pine was likely to affect the Appalachian elktoe.

The Service cannot say whether or not new or expanded discharges into the Nolichucky River system will be affected by the listing of the Appalachian elktoe without specific information concerning those discharges. Further, under Section 7 of the Act, it is the lead Federal agency, in this case the EPA, that determines whether there is a potential for discharges to affect federally listed species. However, as stated previously, based on the best scientific and commercial information currently available to the Service, the existing permitted discharges do not appear to be adversely affecting existing locations of the Appalachian elktoe.

Expansion of existing discharges would not likely be affected by the listing of the Appalachian elktoe unless: (1) the location of a discharge is moved significantly further downstream to a point where it would be more likely to adversely affect the Appalachian elktoe, (2) the State proposes to grant a variance that would allow a discharge, or

discharges, to exceed current water quality standards for the river, and/or (3) new information becomes available that indicates that the existing discharges or expansion of these discharges are likely having an adverse effect (individually or cumulatively) on the Appalachian elktoe.

In regard to the proposed expansion of the Spruce Pine wastewater treatment plant, in view of the documented toxicity of chlorine to freshwater organisms, the Service will likely request that dechlorination of the effluent and standby power to sustain dechlorination in the event of a power failure be made part of the permit. However, based on conversations with the personnel with the Asheville Regional Office of the NCDEM, this will be a primary recommendation from their office as well.

Also, new or expanding facilities are required to evaluate alternatives to proposed sites of discharge, including nondischarge alternatives, as required under Titles 15A NCAC 2B.201 (c)(1) and 2H.105 (c)(2) of the State's Water Quality Classification and Standards Rules. An environmental assessment is also required of applicants proposing any new discharges of industrial process or domestic wastewater in excess of 500,000 gallons per day. These requirements apply to all such facilities without regard to the presence or absence of endangered species.

Any substantial indications of water quality impairment evidenced by in stream biological monitoring, including the status of downstream threatened or endangered species, may trigger a review of potential causes of water quality degradation upstream.

If the EPA were to determine that a NPDES permit associated with one of the mining companies in Mitchell County was likely to affect the Appalachian elktoe, it has been the experience of the Service that nearly all Section 7 consultations have been resolved so that the species has been protected and the project objectives have been met.

Issue 13: Two respondents expressed concern about the effect the listing would have on current farming practices.

Service Response: The Service encourages the use of best management practices (e.g., buffer strips along water courses, reductions of pesticide applications, soil conservation practices that help control soil loss and siltation, etc.). The Service and other Federal agencies do have programs to assist farmers and other landowners in implementing measures for habitat restoration and improvement. For

instance, the Service's Partners for Wildlife Program has the potential to provide funding to interested and willing landowners to help restore degraded areas, fence livestock out of streams and provide alternative livestock water sources, plant filter strips, etc.—measures that many landowners may not otherwise be able to afford.

Issue 14: The Mitchell County Economic Development Commission asked whether listing the Appalachian elktoe would lead to the potential for the Toe River becoming a "resource water".

Response: The North Carolina Division of Environmental Management (NCDEM) is responsible for classifying waters within the State of North Carolina. If the respondent is referring to "Outstanding Resource Water" designation, the State of North Carolina requires that waters eligible for this designation have excellent water quality and have at least one of five values or uses (one of which is that the waters are of special ecological or scientific significance such as habitat for rare or endangered species) that qualifies the water body as having an outstanding resource value. Because the Appalachian elktoe is already listed by the State of North Carolina as endangered, the Toe River, or at least a portion of the Toe River, already meets the second requirement. However, because the Toe River does not currently maintain excellent water quality it does not meet the first requirement and therefore is not eligible.

If the Respondent is referring to "High Quality Water" designation, the State of North Carolina's criteria for this designation does not recognize the Federal status of species. Therefore, Federal listing of the Appalachian elktoe does not effect the Toe River's eligibility, or ineligibility, for this designation.

Issue 15: The Mitchell County Economic Development Commission, one mining company, and two individuals asked whether the fish host for the Appalachian elktoe mussel has been identified and what its numbers are in the Nolichucky River.

Service Response: Recent studies funded by the U.S. Forest Service and conducted by personnel with the Tennessee Technological University at Cookeville, Tennessee, have identified the banded sculpin (*Cottus carolinae*) as a host species for glochidia of the Appalachian elktoe (M. Gordon, Tennessee Technological University, personal communication, 1993). It is possible that other fish species may also

serve as host to Appalachian elktoe glochidia. Because the banded sculpin is currently widely distributed and appears to be fairly common, specific studies have not been conducted to determine what the species' population levels are in the Nolichucky and Little Tennessee river systems. Like the Appalachian elktoe, the banded sculpin is generally found in riffle areas and appears to be sensitive to sedimentation and water pollution. Reductions of the population levels of the banded sculpin may be a factor contributing to the limited distribution and numbers of the Appalachian elktoe. However, evidence of reproduction of the Appalachian elktoe in recent years, albeit limited in the Nolichucky River population of the species, has been observed in both surviving populations of the species (personal observation 1992), so a fish host is present. In identifying and attempting to alleviate specific threats to the Appalachian elktoe, the Service will seek additional research in this area.

Issue 16: One of the mining companies asked whether any specimens were found in 1993.

Service Response: During 1993, two specimens of the Appalachian elktoe were observed in a riffle area of the Nolichucky River (at a site where the species had been previously recorded) along the Yancey/Mitchell County line, North Carolina (personal observation); and several specimens (approximately 15 to 20) were observed by North Carolina Wildlife Resources Commission personnel (John Alderman and Christopher McGrath) and Service biologists in riffle and shoal areas of the Little Tennessee River in Swain County, North Carolina.

Issue 17: One of the mining companies asked whether current fluoride levels in the North Toe River are affecting the Appalachian elktoe.

Service Response: The Service is not aware of any information currently available that indicates that the allowable levels of fluoride, currently permitted under existing NPDES permits for the mining discharges into the North Toe River system, are having an adverse effect on the Appalachian elktoe in the Toe and Nolichucky Rivers.

During the surveys for the Appalachian elktoe in the Nolichucky River system that were conducted in 1991 and 1992 by the Service, the Service used maps that misidentified the Toe River as the North Toe River (these maps did not show a Toe River). Subsequently, in the September 3, 1993, proposed rule, the Service incorrectly identified the Appalachian elktoe as occurring in the North Toe River. This

species is present in the Toe River but is not present in the North Toe River (this has been corrected throughout this rule). The Toe River portion of the Nolichucky River population of the Appalachian elktoe is currently located over 20 river miles from the nearest of the existing mining discharges.

Issue 18: Congressman Taylor, Congressman Ballenger, the Mitchell County Economic Development Commission, the Mayor of the town of Spruce Pine, three mining companies, and several other respondents questioned whether the Appalachian elktoe is truly endangered and requested that, prior to listing, the Service conduct further studies concerning the cause of the decline of the species and/or to determine whether the Nolichucky River population of the species is declining.

Service Response: Intensive surveys of both historic and potential habitat of the Appalachian elktoe have been conducted throughout the upper Tennessee River system—the historic range of the species (see “Background” section above). The results of these surveys reveal that the species has been eliminated from four of the eight rivers in which it is known to have historically occurred, including the Little River, the Swannanoa River, the Pigeon River, and the main stem of the French Broad River. It has also been eliminated from Talula Creek, and has essentially been eliminated from the Cane River (despite intensive surveys of this river in recent years, only one old adult specimen was found). This represents the loss of the species from at least two-thirds of its historic range. Only two relatively small, isolated populations of the Appalachian elktoe are known to survive.

The elimination of a species from the majority of its range and the isolating and confining of surviving populations to small areas, greatly increases the vulnerability of a species to extinction. It reduces the species' ability to respond to changes (natural or manmade) within its environment and to recover from impacts (large or repeated small scale impacts) to its numbers, that a species with widely dispersed, interconnected healthy populations would likely be able to overcome.

The Service does not have specific information to estimate numbers of individuals present in the Nolichucky River population of the Appalachian elktoe. Neither does the Service have specific data concerning whether this population is currently in decline, stable, or increasing.

The Service, the North Carolina Wildlife Resources Commission, the

Tennessee Valley Authority, the Tennessee Technological University and other agencies and researchers have conducted extensive surveys of the Nolichucky River system, either specifically for the Appalachian elktoe or as part of monitoring or research on other species. The results of these surveys indicate that the Nolichucky River population of the Appalachian elktoe is currently restricted to a relatively short reach of the river system, that suitable habitat for the species is presently limited within the river system, and that where the species has been found it appears to exist in relatively low numbers. The Service believes it is endangered regardless of whether it is currently increasing, declining, or stable.

The Service believes there is sufficient information currently available that shows that the Appalachian elktoe has been eliminated from a significant portion of its historic range (see “Background” section above); and that the only two known surviving populations of the species are restricted in range, insufficiently protected by other existing regulatory mechanisms, are isolated from one another, and are vulnerable to many of the same factors that resulted in its extirpation elsewhere within its historic range. The Act requires the Service list such species.

Issue 19: The Mayor of the town of Spruce Pine and two other individuals stated that they felt there was not enough opportunity provided by the Service for public input regarding the potential listing of the Appalachian elktoe.

Service Response: The Service solicited comments concerning the potential listing of the Appalachian elktoe from all interested parties through notices of review (April 20, 1992, and August 21, 1992), the proposed rule (published September 3, 1993), the notice of the public hearing and reopening of the comment period (published January 21, 1994), the public hearing (held February 8, 1994), and associated notification letters and legal notices published in the local newspapers (see “Background” section and the first paragraph of “Summary of Comments and Recommendations” above).

Issue 20: One respondent inquired whether the government would pay Federal employees' salaries and attorney fees, and whether the government would pay citizens' salaries and attorney fees, if the citizens decide to take the “program” the Service plans to implement to court. The respondent did not specify what “program” he was referring to.

Service Response: Whether the government would provide representation to Service employees would be dependent upon the nature of the law suit. Whether the government would provide attorney fees to the plaintiff would also be dependent upon the nature and outcome of the law suit.

Issue 21: One respondent quoted the representative from the Tennessee Valley Authority who participated in the public hearing as saying that “the Appalachian elktoe would be used for cancer research” and he questioned how this could be if the species was endangered.

Service Response: The representative from the Tennessee Valley Authority was misquoted. He said that some species of freshwater mussels are being used in cancer research, because freshwater mussels do not develop tumors and appear to be immune to cancer. The rarity of the Appalachian elktoe will likely preclude the use of the species in such research efforts.

Issue 22: Nantahala Power and Light Company requested that the Service take immediate steps to develop and implement a recovery plan for the Appalachian elktoe.

Service Response: The Service will attempt to develop and distribute a draft recovery plan for the Appalachian elktoe within one year of date of this final rule, and a final recovery plan within two years of this final rule. The recovery plan will be developed through coordination with appropriate Federal and State agencies, county and local governments, individuals knowledgeable about freshwater mussels, and interested businesses, industries, and individuals.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the Appalachian elktoe should be classified as an endangered species. Procedures found at Section 4(a)(1) of the 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 Appalachian elktoe (*Alasmidonta raveneliana*) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

Historic and recent collection records for the Appalachian elktoe indicate that the species was once fairly widely distributed throughout the upper Tennessee River system in North Carolina, including the French Broad River system, the Little Tennessee River system, and the Nolichucky River system (Clarke 1981, Biggins 1990, and Gordon 1991). In Tennessee, the species is known only from its present distribution in the Nolichucky River. The species apparently no longer exists in the French Broad River system, where it was once fairly widely distributed; and, with the exception of one small population each in the Nolichucky River system and the main stem of the Little Tennessee River, the species has been eliminated from these river systems as well. The decline of this species throughout its range has been attributed to several factors, including siltation resulting from mining, logging, agricultural, and construction activities; runoff and discharge of organic and inorganic pollutants from industrial, municipal, agricultural, and other point and non-point sources; habitat alterations associated with impoundments, channelization, and dredging; and other natural and human-related factors that adversely modify the aquatic environment. Many of these same factors threaten the two remaining populations of the species.

The Little Tennessee River population, the healthiest of the two remaining populations, inhabits a relatively short stretch of the river located between Emory Lake at Franklin, Macon County, North Carolina, and Fontana Reservoir in Swain County, North Carolina. This population was likely reduced in size by the impoundment of these two reservoirs. The Nolichucky River population appears to be restricted to scattered pockets within a short reach of the main stem of the Nolichucky River in Unicoi County, Tennessee, and Mitchell and Yancey Counties, North Carolina, extending a short distance into the Toe River, Yancey and Mitchell Counties, North Carolina. A single, adult specimen was also collected a short distance up the Cane River (Nolichucky River system) in Yancey County, North Carolina.

The most immediate threats to both remaining populations appear to be associated with heavy silt loads and other pollutants (i.e., fertilizers, pesticides, heavy metals, oil, salts,

organic wastes, etc.) from residential and industrial developments, road and highway construction/improvement projects, crop and livestock farming activities, and other land disturbance activities occurring throughout the rivers' watersheds. Much of the Nolichucky River in North Carolina contains heavy loads of sediments from past and ongoing land disturbance activities within its watershed, and suitable habitat for the Appalachian elktoe appears to be limited in this river system.

Also, because both extant populations of the Appalachian elktoe are restricted to short river reaches, each is extremely vulnerable to extirpation from a single catastrophic event, such as a toxic chemical spill or an activity resulting in a major river channel/habitat modification.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

This freshwater mussel species is not commercially valuable, but because it is extremely rare it could be sought by collectors. While collecting or other intentional take is not presently identified as a factor contributing to the species' decline, because the Appalachian elktoe is extremely restricted in range, such take could pose a significant threat to the species' continued existence if it should occur. Federal listing would help control any indiscriminate taking of individuals.

C. Disease or Predation

Since 1982, biologists and commercial mussel fishermen have reported mussel die-offs in rivers and lakes throughout the United States. The cause(s) of many of these die-offs is unknown, but disease has been suggested as a possible factor.

Shells of the Appalachian elktoe are often found in muskrat middens along the reach of the Little Tennessee River, where the species still exists, and occasionally in middens along the Nolichucky River. The species is also presumably consumed by other mammals, such as raccoons, otter, and mink. While predation is not thought to be a significant threat to a healthy mussel population, it could, as suggested by Neves and Odum (1989), limit the recovery of endangered mussel species or contribute to the local extirpation of mussel populations already depleted by other factors. Predation would be of primary concern to the Nolichucky River population of the Appalachian elktoe, which appears to be very small.

D. The Inadequacy of Existing Regulatory Mechanisms.

The States of North Carolina and Tennessee prohibit taking of fish and wildlife, including freshwater mussels, for scientific purposes without a State collecting permit. However, State regulations do not generally protect the species from other threats. Existing authorities available to protect aquatic systems, such as the Clean Water Act, administered by the Environmental Protection Agency (EPA) and the Army Corps of Engineers, have not been fully utilized and may have led to the degradation of aquatic environments in the Southeast Region, thus resulting in a decline of aquatic species. The Little Tennessee River population of the species is indirectly provided some Federal protection from Federal actions and activities through the Act, due to the fact that at least a portion of this population inhabits the same stretch of river as the federally threatened spotfin chub (*Cyprinella [=Hybopsis] monacha*) and the federally endangered little-wing pearly mussel (*Pegias fabula*). However, the Nolichucky River population of the species is not afforded this protection. Federal listing will provide additional protection for the Appalachian elktoe throughout its range by requiring Federal permits in order to take the species and by requiring Federal agencies to consult with the Service when activities they fund, authorize, or carry out may affect the species. Further, listing will require consultation with the EPA in relationship to water quality criteria, standards, and National Pollution Discharge Elimination System permits under the Clean Water Act; and implementation of actions to recover the species.

E. Other Natural or Manmade Factors Affecting Its Continued Existence.

Only two populations of this species are known to still exist. Both are relatively small, particularly the Nolichucky River population, and both are geographically isolated. This isolation prohibits the natural interchange of genetic material between populations, and the small population size reduces the reservoir of genetic variability within the populations. It is possible that both the remaining populations of the Appalachian elktoe may already be below the level required to maintain long-term genetic viability. Because the remaining populations are isolated, natural repopulation of an extirpated population would be impossible without human intervention.

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 Appalachian elktoe as an endangered species. The species has been eliminated from the French Broad River system, and its range has been greatly reduced in the other two river systems (the Little Tennessee River and the Nolichucky River systems) in which the species historically occurred. Presently, only two small isolated populations are known to survive. These populations are threatened by a variety of factors, including road construction activities, residential and commercial development, mining activities, farming and logging activities, sewage and industrial effluent, and other manmade and natural factors adversely affecting the aquatic environment. Due to the species' history of population losses and the extreme vulnerability of the two surviving populations, endangered status appears to be appropriate for this species (see "Critical Habitat" section for a discussion of why critical habitat is not being proposed for the Appalachian elktoe).

Critical Habitat

Section 4(a)(3) of the Act requires that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. The Service's regulations (50 CFR 424.12(a)(1)) state that designation of critical habitat is not prudent when one or both of the following situations exist: (1) the species is threatened by taking or other activity and the identification of critical habitat can be expected to increase the degree of threat to the species or (2) such designation of critical habitat would not be beneficial to the species. The Service finds that designation of critical habitat is not prudent for this species. Such a determination would result in no known benefit to the Appalachian elktoe.

Section 7(a)(2) and regulations codified at 50 CFR Part 402 require Federal agencies to ensure, in consultation with and with the assistance of the Service, that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species or destroy or adversely modify their critical habitat, if designated. 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 the destruction or adverse

modification of proposed critical habitat. (See "Available Conservation Measures" section for a further discussion of Section 7.) As part of the development of this rule, Federal and State agencies were notified of the Appalachian elktoe's general distribution, and they were requested to provide data on proposed Federal actions that might adversely affect the species. Three highway projects have been identified within, or in relatively close proximity to, occupied habitat of the Appalachian elktoe. The Service is currently involved in informal consultations regarding these projects. Should any future projects be proposed in areas inhabited by this mussel, the involved Federal agency will already have the general distributional data needed to determine if the species may be affected by their action; and if needed, more specific distributional information would be provided.

The Appalachian elktoe occupies very restricted stream reaches within only two river systems—the Little Tennessee River system and the Nolichucky River system. Any significant adverse modification or destruction of the species' habitat would likely jeopardize the species' continued existence. Therefore, no additional protection for the mussel would accrue from critical habitat designation that would not also accrue from listing of the species. When listed, habitat protection for the Appalachian elktoe will be accomplished through the Section 7 jeopardy standard and Section 9 prohibitions against take.

In addition, the Appalachian elktoe is very rare, and taking for scientific purposes and private collection could pose a threat if specific site information were released. The publication of critical habitat maps in the **Federal Register** and local newspapers and other publicity accompanying critical habitat designation could increase the collection threat and increase the potential for vandalism during the often controversial critical habitat designation process. The locations of populations of this species have consequently been described only in general terms in this proposed rule. Any existing precise locality data would be available to appropriate Federal, State, and local government agencies from the Service office described in the **ADDRESSES** section; from the Service's Raleigh Field Office, P.O. Box 33726, Raleigh, North Carolina 27636-3726; the Service's Cookeville Field Office, 446 Neal Street, Cookeville, Tennessee 38501, and from the North Carolina Wildlife Resources Commission, North Carolina Natural Heritage Program, Tennessee Wildlife

Resources Agency, and Tennessee Department of Conservation.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the 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 Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act 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)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. The Service has notified Federal agencies that may have programs that affect the species. Federal activities that occur and impact the species include, but are not limited to, the carrying out or the issuance of permits for reservoir construction, stream alterations, wastewater facility development, hydroelectric facility construction and operation, forestry operations, and road and bridge construction. It has been the experience of the Service, however, that nearly all Section 7 consultations can be resolved so that the species is protected and the project objectives 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 (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect; or to attempt any of these), 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 also is 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.

It is the policy of the Service (59 FR 34272) to identify to the maximum extent practicable at the time a species is listed those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of the listing on proposed and ongoing activities within a species' range. During the public comment period the Service received inquiries about the effect listing would have on the mining industry and farming practices. As previously discussed in the Summary of Comments and Recommendations section, the Service believes that, based on the current available information, the existing discharges associated with the mining industry are not likely to be affected by this listing and will not result in a violation of section 9, provided these activities are carried out in accordance with existing regulations and permit requirements, such as, projects subject to section 404 of the Clean Water Act and discharges regulated under the National Pollutant Discharge Elimination System (NPDES). The

Service is not aware of any current farming practices will result in a violation of section 9. Activities that the Service believes could potentially result in "take" of the Appalachian elktoe include, but are not limited to:

- (1) Unauthorized collecting or handling of the species;
- (2) Unauthorized destruction/alteration of the species habitat (i.e., in-stream dredging, rock removal, channelization, discharge of fill material, operation of heavy equipment within the stream channel, etc.);
- (3) Violations of discharge permits;
- (4) Pesticide applications in violation of label restrictions; and
- (5) Illegal discharges or dumping of toxic chemicals, silt, fertilizers, pesticides, heavy metals, oil, organic wastes or other pollutants into waters supporting the species.

Questions regarding whether specific activities will constitute a violation of section 9 should be directed to the Field Supervisor of the Service's Asheville Office (see ADDRESSES section). Requests for copies of the regulations concerning listed animals and general inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Southeast Regional Office, Ecological Services Division, Threatened and Endangered Species, 1875 Century Boulevard, Atlanta, Georgia 30345-3301 (Telephone 404/679-7099, Facsimile 404/679-7081).

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

A complete list of all references cited herein is available upon request from the Asheville field office (see ADDRESSES above)

Author

The primary author of this proposed rule is John A. Fridell, U.S. Fish and Wildlife Service, 330 Ridgefield Court, Asheville, North Carolina 28806 (704/665-1195, Ext. 225).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

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: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.11(h) for animals by adding the following, in alphabetical order under CLAMS, to the List of Endangered and Threatened Wildlife, to read as follows:

§ 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 | | | | | | |
| CLAMS | | | | | | | |
| Elktoe, Appalachian | <i>Alasmidonta raveneliana</i> . | U.S.A. (NC, TN) | NA | E | 563 | NA | NA |

Dated: August 31, 1994.

Mollie H. Beattie,
 Director, Fish and Wildlife Service.
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