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We will consider all comments that Docket Management receives before the close of business on the comment closing date indicated above under DATES. To the extent possible, we will also consider comments that Docket Management receives after that date.

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Please note that even after the comment closing date, we will continue to file relevant information in the Docket as it becomes available. Further, some people may submit late comments. Accordingly, we recommend that you periodically check the Docket for new material.

List of Subjects 49 CFR Part 575

Consumer protection, Labeling, Motor vehicle safety, Motor vehicles.

PART 575—[AMENDED] CONSUMER INFORMATION REGULATIONS

In consideration of the foregoing, NHTSA proposes to amend 49 CFR Part 575 as set forth below.

1. The authority citation for Part 575 would continue to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.50.

2. Section 575.4(a) would be revised to read as follows:

Subpart A—General

* * * * *

§ 575.4 Application

(a) General. Except as provided in paragraphs (b) through (d) of this section, each section set forth in subpart B of this part applies, according to its terms, to motor vehicles, tires and items of motor vehicle equipment manufactured after the effective date indicated.

* * * * *

3. Section 575.101 would be added to read as follows:

§ 575.101 Seat belt positioners

(a) *Scope.* This section requires manufacturers of seat belt positioners to provide information about the correct use of the devices and warn against the use of the devices with small children.

(b) *Purpose.* The purpose of this section is to provide purchasers information related to the performance of seat belt positioners with small children.

(c) *Application.* This section applies to seat belt positioners that are not an integral part of a motor vehicle.

(d) *Definitions. Seat belt positioner* means a device, other than a belt-positioning seat, that is manufactured to alter the positioning of Type I and/or Type II belt systems in motor vehicles.

(e) *Requirements.* Each manufacturer of a seat belt positioner shall permanently label the device with the following information:

(1) The model name or number of the system.

(2) The manufacturer's name, or a distributor's name, if the distributor assumes responsibility for all duties and liabilities imposed on the manufacturer with respect to the device by 49 U.S.C. 30101 *et seq.*

(3) The place of manufacture (city and State, or foreign country), or the location (city and State, or foreign country) of the principal offices of the distributor, if the distributor's name is used instead of the manufacturer's name.

(4) A statement warning that the device must not be used with children under the age of six [alternatively, or additionally, under the height of 47.5 inches (1206 mm).]

(5) The statement: ''Make sure that this device positions the lap belt low across the child's hips and not on the stomach. The shoulder belt must be snug and on the child's shoulder, not near the neck or off the shoulder.''

Issued on August 9, 1999.

L. Robert Shelton,

Associate Administrator for Safety Performance Standards.

[FR Doc. 99–20950 Filed 8–11–99; 8:45 am]

BILLING CODE 4910–59–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AF57

Endangered and Threatened Wildlife and Plants; Proposed Rule To List the Scaleshell Mussel as Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, propose endangered status pursuant to the Endangered Species Act of 1973, as amended (Act), for the scaleshell mussel (*Leptodea leptodon*). This species historically occurred in 13 states in the eastern United States. Currently, the species is known from a few scattered populations within the Mississippi River Basin in Missouri, Oklahoma, and Arkansas. Scaleshell inhabits medium-sized to large rivers with stable channels and good water quality. The abundance and

distribution of scaleshell have decreased due to habitat loss and adverse effects associated with water quality degradation, reservoir construction, sedimentation, channelization, and dredging. These habitat changes have resulted in significant extirpations, restricted and fragmented distributions, and poor recruitment. This proposed rule, if made final, would extend the Act's protection to the scaleshell mussel.

DATES: Send your comments to reach us on or before October 12, 1999. We will not consider comments received after the above date in making our decision on the proposed rule. We must receive requests for public hearings by September 27, 1999.

ADDRESSES: The complete administrative file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Bishop Henry Whipple Federal Building, 1 Federal Drive, Fort Snelling, MN 55111–4056, (telephone 612–713–5342).

FOR FURTHER INFORMATION CONTACT: Andy Roberts at the U.S. Fish and Wildlife Service, Columbia Field Office, 608 East Cherry Street, Room 200, Columbia, Missouri 65201, (telephone 573–876–1911, ext. 110).

SUPPLEMENTARY INFORMATION:

Background

The scaleshell mussel (*Leptodea leptodon*) was described by Rafinesque in 1820. Synonymy includes *Unio velum* (Say), *Sympnynota tenuissima* (Lea), *Lampsilis blatchleyi* (Daniels), and *Lampsilis leptodon* (Rafinesque).

Buchanan (1980), Cummings and Mayer (1992), Oesch (1995), and Watters (1995) provide descriptions of the scaleshell mussel (scaleshell). The shell grows to about three to ten centimeters (one to four inches) in length. The shells are elongate, very thin, and compressed. The anterior end is rounded. In males, the posterior end is bluntly pointed. In females, the periostracum (the outside layer or covering of the shell) forms a wavy, fluted extension of the posterior end of the shell. The dorsal margin is straight and the ventral margin is gently rounded. Beaks (the raised or domed part of the dorsal margin of the shell) are small and low, nearly even with the hinge line. The beak sculpture is inconspicuously compressed and consists of four or five double-looped ridges. The periostracum is smooth, yellowish green or brown, with numerous faint green rays. The pseudocardinal teeth (the triangular, often serrated, teeth located on the upper part of the shell) are reduced to a small thickened ridge. The lateral teeth (the elongated teeth along the hinge line of the shell) are moderately long with two indistinct teeth occurring in the left valve and one fine tooth in the right. The beak cavity is very shallow. The nacre (the interior layer of the shell) is pinkish white or light purple and highly iridescent.

Life History

The general biology of scaleshell is similar to other bivalved mollusks belonging to the family Unionidae. Adults are filter-feeders, spending their entire lives partially or completely buried within the substrate (Murray and Leonard 1962). Their food includes detritus, plankton, and other microorganisms (Fuller, 1974). Unionids have an unusual mode of reproduction. Their life cycle includes a brief, obligatory parasitic stage on fish. Eggs develop into microscopic larvae (glochidia) within special gill chambers (ectobranchous marsupia) of the female. The female expels the mature glochidia and they must attach to the gills or the fins of an appropriate fish host to complete development. Host fish specificity varies among unionids. Some species appear to use a single host, while others can transform on several host species. Following proper infestation, glochidia transform into juveniles and excyst (drop off). For further information on the life history of freshwater mussels, see Gordon and Layzer (1989) and Watters (1995).

Mussel biologists know relatively little about the specific life history requirements of scaleshell. Baker (1928) surmised that scaleshell is a long-term brooder (spawns in fall months and females brood the larvae in their gills until the following spring or summer). Glochidia present in the ectobranchous marsupia in September, October, November, and March support that conclusion (Gordon 1991). The scaleshell mussel uses the freshwater drum (*Aplodinotus grunniens*) as the fish host for its larvae (Chris Barnhart, Southwest Missouri State University, pers. comm., 1998). Other species in the genus *Leptodea* and a closely related genus *Potamilus* are also known to use freshwater drum exclusively as a host (Roe and Lydeard 1997, Watters 1994).

Habitat Characteristics

The scaleshell occurs in a variety of river habitats. For example, Buchanan (1980, 1994) and Gordon (1991) reported scaleshell from riffle areas with substrate assemblages of gravel, cobble, boulder, and occasionally mud or sand. Oesch (1995) considered scaleshell a typical riffle species, occurring only in clear, unpolluted water with good current. Conversely, Call (1900), Goodrich and Van der Schalie (1944), and Cummings and Mayer (1992) reported collections from muddy bottoms of medium-sized and large rivers. The unifying characteristic appears to be an intact system (stable channels) with good water quality. This is consistent with the current distribution of scaleshell. Most extant populations are restricted to river stretches with stable channels (Buchanan 1980, Harris 1992) and that have maintained relatively good water quality (Oesch 1995). Scaleshell is usually collected in association with a high diversity of other freshwater mussels.

Distribution and Abundance

Scaleshell historically occurred across most of the eastern United States. While the scaleshell had a broad distribution, locally it was a rare species (Gordon 1991, Oesch 1995, Call 1900). Williams et al. (1993) reported the historical range as Alabama, Arkansas, Illinois, Indiana, Iowa, Kentucky, Michigan, Mississippi, Missouri, Ohio, Oklahoma, South Dakota, Tennessee, and Wisconsin. Clarke (1996) also reported scaleshell occurrence from the Minnesota River, Minnesota. Within the last 50 years, this species has become increasingly rare and its range greatly restricted. Of the 53 historical populations, 13 remain scattered within the Mississippi River Basin, including the Meramec, Bourbeuse, Big, and Gasconade Rivers in Missouri; the South Spring, St. Francis, Little, Mountain Fork, Spring, and South LaFave Rivers and Frog Bayou and Gates Creek in Arkansas; and the Kiamichi River in Oklahoma.

Of the 13 extant scaleshell populations, three are thought to be stable (long term persistence is possible but unsure), two are declining, four are presumed to be declining (long term persistence is in doubt), and the status of four are unknown. Six additional populations may also persist but their current status is uncertain due to lack of recent collections or surveys (Szymanski 1998).

Upper Mississippi River Basin

Scaleshell formerly occurred in eight rivers and tributaries within the upper Mississippi River Basin, including the Mississippi River in Illinois, Iowa, and Wisconsin; the Minnesota River in Minnesota; Burdett's Slough in Iowa; the Iowa and Cedar Rivers in Iowa; and the Illinois, Sangamon, and Pecatonica Rivers in Illinois. However, the scaleshell has not been found in more than 50 years in the Upper Mississippi Basin and is believed extirpated from that basin (Kevin Cummings, Illinois Natural History Survey, *in litt.* 1994).

Middle Mississippi River Basin

Historically, scaleshell occurred in 25 rivers and tributaries within the middle Mississippi River Basin including the Kaskaskia River in Illinois; the mainstem Ohio River in Kentucky and Ohio; the Wabash River in Illinois and Indiana; the White River and Sugar Creek in Indiana; the Green and Licking Rivers in Kentucky; the Scioto, St. Mary's, and East Fork Little Miami Rivers in Ohio; the Cumberland River in Kentucky and Tennessee, Beaver Creek in Kentucky; Caney Fork in Tennessee; the Tennessee River in Alabama and Tennessee; the Clinch, Holston, and Duck Rivers in Tennessee; Auxvasse Creek in Missouri; the Meramec, Bourbeuse, South Grand, Gasconade, and Big Piney Rivers in Missouri; and the mainstem Missouri River in South Dakota. The scaleshell has been extirpated from most of the middle Mississippi River Basin. Currently, the scaleshell is extant in four, possibly five, rivers within the Meramec River and Missouri River drainages in Missouri as described below.

Meramec River Basin (Missouri)—In 1979, Buchanan surveyed for mussels at 198 sites within the Meramec River Basin (Buchanan 1980). Of these sites, 14 had evidence of live or dead scaleshell. Seven of the 14 sites were in the lower 112 miles of the Meramec River, five in the lower 54 miles of the Bourbeuse River, and two in the lower 10 miles of the Big River. In addition to being restricted to only three rivers, scaleshell is also locally rare. Buchanan found that the species comprised less than 0.1 percent of the 20,589 living naiades found in the basin. He collected live specimens at four sites, three in the Meramec and one in the Bourbeuse. Although the lower 108 miles of the Meramec River had suitable habitat for many rare species, live scaleshell were found only in the lower 40 miles (Buchanan 1980). Both the Bourbeuse and Big Rivers had lower species diversity and less suitable habitat than the Meramec River. Suitable habitat occurs only in the lower 54 miles of the Bourbeuse River and lower 10 miles of the Big River (Buchanan 1980).

The Missouri Department of Conservation (MDC) sampled 78 sites in an intensive resurvey of the Meramec River Basin in 1997 (Sue Bruenderman, Missouri Department of Conservation, *in litt.* 1998). Similar to Buchanan's findings (1980), scaleshell represented only 0.4 percent of the living mussels, with specimens collected from the mainstem Meramec River (34 specimens from 9 sites), the Bourbeuse River (10 specimens from 5 sites), and the Big River (2 specimens from 1 site). The MDC documented live scaleshell at four of the five sites where Buchanan previously collected live specimens on the Meramec River (Sue Bruenderman, pers. comm. 1998). One site where they did not reconfirm scaleshell had only two live mussels where Buchanan had previously observed 93 living individuals. This site no longer supports suitable mussel habitat. Although portions of the Meramec River continue to provide suitable habitat, mussel species diversity and abundance have declined noticeably above mile 64 since 1980.

The number of scaleshell specimens MDC collected in 1997 is greater than that reported by Buchanan's study (Buchanan 1980); however, the small number of specimens collected, especially from the Bourbeuse and Big Rivers, indicates that the long-term viability of these populations is tenuous. Moreover, the limited availability of mussel habitat and the loss of mussel beds since 1980 from sedimentation, eutrophication, and unstable substrates (Buchanan *in litt.* 1997; Sue Bruenderman pers. comm. 1998) indicate that scaleshell populations within the Meramec River Basin are threatened.

Missouri River drainage (South Dakota, Missouri)—Within the Missouri River drainage, Buchanan (1980, 1994) and Oesch (1995) reported scaleshell from Missouri, Gasconade, Big Piney and South Grand Rivers and Auxvasse Creek. The last collection of Scaleshell from Auxvasse Creek was in the late 1960s (Buchanan, *in litt.* 1997). Similarly, the last known collection date for the South Grand is the early 1970s, and this collection site, now inundated by Truman Lake, is unsuitable for scaleshell (Buchanan, *in litt.* 1997). The only specimen reported from the mainstem Missouri River is from South Dakota adjacent to the Nebraska border (Hoke 1983). This occurrence represents the westernmost record within the Upper Mississippi River Basin. A subsequent survey failed to relocate live specimens or relict shells (Clarke 1996). However, high water conditions limited Clarke's survey and it is uncertain if scaleshell is still present below Gavin's Point Dam (Nell McPhillips, U.S. Fish and Wildlife Service, *in litt.* 1998). A single, fresh dead specimen was collected from Big Piney River in 1981 (Bruenderman, *in litt.* 1998). No other specimens of scaleshell have been documented from this river.

Buchanan (1994) surveyed the Gasconade River, and he found it to support 36 species of freshwater mussels. He collected scaleshell specimens at eight sites between river miles 6 and 57.7. Buchanan found only dead shells at two sites and eight live specimens at the remaining six sites. Overall, scaleshell comprised less than 0.1% of the mussels collected. If populations still exist in any of the rivers within the Missouri River drainage, their long-term persistence is undoubtably precarious.

Middle Mississippi River Basin summary—Of the 25 rivers and tributaries in the middle Mississippi River Basin, four, and possibly five, support scaleshell populations today. While populations in the Meramec and Bourbeuse Rivers are likely stable, numbers in the Big and Gasconade Rivers are presumed declining, and the status of populations in the Big Piney River are unknown (Szymanski 1998).

Lower Mississippi River Basin

Scaleshell historically occupied 20 rivers and tributaries in the lower Mississippi River Basin. These include the St. Francis, White, James, Spring, Little Missouri, Middle Fork Little Red, Saline, Ouachita, Cossatot, South Fourche LaFave, and Strawberry Rivers in Arkansas; South Fork Spring, Frog Bayou and Myatt Creek in Arkansas; Poteau, Little, and Kiamichi Rivers in Oklahoma; and Gates Creek and Mountain Fork in Oklahoma.

St. Francis River (Arkansas and Missouri)—Bates and Dennis (1983), Ahlstedt and Jenkinson (1987), Clarke (1985), and Rust (1993) conducted mussel surveys on the St. Francis River in Arkansas and Missouri. Records of dead mussels and relict shells indicate that at one time mussels were distributed throughout the river (Bates and Dennis 1983). Clarke (1985) documented scaleshell at two sites by single specimens. Bates and Dennis (1983) determined that of the 54 sites sampled, 15 were productive, 10 marginal, and 29 had either no shells or dead specimens only. Although scaleshell was not collected, they identified 48 miles of probable suitable mussel habitat: Wappapello Dam, to Mingo Ditch, Missouri; Parkin to Madison Arkansas; and Marianna to the confluence with the Mississippi River at Helena, Arkansas. They indicated that the remaining river miles were unsuitable for mussels. If scaleshell is extant in the St. Francis River, it will be restricted to the few patches of suitable habitat.

White River (Arkansas)—Clarke (1996) noted the collection, in 1902, of a single specimen from the White River near Garfield, Arkansas. A late 1970s survey of the White River between Beaver Reservoir and its headwaters failed to relocate live or dead scaleshell individuals. Navigation maintenance activities have relegated mussel populations to a few refugial sites, none of which support scaleshell (Bates and Dennis 1983). Specimens have not been collected from the James River, a tributary of the White River, since before 1950 (Clarke 1996). It is unlikely that either river currently supports scaleshell.

Spring River (Arkansas)—An eight-mile section of the Spring River in Arkansas supports a diverse assemblage of freshwater mussels (Gordon et al. 1984, Arkansas Highway and Transportation Dept 1984, Miller and Hartfield 1986). The collections from this river total eight scaleshell specimens (Cummings *in litt.* 1994, Clarke 1996, Arkansas State Highway and Transportation Dept. 1984). Gordon et al. (1984) surveyed the river and reported suitable mussel habitat between river miles 3.2 and 11.0, although species richness below river mile 9 had declined markedly compared to past surveys. Gordon et al. (1984), as well as Miller and Hartfield (1986), reported that the lower three miles of river were completely depleted of mussels and contained no suitable habitat. Harris did not document scaleshell in a 1993 survey of the Spring River (John Harris, Arkansas State University, *in litt.* 1997).

Scaleshell was collected from the South Fork of the Spring River in 1983 and 1990. During the 1983 survey, Harris (*in litt.* 1997) collected four specimens near Saddle, Arkansas, and one specimen and one valve north of Hunt, Arkansas. During a subsequent visit in 1990, Harris collected young adults (Harris, pers. comm. 1995). Although juveniles were not found, the presence of young adults suggests that reproduction recently occurred.

Strawberry River and Myatt Creek (Arkansas)—Records of scaleshell from the Strawberry River and the Myatt Creek are based on single specimen collections (Harris *in litt.* 1997). In 1996, Harris collected a live specimen from the Strawberry River near the confluence with Clayton Creek in Lawrence County. He also collected a single relict specimen from Myatt Creek in Fulton County in 1996 (Harris *in litt.* 1997).

Little Red River (Arkansas)—The historical locality (near Shirley, Van Buren County, Arkansas) where a single, specimen of scaleshell was collected from the Middle Fork of the Little Red River no longer provides mussel habitat. Clarke (1987) stated that suitable mussel habitat was restricted to a six-mile stretch from the confluence of Tick Creek upstream to the mouth of Meadow Creek.

Arkansas River Basin (Oklahoma and Arkansas)—Scaleshell has been collected from the Arkansas River Basin in Oklahoma and Arkansas. The species is reported from the Poteau River in Oklahoma (Gordon 1991), Frog Bayou in Arkansas (Harris and Gordon 1987), and the South Fourche La Fave and Mulberry Rivers in Arkansas (Gordon 1991 and Harris 1992). Despite several freshwater mussel surveys of the Poteau River (Isely 1925, Branson 1984, Harris 1994), only a single, undated specimen has been collected (Gordon 1980). The persistence of scaleshell in Poteau River is doubtful.

Frog Bayou (Arkansas)—Gordon (1980) collected two scaleshell specimens from Frog Bayou. Beaver Reservoir now inundates one of the Frog Bayou collection sites. The most recent collection was a fresh dead individual during a 1979 survey (Gordon 1980). Gordon noted that stream bank bulldozing upstream recently disturbed this site and other nearby sites. He also reported in-stream gravel mining activities at several sites. Within Frog Bayou, potential habitat is restricted to the area between Rudy and the confluence of the Arkansas River. Above Rudy, two reservoirs impact the river; one near Maddux Spring and the other at Mountainburg. Live mussels have not been found at the confluence of the Arkansas River, likely due to dredging activities (Gordon 1980). Although the current status of scaleshell in Frog Bayou is uncertain, any remaining individuals are in potential jeopardy due to limited habitat and in-stream mining activities.

South Fork La Fave River (Arkansas)—The only scaleshell record from the South Fork La Fave River is based on a single live specimen found in 1991 (Harris 1992). The potential of discovering additional populations in this river is unlikely due to the limited availability of suitable substrate. Similarly, other major tributaries of the South Fourche La Fave River provide little mussel habitat. Like Frog Bayou, the persistence of scaleshell in this river is in doubt.

Mulberry River (Arkansas)—Although Gordon (1991) reported scaleshell from the Mulberry River, documentation is lacking (no written acknowledgment). A recent survey did not find the species in the Mulberry River (Craig Hilborne, U.S. Forest Service, pers. comm. 1995; Stoeckel et al. 1995). Persistence of scaleshell in the Mulberry River is unlikely.

Red River Drainage (Oklahoma)—In the Red River drainage, Valentine and Stansbery (1971) reported the collection of a single, undated specimen from Gates Creek, a tributary of the Kiamichi River. Isley (1925) first collected scaleshell from the Kiamichi River in 1925. Based on his account, the Kiamichi River historically supported a diverse and abundant mussel fauna. He collected 36 specimens of scaleshell at one of 22 stations visited. As recently as 1987, Clarke described the Kiamichi River as ‘‘in remarkably good condition’’ and a ‘‘faunal treasure’’ (Clarke 1987). However, despite extensive searches of the Kiamichi River over the last 11 years, only a single fresh dead shell of scaleshell (in 1987) has been collected (Caryn Vaughn, Oklahoma Biological Survey, pers. comm. 1997; Charles Mather, University of Science and Arts of Oklahoma, *in litt.* 1984 and 1995). Vaughn (pers. comm. 1997) failed to find even a dead shell during three years (1993–1996) of surveys in the Red River Basin. However, the Kiamichi River is in relatively good shape above the Hugo Reservoir, (Clarke 1987) and may still support a remnant population of scaleshell.

Little River, Red River Drainage (Oklahoma)—Although there is no evidence of scaleshell persisting in the Little River, above the Pine Creek Reservoir a healthy mussel population persists (Vaughn *in litt.* 1997). Below Pine Creek Lake, the mussel fauna is severely depleted but recovers with increasing distance from the impoundment (Vaughn *in litt.* 1997). Valentine and Stansbery (1971) reported a single specimen from Mountain Fork. Clarke (1987) hypothesized that, based on the presence of mussel populations at the confluence of Mountain Fork and beyond the Arkansas border, damage to Mountain Fork from the Broken Bow Reservoir has not occurred. However, Vaughn (*in litt.* 1997) indicated that these populations have been severely depleted with most no longer containing live mussels. Although extensive surveys throughout the length of the Little River have not documented scaleshell, suitable habitat remains and scaleshell individuals may persist (Vaughn *in litt.* 1997). However, the discharge of reservoir water from Pine Creek and periodic discharge of pollution from Rolling Fork Creek would seriously impact any remaining viable populations and prohibit any future recolonization (Clarke 1987).

If scaleshell still occurs in the Red River drainage in Oklahoma, extant populations are probably small and are likely restricted to isolated areas of suitable habitat in the Kiamichi and Mountain Fork rivers. Given the extensive survey effort over the last decade, long-term survival of the scaleshell in Oklahoma is doubtful.

Cossatot and Saline Rivers (Arkansas)—Harris collected single specimens of scaleshell from the Cossatot and Saline Rivers in Arkansas in 1983 (Harris *in litt.* 1997) and 1987 (Harris pers. comm. 1995), respectively. No other information is available for either river. The existence of scaleshell in the Ouachita River and its two tributaries, the Saline River and Little Missouri River, is sporadic as well. Both the Little Missouri and Saline rivers records are based on single specimens. The Saline River specimen was collected in 1946 (Clarke 1996), and the Little Missouri River collection record is from 1995 (Harris *in litt.* 1997). Four undated museum specimens taken from Arkadelphia, Clark County, Arkansas document the occurrence of scaleshell in the Ouachita River (Clarke 1996). Based on the few collections and the limited habitat available, the long-term persistence of scaleshell in Cossatot, Saline, Little Missouri, and Ouachita Rivers is precarious.

Lower Mississippi River Basin summary—Of these 20 rivers and tributaries in the lower Mississippi River Basin, nine, and possibly an additional five, support scaleshell populations today. Of these populations, the South Spring River is likely stable; the St. Francis River, Kiamichi River, Little River, and Mountain Fork are declining; the Spring River, Frog Bayou, South Fourche LaFave River, and Gates Creek are presumed declining; and the status of populations in Mayatt Creek, Strawberry River, Cossatot River, Saline River and Little Missouri River are unknown (Szymanski 1998).

Previous Federal Action

We had identified the scaleshell as a Category 2 species in notices of review published in the **Federal Register** on May 22, 1984 (49 FR 21664). Scaleshell remained a Category 2 in subsequent notices including January 6, 1989 (54 FR 554), November 21, 1991 (56 FR 58804), November 15, 1994 (59 FR 58982). Prior to 1996, a Category 2 species was one that we were considering for possible addition to the Federal List of Endangered and Threatened Wildlife, but for which conclusive data on biological vulnerability and threat were not available to support a proposed rule. We stopped designating Category 2 species in the February 28, 1996, Notice of Review (61 FR 7596). We now define a candidate species as a species for which we have on file sufficient information to propose it for protection under the Act. We designated scaleshell as a candidate species on October 16, 1998.

On May 8, 1998, we published Listing Priority Guidance for Fiscal Years 1998 and 1999 (63 FR 25502). The guidance clarifies the order in which we will process rulemakings, giving highest priority (Tier 1) to processing emergency rules to add species to the Lists of Endangered and Threatened Wildlife and Plants (Lists); second priority (Tier 2) to processing final determinations on proposals to add species to the Lists, processing new proposals to add species to the Lists, processing administrative findings on petitions (to add species to the Lists, delist species, or reclassify listed species), and processing a limited number of proposed or final rules to delist or reclassify species; and third priority (Tier 3) to processing proposed or final rules designating critical habitat. The processing of this proposed rule falls under Tier 2.

Summary of Factors Affecting the Species

Section 4 of the Act and regulations (50 CFR Part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. We may determine a species to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to scaleshell (*Leptodea leptodon*) are as follows:

A. *The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range.* The loss of mussel diversity in the United States has been well documented and is a major concern for conservation biologists. In a review of the conservation status of native freshwater fauna, the American Fisheries Society found that of the 297 native freshwater mussels, 71 percent are imperiled (Williams et al. 1993). Similarly, The Nature Conservancy recognizes 55 percent of North America's mussel fauna as extinct or imperiled (Master 1990 in LaRoe et al. 1995). Habitat loss and degradation are the primary causes of the precipitous decline of unionids (Neves 1993).

Arguably, the scaleshell has suffered a greater range restriction than any other unionid. The range of this species was once expansive, spanning the Mississippi River Basin in at least 53 rivers and 13 States. Today, the range is significantly reduced with known extant populations persisting in only 13 rivers in three states. Scaleshell has been eliminated from the entire upper and most of the middle Mississippi River drainages. Although much of the decline occurred before 1950, population declines continue in some portions of the species' range and numerous threats are likely to impact the few remaining viable extant populations. Water pollution, sedimentation, channelization, and impoundments contributed to the decline of scaleshell throughout its range. A general description of how these factors affect mussels is given below. Refer to Szymanski (1998) for a more detailed discussion.

Mussel biologists generally accept that contaminants are partially responsible for the decline of mussels (Havlik and Marking 1987, Williams et al. 1993, Biggins et al. 1996). Because mussels are sedentary, they are extremely vulnerable to toxic effluents and changes in water chemistry from point and nonpoint source pollution. Point source pollution is the entry of material from a discrete, identifiable source such as industrial effluents, sewage treatment plants, and solid waste disposal sites. Freshwater mussel mortality from toxic spills and polluted water are well documented (Ortmann 1909, Baker 1928, Cairns et al. 1971, Goudreau et al. 1988). Decline and elimination of populations may be due to acute and chronic toxic effects that result in direct mortality, reduced reproductive success, or compromised health of the animal or host fish. Nonpoint source pollution is the entry of material into the environment from a diffuse source such as runoff from cultivated fields, pastures, private wastewater effluents, agricultural feed-lots and poultry houses, active and abandoned mines, construction, and highway and road drainage. Stream discharge from these sources may accelerate eutrophication (i.e., organic enrichment), decrease oxygen concentration, increase acidity and conductivity, and cause other changes in water chemistry that are detrimental to the survival of most mussel species and may impact host fishes (Goudreau et al. 1988, Dance 1981, Fuller 1974).

Sediment is material that is in suspension, is being transported, or has been moved as the result of erosion (USSCS 1988). Although sedimentation is a natural process, agricultural encroachment, channelization, impoundments, timber harvesting within riparian zones, heavy recreational use, urbanization, and other land use activities can accelerate erosion (Waters 1995, Myers et al. 1985, Chesters and Schierow 1985). The water quality impacts caused by sedimentation are numerous. Generally, it affects aquatic biota by altering the substratum (Ellis 1936, USSCS 1988, Myers et al. 1985) and by altering the chemical and physical composition of the water (Ellis 1936, Myers et al. 1985, USSCS 1988). Sedimentation directly affects freshwater mussel survival by interfering with respiration and feeding. Due to their difficulty in escaping smothering conditions (Imlay 1972, Aldridge et al. 1987), a sudden or slow blanketing of stream bottom with sediment can suffocate freshwater mussels (Ellis 1936). Increased sediment levels may also reduce feeding efficiency (Ellis 1936), which can lead to decreased growth and survival (Bayne et al. 1981).

Channelization, sand and gravel mining, and other dredging operations physically remove mussels along with the dredged material and may also bury or crush mussels (Watters 1995). Other effects of dredging extend beyond the excavated area. Headcutting, the upstream progression of substrate destabilization and accelerated bank erosion, can affect an area much larger than the dredging site (Hartfield 1993). In severe cases, this erosional process can extend throughout an entire system (Smith and Patrick 1991). As relatively immobile benthic invertebrates, mussels are particularly vulnerable to channel degradation (Hartfield 1993). Accelerated erosion also releases sediment and pollutants, and in some instances, diminishes mussel diversity and habitat as documented in the Yellow and Kankakee rivers in Indiana, the Big Vermillion River in Illinois, and the Ohio River (Fuller 1974).

Impoundments affect both upstream and downstream mussel populations by inducing scouring, changing temperature regimes, and altering habitat, food, and fish host availability (Vaughn, *in litt.* 1997). Impoundments permanently flood stream channels and eliminate flowing water that are essential habitat for most unionids including scaleshell (Fuller 1974, Oesch 1995). Scouring is a major cause of mussel mortality below dams (Layzer et al. 1993). Most detrimental, however, is the disruption of reproductive processes. Impoundments interfere with movement of host fishes, alter fish host assemblages, and isolate mussel populations from each other and from host fishes (Stansbery 1973, Fuller 1974, Vaughn 1993, Williams et al. 1993). The result of these factors is diminished recruitment success (Layzer et al. 1993). Dams are effective barriers to fish host movement and migration that unionids depend on for dispersal. Upstream populations can become reproductively isolated causing a decrease in genetic diversity. Even small, lowhead dams can hinder fish movement and isolate mussel populations from fish hosts. For example, Watters (1996) determined that the upstream distribution of two mussel species, the fragile papershell (*Leptodea fragilis*) and pink heelsplitter (*Potamilus alatus*), which like scaleshell are also believed to use the freshwater drum as a sole host, stopped at lowhead dams.

Many of the same threats that caused the extirpation of historical populations of scaleshell still exist and continue to threaten extant populations. This species appears to be especially susceptible to contamination and sedimentation. Historically, the species was widespread and occurred in diverse habitat. Today, scaleshell no longer occurs at disturbed sites that still support other endangered unionids (Szymanski 1998). This suggests that scaleshell is especially sensitive to degraded water quality. Given the pervasiveness of the sources of pollution and sedimentation, it is apparent that these threats will continue to be problematic for the remaining scaleshell populations.

Upper Mississippi River Basin

Scaleshell formerly occurred in eight rivers and tributaries within the Upper Mississippi Basin. However, this species has not been found in more than 50 years and is believed extirpated from this region (Kevin Cummings, Illinois Natural History Survey, *in litt.* 1994). We believe the same factors that have caused declines and extirpations of other mussel species including impoundments, pollution, sedimentation, and channelization and dredging activities, have caused the disappearance of scaleshell from the Upper Mississippi River Basin.

Middle Mississippi River Basin

Similar to the Upper Mississippi River Basin, threats have lead to the extirpation of scaleshell from the entire Ohio River Basin. Many of these threats continue to adversely affect extant populations in the middle Mississippi River Basin. Scaleshell habitat in the Meramec River Basin has been reduced in recent years. Buchanan (1980) found scaleshell in the lower 112 miles of the Meramec River. In 1997, scaleshell was collected only in the lower 60 miles of the river. While portions of the lower reach continue to provide suitable habitat, mussel species diversity and abundance above mile 60 have declined noticeably in the last 20 years. Bruenderman (pers. comm. 1998) attributed this decline primarily to the loss of channel stability. The Bourbeuse River has undergone the greatest change with respect to mussel populations. In particular, mussel populations have declined in the lower river. Whereas Buchanan (1980) found this section of the Bourbeuse River to have the greatest mussel diversity, this stretch was nearly void of mussels when resurveyed in 1997. Buchanan (*in litt.* 1997) and Bruenderman (pers. comm. 1998) attributed this decline to several factors, including sedimentation, eutrophication, and unstable substrates.

The Big River has the lowest species diversity and abundance in the Meramec River Basin. Buchanan (1980) attributed this to the effects of lead and barite mining. While most mining operations have ceased, 45 dams retaining mine waste and numerous waste piles remain in the Big River Basin. Most of those dams were improperly constructed or maintained. The U.S. Army Corps of Engineers found that only one of the 45 dams was safe and 27 received the worst possible rating and could fail during a flood. The poor condition of the dams has led to large influxes of mine waste into the Big River from dam collapse (Missouri Department of Conservation 1997). For example, since 1978, a ruptured tailings dam has discharged 63,000 cubic meters (81,000 cubic yards) of mine tailings into the Big River covering 25 miles of stream and negatively impacting the lower 80 miles of the river (Alan Buchanan, Missouri Department of Conservation, *in litt.* 1995).

While no major impoundments exist in the Meramec River Basin, several old mill dams (low-head dams) affect the mainstem of the Big and Bourbeuse rivers. Five dams are still in place along the lower 30 miles of the Big River, and one dam exists in the lower Bourbeuse River. These structures are barriers to fish movement during normal flows (Missouri Department of Conservation 1997).

Gravel mining poses an imminent threat to scaleshell populations in the Meramec River Basin. In 1998, a court ruling deauthorized the Army Corps of Engineers (Corps) from regulating gravel mining in the basin. Prior to that ruling, the Corps required operators to obtain a permit and follow several guidelines, which avoided adverse effects to mussels. Except in very small tributaries, the Corps required all operators to establish a streamside and riparian buffer and prohibited removing gravel from flowing water (i.e., no in-stream mining) or from below the water table. There are many gravel mining operations in the Meramec River Basin. Between 1994 and 1998, the Corps issued permits for 230 sites (excluding undocumented events). Existing and future mining operations will not need to obtain a permit or follow guidelines and may legally mine gravel directly from the Meramec River and all tributaries (Danny McKlendon, U.S. Army Corps of Engineers, St. Louis District, pers. comm. 1998).

In 1994, several areas of the Gasconade River were highly unstable, possibly a result of row-crop farming near the bank in conjunction with the 1993 flood. These areas had high cut mud banks with trees fallen into the river, unstable substrate, and contained very few mussels. Buchanan (1994) predicted that habitat degradation on this river would continue and postulated that the mussel fauna would be further impacted with some species possibly disappearing. He noted that below river mile 6, only one stable gravel bar contained a diverse mussel fauna. High silt deposition from the Missouri River prohibits the formation of mussel habitat below this area. If populations still exist in any of the rivers within the Missouri River drainage, their long-term persistence is undoubtably precarious.

Lower Mississippi River Basin

Channelization, levee construction, diversion ditches, control structures, and floodways have drastically altered much of the St. Francis River from the mouth above Helena, Arkansas to Wappapello Dam, Missouri (Ahlstedt and Jenkinson 1987, Bates and Dennis 1983). Bates and Dennis (1983) determined that of the 54 sites sampled, 15 were productive, 10 marginal, and 29 had either no shells or dead specimens only. They identified 48 miles that may still provide suitable mussel habitat, but did not collect scaleshell. All the remaining river miles are unsuitable for mussels. If the scaleshell is extant in the St. Francis River, it occurs in very small numbers and is restricted to the remaining few patches of suitable habitat.

The White River between Beaver Reservoir and its headwaters, due to municipal pollution, gravel dredging, and dam construction, is no longer suitable for mussels (Gordon 1980). Navigational maintenance activities continue to destroy habitat from Newport to the confluence of the Mississippi River (Bates and Dennis 1983). This habitat destruction has relegated mussel populations to a few refugial sites, none of which support scaleshell.

Species richness in the Spring River below river mile 9 has declined markedly from past surveys, with the lower three miles of river completely depleted of mussels and no longer supporting suitable habitat (Miller and Hartfield 1986, Gordon et al. 1984). Sand and gravel dredging, livestock movements (i.e., destruction of stream banks, disturbance of mussel beds, deposition of wastes, etc.), siltation, and surface run-off of pesticide and fertilizer appear to be contributing factors in the degradation of this river reach (Gordon et al. 1984).

Within Frog Bayou, potential habitat is restricted to the area between Rudy and the confluence of the Arkansas River. Within this area, streambank modifications and in-stream gravel mining are degrading scaleshell habitat. Two reservoirs, one near Maddux Spring and the other at Mountainburg, impact the river above Rudy. Below the confluence of the Arkansas River, Gordon (1980) did not find live mussels, likely due to dredging activities (Gordon 1980). Although the current status of scaleshell in Frog Bayou is uncertain, any remaining individuals are probably in jeopardy due to limited habitat and in-stream mining activities.

The proposed Tuskahoma Reservoir (located above Hugo Reservoir) is a potential threat to mussels in the Kiamichi River. Although the U.S. Army Corps of Engineers has authorized construction, the lack of a local sponsor has rendered the project ''inactive'' (David Martinez, U.S. Fish and Wildlife Service, pers. comm. 1997). If constructed, the adverse effects associated with reservoirs (including permanent flooding of the channel and disruption of reproduction) are likely to destroy the mussel fauna.

Sewage pollution, gravel dredging, and reservoirs continue to impact the Little River. Pine Creek Reservoir impounds the mainstem of the river. Further downstream, Broken Bow Reservoir impounds a major tributary to the Little River, the Mountain Fork River. Below Pine Creek Lake, the mussel fauna is severely depleted but recovers with increasing distance from the impoundment (Vaughn *in litt.* 1997). The discharge of reservoir water from Pine Creek and periodic discharge of pollution from Rolling Fork Creek, however, would seriously impact any remaining viable populations and prohibit any future recolonization (Clarke 1987).

Hydroelectric dams and artificial lakes have impacted the Ouachita River. The ''Old River'' (an oxbow system off the mainstem), is now essentially a series of muddy, stagnant pools with water quality problems resulting from surrounding dumps (Clarke 1987).

In summary, many of the same threats that caused the extirpation of historical populations of scaleshell still exist and continue to threaten extant populations. Nonpoint and point source pollution is currently affecting the Spring River in Arkansas (Gordon et al. 1984, Miller and Hartfield 1986) and the Little River in Oklahoma (Clarke 1987, Vaughn 1994). Sedimentation is causing deleterious effects in the Meramec and Bourbeuse Rivers, MO (Sue Bruenderman, pers. comm. 1998); Gasconade River, MO (Buchanan 1994); Frog Bayou, AR (Gordon 1980); and Spring River, AR (Gordon et al. 1984). Unregulated sand and gravel mining are eliminating important pool habitat (for both scaleshell and potential fish hosts) in the Meramec, Bourbeuse, Big, and Gasconade rivers in Missouri (Bruenderman pers. comm. 1998). Impoundments, channelization, and other dredging activities (e.g., sand and gravel mining) are destroying mussel populations and impairing water quality in Frog Bayou, AR (Gordon 1980); St. Francis River, AR (Ahlstedt and Jenkinson 1987); White River, AR (Bates and Dennis 1983); Spring River, AR (Gordon et al. 1984); and Ouachita River, AR (Clarke 1987). The proposed Kiamichi River Reservoir, if constructed, will have adverse impacts on any remaining populations in Oklahoma. Nearly all scaleshell populations are now restricted to small stretches of rivers with little, if any, potential for expansion or recolonization to other areas. For example, sewage pollution, gravel dredging, and reservoir construction have so degraded the Little River in Oklahoma that only a few small stretches are able to support mussel populations.

B. *Overutilization for Commercial, Recreational, Scientific, or Educational Purposes.* It is unlikely that commercial mussel collectors ever purposefully collected scaleshell because of its small size and thin shell. It is probable, however, that over-harvesting activities that removed entire mussel beds impacted scaleshell populations. For example, according to local fishermen, during a period of extended drought mussel harvesters severely over-collected mussel beds in the Spring and Black rivers and completely destroyed most beds (Gordon et al. 1984). Thus, habitat destruction, removal of individuals from the stream and improper replacement may have indirectly impacted scaleshell populations. Today, incidental collecting could adversely affect existing populations. In addition to disturbance of the stream bed, collection or improper replacement of only a few individuals, given that scaleshell now occurs in very small, isolated populations, could decimate an entire population. Even for mussels returned to the stream, mortality can still occur (Williams et al. 1993).

As scaleshell becomes more uncommon, the interest of scientific and shell collectors will increase. Populations considered in this rule are generally localized, easily accessible, exposed during low flow periods, and are vulnerable to take for fish bait, curiosity, or vandalism. Up to five freshwater mussels per day, including scaleshell, may be legally collected in Missouri and used for bait (Sue Bruenderman, pers. comm. 1998).

C. *Disease or Predation.* Although natural predation is not a factor for stable, healthy mussel populations, small mammal predation could potentially pose a problem for scaleshell populations (Gordon 1991). While the large size and/or thick shells of some species afford protection from small mammal predators, the small size and fragile shell of scaleshell makes it an easy and desirable prey species. A freshwater mussel survey of the Meramec and Bourbeuse Rivers found fresh scaleshell shells at several active racoon feeding areas (Sue Bruenderman pers. comm. 1998). Extant scaleshell populations in Arkansas and Oklahoma are small, isolated and have very limited recolonization potential. Consequently, predation could exacerbate ongoing population declines.

Bacteria and protozoans persist at unnaturally high concentrations in streams with high sediment load or in waterbodies affected by point source pollution, such as sewage treatment plants (Goudreau et al. 1988). At these densities, ova and glochidia are subject to infection (Ellis 1929) and mussel growth can be slowed (Imlay and Paige 1972). Disease and parasites may have caused major die-offs of freshwater mussels in the late 1970's throughout the eastern United States (Neves 1986). For example, significant die-offs of freshwater mussels occurred in 1977 and 1978 in the Meramec and Bourbeuse Rivers. Large numbers of mussels of all species, including scaleshell were lost. Buchanan (1986) presumed an epizootic or other disease caused the die-off since no environmental impact was reported or could be found.

D. *The Inadequacy of Existing Regulatory Mechanisms.* The passage of the Clean Water Act of 1972 (CWA) set the stage for the regulations and the water standards that exist today. Goals of the CWA include protection and enhancement of fish, shellfish, and wildlife; providing conditions suitable for recreation in surface waters; and eliminating the discharge of pollutants into U.S. waters.

Although the passage of these Acts has resulted in positive consequences (including a decrease in lead and fecal coliform bacteria), degraded water quality still presents problems for sensitive aquatic organisms such as freshwater mussels. Specifically, nationwide sampling has indicated increases in nitrate, chloride, arsenic, and cadmium concentrations (Neves 1993). Nonpoint pollution sources appear to be the cause of increases in nitrogen. Many of the impacts discussed above occurred in the past as unintended consequences of human development. Improved understanding of these consequences has led to regulatory (e.g., Clean Water Act) and voluntary measures (e.g., best management practices for agriculture and silviculture) and improved land use practices that are generally compatible with the continued existence of scaleshell. Nonetheless, scaleshell is highly restricted in numbers and distribution and shows little evidence of recovering from historic habitat losses.

Although recognized by species experts as threatened in Arkansas, the scaleshell is not afforded State protection. Missouri and Oklahoma list the scaleshell as a species of conservation concern (Bruenderman, *in litt.* 1998; Caryn Vaughn pers. comm. 1995). However, these designations are used primarily for planning and communication purposes and do not afford State protective status from direct take and habitat destruction (David Martinez; Paul McKenzie; U.S. Fish and Wildlife Service, pers. comm. 1997). Without habitat protection, populations of scaleshell will continue to decline.

E. *Other Natural or Manmade Factors Affecting Its Continued Existence.* As a consequence of the above factors, the inherent biological traits of freshwater mussels increase their vulnerability to extinction (Neves 1993). For example, the larval stage (glochidium) of most mussels is dependent on a few or a specific host fish (Neves 1993). The scaleshell is believed to use freshwater drum as a sole host. Despite the tremendous fecundity of female mussels, this trait greatly reduces the likelihood of contact between glochidia and suitable hosts. Watters (1995) postulated that the glochidia must acquire suitable hosts within 24 hours. Obviously, reduction or loss of host fish populations will adversely impact scaleshell populations. Once a larva successfully transforms on a host, it is further challenged with dropping off onto suitable habitat. Watters (1995) reported that estimated chances of successful transformation and excystment range between 0.0001 percent (Jansen and Hanson 1991) and 0.000001 percent (Young and Williams 1984). As a result of fish host-specificity and the difficulty of locating suitable habitat, freshwater mussel population growth occurs very slowly. Furthermore, the sedentary nature of mussels limits their dispersal capability. This trait, coupled with low recruitment success, translates into the need for decades of immigration and recruitment for re-establishment of self-sustaining populations.

The small number and low density of the remaining scaleshell populations exacerbate the threats to its survival posed by the above factors. Although the scaleshell was always locally rare if broadly distributed, the widespread loss of populations and the limited number of collections in recent years indicates that the current population densities are much lower (due to the previously identified threats) than historical levels. Despite any evolutionary adaptations for rarity, habitat loss and degradation increase a species' vulnerability to extinction (Noss and Cooperrider 1994).

Numerous studies have shown that with decreasing habitat availability, the probability of extinction increases. Similarly, as the number of occupied sites decreases, the likelihood of extinction increases (Vaughn 1993). This increased vulnerability is the result of chance events. Environmental variation, random or predictable, naturally causes fluctuations in populations. However, low density populations are more likely to fluctuate below the minimum viable population (i.e., the minimum number of individuals needed in a population to persist). If population levels stay below this minimum size, an inevitable, and often irreversible, slide toward extinction will occur. Small populations are also more susceptible to inbreeding depression and genetic drift. Populations subjected to either of these problems usually have low genetic diversity, which reduces fertility and survivorship. Lastly, chance variation in age and sex ratios can affect birth and deaths rates. Skewing of the demographics may lead to death rates exceeding the birth rates, and when this occurs in small populations there is a higher risk of extinction.

Similarly, the fertilization success of mussels may be related to population density, with a threshold density required for any reproductive success to occur (Downing et al. 1993). Small mussel populations may have individuals too scattered to reproduce effectively. Many of the remaining scaleshell populations may be at or below this threshold density. These populations will be, if the aforementioned threats go unabated, forced below or forced to remain below the minimum threshold. As a result, the current decline to extinction will be accelerated.

Furthermore, species that occur in low numbers must rely on dispersal and recolonization for long-term persistence. In order to retain genetic viability and guard against chance extinction, movement between local populations must occur. Although the scaleshell naturally occurs in patches and necessarily possesses mechanisms to adapt to such a population structure, anthropogenic influences have fragmented and further lengthened the distance between populations. Empirical studies have shown that with increasing isolation, colonization rates decrease. Also, as previously explained, natural recolonization of mussels occurs at a very low rate (Vaughn 1993). Therefore, preservation of a metapopulation (interconnected subpopulations) structure is imperative for long-term freshwater mussel survival. Unfortunately, many of the extant scaleshell populations now occur as single, isolated sites. These insular populations are very susceptible to chance events and extinction with no chance of recolonization.

Lastly, the recent invasion of the exotic zebra mussel (*Dreissena polymorpha*) poses a substantial threat to native unionids (Herbert et al. 1989). The introduction of *Dreissena* into North America probably resulted from an ocean-crossing vessel that discharged freshwater ballast from Europe containing free-swimming larvae of the zebra mussel (Griffiths et al. 1991). The spread of this species has caused severe declines in native freshwater mussel species. Currently, the zebra mussel invasion of the Mississippi and Ohio rivers threaten native freshwater mussel fauna (Clarke 1995). Zebra mussels starve and suffocate native mussels by attaching to their shells in large numbers. The natural history of zebra mussels is not completely understood; therefore, effective control measures are not yet known. Given that recreational and commercial vessels greatly facilitate zebra mussel movement, and because of the proliferation and spread that has occurred, invasion of the zebra mussel into portions of the middle and lower Mississippi Basin is likely (Buchanan pers. comm. 1995). Massive unionid mortality and extinctions are expected in some areas colonized by zebra mussels (Biggins 1992). If zebra mussel invasion does occur, the continued survival of scaleshell will be further jeopardized.

Conclusion

Significant habitat loss, range restriction, and population fragmentation and size reduction have rendered the scaleshell mussel vulnerable to extinction. The scaleshell has disappeared from the entire upper and most of the middle Mississippi River drainages. Of the 53 known historical populations, 13 remain. Although much of the decline occurred before 1950, population declines continue in some portions of the species' range and numerous threats are likely to impact the few remaining viable extant populations. The small number and low density of the remaining scaleshell populations exacerbate the threats and effects of chance events to scaleshell. The survival of all scaleshell populations is threatened by water quality degradation, impoundments, sedimentation, channelization, or dredging. The recent deregulation of gravel mining is a significant threat to scaleshell populations in three rivers within the Meramec River Basin, Missouri.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the scaleshell in determining to make this proposed rule. The present distribution and abundance of the scaleshell is at risk given the potential for these impacts to continue. Federal listing under authority of the Endangered Species Act is the only mechanism we can presently identify that ensures protection to scaleshell. Therefore, based on this evaluation, the preferred action is to list the scaleshell mussel as an endangered species. The Act defines an endangered species as one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range. Endangered status is appropriate for the scaleshell due to habitat loss, range restriction, and population fragmentation.

Critical Habitat

Section 3 of the Act defines critical habitat as: (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. ''Conservation'' means the use of all methods and procedures needed to bring the species to the point at which listing under the Act is no longer necessary.

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, we designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations (50 CFR 424.12(a)(1)) state that the 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 human activity, and 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. We find that designation of critical habitat is not prudent for scaleshell for both reasons stated above.

Potential benefits of critical habitat designation derive from section 7(a)(2) of the Act, which requires Federal agencies, in consultation with us, to ensure that their actions are not likely to jeopardize the continued existence of listed species or to result in the destruction or adverse modification of critical habitat of such species. Critical habitat designation, by definition, directly affects only Federal agency actions. Since the scaleshell is aquatic, Federal actions that might affect this species and its habitat include those with impacts on stream channel geometry, bottom substrate composition, water quantity and quality, and stormwater runoff. Such activities that impact scaleshell habitat would be subject to review under section 7(a)(2) of the Act, whether or not critical habitat was designated. The scaleshell has become so restricted in distribution that any significant adverse modification or destruction of occupied habitats would likely jeopardize the continued existence of this species. Additionally, our regulations (50 CFR part 402) specify that the jeopardy analysis, like the adverse modification or destruction of critical habitat analysis, consider the detrimental effect to both survival and recovery. Therefore, even as the species recovers and its numbers increase, the jeopardy analysis would continue to protect scaleshell habitat. As part of the outreach from this proposed rule, we will notify the State and Federal agencies of this species' general distribution, and request that they provide data on proposed Federal actions that might adversely affect the species. Should any future projects be proposed in areas inhabited by this mussel, the involved Federal agency will have the distributional data needed to determine if their action may impact the species, and if needed, we will provide more specific distributional information. Therefore, habitat protection for the scaleshell can be accomplished through the implementation of section 7 jeopardy standard and there is no benefit in designating currently occupied habitat of this species as critical habitat.

Recovery of this species may require the identification of unoccupied stream and river reaches appropriate for reintroduction. Critical habitat designation of unoccupied stream and river reaches might benefit this species by alerting permitting agencies to potential sites for reintroduction and allowing them the opportunity to evaluate projects that may affect these areas. We are currently working with state and other Federal agencies to periodically survey and assess habitat potential of stream and river reaches for listed and candidate aquatic species. This process provides up to date information on instream habitat conditions in response to land use changes within watersheds. We distribute the information generated from river surveys and assessments through our coordination with other agencies. We will continue to work with State and Federal agencies, as well as private property owners and other affected parties, through the recovery process to identify stream reaches and potential sites for reintroduction of this species. Thus, any benefit that might be provided by designation of unoccupied habitat as critical will be accomplished more effectively with the current coordination process, and is preferable for aquatic habitats which change rapidly in response to watershed land use practices. In addition, we believe that any potential benefits to critical habitat designation on occupied and unoccupied habitats are outweighed by additional threats to the species that would result from such designation, as discussed below.

All known populations of scaleshell occur in streams flowing through private lands, and if unoccupied habitat is needed for recovery, private lands may also be involved. One threat to all surviving populations appears to be pollutants in stormwater runoff that originate from private land activities. Therefore, the survival and recovery of this species will be highly dependent on landowner cooperation in reducing land use impacts. Controversy resulting from critical habitat designation has been known to reduce private landowner cooperation in the management of species listed under the Act. Critical habitat designation could affect landowner cooperation within watersheds occupied by the scaleshell and in areas unoccupied that might be needed for recovery.

Though critical habitat designation directly affects only Federal agency actions, this process can arouse concern and resentment on the part of private landowners and other interested parties. The publication of critical habitat maps in the **Federal Register** and local newspapers, and other publicity or controversy accompanying critical habitat designation may increase the potential for vandalism as well as other collection threats. Scaleshell populations are especially vulnerable to vandalism. This species is found in shallow shoals or riffles in restricted stream and river segments and is relatively immobile and unable to escape collectors or vandals. It inhabits remote but easily accessed areas, and they are sensitive to a variety of easily obtained commercial chemicals and products. Because of these factors, vandalism or collecting could be undetectable and uncontrolled.

We believe that the potential for taking represents a significant threat to scaleshell populations. The rarity of this species increases the likelihood that it will be sought by shell collectors and for scientific purposes. The publication of critical habitat, maps, and other publicity accompanying critical habitat designation could increase that threat. The locations of populations of this species have consequently been described only in general terms for purposes of this rulemaking action.

Based on the above analysis, we have concluded that critical habitat designation would provide little additional benefit for this species beyond those that would accrue from listing under the Act. We also conclude that any potential benefit from such a designation would be offset by an increased level of vulnerability to vandalism or collecting and by a possible reduction in landowner cooperation to manage and recover this species. We have concluded therefore that the designation of critical habitat for scaleshell is not prudent.

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 local agencies, private organizations, 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, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402. Section 7(a)(4) requires Federal agencies to confer informally with us on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, Section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with us.

Federal agency actions that may require conference and/or consultation as described in the preceding paragraph include the issuance of permits for reservoir construction, stream alterations, waste water facility development, water withdrawal projects, pesticide registration, agricultural assistance programs, mining, road and bridge construction, Federal loan programs, water allocation, and hydropower relicensing. In our experience, nearly all section 7 consultations result in protecting the species and meeting the project's objectives.

The Act and implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. The prohibitions, codified at 50 CFR 17.21, 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, capture, 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 our agents and agents of State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. We codified the regulations governing permits for endangered species at 50 CFR 17.22. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in the course of otherwise lawful activities.

It is our policy, published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify, to the maximum extent practicable, those activities that are or are not likely to constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness as to the potential effects of this proposed listing on future and ongoing activities within a species' range. We believe that the following activities are unlikely to result in a violation of section 9:

(1) Existing discharges into waters supporting these species, provided these activities are carried out in accordance with existing regulations and permit requirements (e.g., activities subject to sections 402, 404, and 405 of the Clean Water Act and discharges regulated under the National Pollutant Discharge Elimination System).

(2) Actions that may affect the scaleshell and are authorized, funded or carried out by a Federal agency when the action is conducted in accordance with any reasonable and prudent measures we have specified in accordance with section 7 of the Act.

(3) Development and construction activities designed and implemented pursuant to Federal, State, and local water quality regulations.

(4) Existing recreational activities such as swimming, wading, canoeing, and fishing.

We believe the following activities would be likely to result in a violation of section 9; however, possible violations are not limited to these actions alone:

(1) Unauthorized collection or capture of the species;

(2) Unauthorized destruction or alteration of the species habitat (e.g., instream dredging, channelization, discharge of fill material);

(3) violation of any discharge or water withdrawal permit within the species' occupied range; and

(4) illegal discharge or dumping of toxic chemicals or other pollutants into waters supporting the species.

We will review other activities not identified above on a case-by-case basis to determine whether they may be likely to result in a violation of section 9 of the Act. We do not consider these lists to be exhaustive and provide them as information to the public.

You should direct questions regarding whether specific activities may constitute a future violation of section 9 to the Field Supervisor of the Service's Columbia Field office (see ADDRESSES section). You may request copies of the regulations regarding listed wildlife from and address questions about prohibitions and permits to the U.S. Fish and Wildlife Service, Ecological Services Division, Henry Whipple Federal Building, 1 Federal Drive, Fort Snelling, MN 55111 (Phone 612/713–5350; Fax 612/713–5292).

We intend that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, we request comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to this species;

(2) The location of any additional populations of this species and the reasons why any habitat should or should not be determined to be critical habitat as provided by Section 4 of the Act;

(3) Additional information concerning the range, distribution, and population size of this species;

(4) Current or planned activities in the subject area and their possible impacts on this species.

We will take into consideration your comments and any additional information received on this species when making a final determination regarding this proposal. We will also submit the available scientific data and information to appropriate, independent specialists for review. We will summarize the opinions of these reviewers in the final decision document. The final determination may differ from this proposal based upon the information we receive.

The Act provides for a public hearing on this proposal, if requested. We must receive requests within 45 days of the date of publication of the proposal in the **Federal Register**. Such requests must be made in writing and addressed to Field Supervisor, U.S. Fish and Wildlife Service, Ecological Services Field Office, 608 East Cherry Street Room 200, Columbia, Missouri 65201.

Executive Order 12866

Executive Order 12866 requires each agency to write regulations that are easy to understand. We invite your comments on how to make this rule easier to understand including answers to the following: (1) Are the requirements of the rule clear? (2) Is the discussion of the rule in the Supplementary Information section of the preamble helpful in understanding the rule? (3) What else could we do to make the rule easier to understand?

Send a copy of any comments that concern how we could make this rule easier to understand to the office identified in the ADDRESSES section at the beginning of this document.

National Environmental Policy Act

We have determined that we do not need to prepare an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, in connection with regulations adopted pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

Paperwork Reduction Act

This rule does not contain any new collections of information other than those already approved under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, and assigned Office of Management and Budget clearance number 1018–0094. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information, unless it displays a currently valid control number. For additional information concerning permit and associated requirements for threatened species, see 50 CFR 17.22.

References Cited

A complete list of all references cited herein, as well as others, is available upon request from the Field Supervisor (see ADDRESSES section).

Authors: The primary authors of this proposed rule are Mr. Andy Roberts (see FOR FURTHER INFORMATION CONTACT section) and Ms. Jennifer Szymanski (see ADDRESSES section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and record keeping requirements, Transportation.

Regulation Promulgation

Accordingly, the Service amends part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, 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. Section 17.11(h) is amended by adding the following, in alphabetical order, under *Clams* to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
CLAMS							
*	*	*	*	*	*	*	
Mussel, Scaleshell ...	*Leptodea leptodon* ..	U.S.A. (AL, AR, IL, IN, IA, KY, MN, MO, OH, OK, SD, TN, WI).	NA	E		NA	NA
*	*	*	*	*	*	*	

Dated: July 29, 1999.

John G. Rogers,

Acting Director, Fish and Wildlife Service.

[FR Doc. 99–20965 Filed 8–12–99; 8:45 am]

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