

**FEDERAL COMMUNICATIONS COMMISSION****47 CFR Part 73**

[DA 01-2846; MM Docket No. 00-173; RM-9964, RM-10328]

**Radio Broadcasting Services; Burgin and Science Hill, KY****AGENCY:** Federal Communications Commission**ACTION:** Final rule.

**SUMMARY:** At the request of Vernon R. Baldwin this document allots Channel 290A to Burgin, Kentucky. At the request of Pulaski County Broadcasting, this document also allots Channel 291A to Science Hill, Kentucky. See 65 FR 59164, published October 4, 2000. The reference coordinates for the Channel 290A allotment at Burgin, Kentucky, are 37-48-37 and 84-41-30. The reference coordinates for the Channel 291A allotment at Science Hill, Kentucky, are 37-10-36 and 84-29-10.

**DATES:** Effective January 22, 2002.

**FOR FURTHER INFORMATION CONTACT:** Robert Hayne, Mass Media Bureau (202) 418-2177.

**SUPPLEMENTARY INFORMATION:** This is a synopsis of the Commission's *Report and Order* in MM Docket No. 00-173, adopted December 5, 2001, and released December 7, 2001. The full text of this decision is available for inspection and copying during normal business hours in the FCC's Reference Information Center at Portals II, CY-A257, 445 12th Street, SW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractor, Qualex International, Portals II, 445 12th Street, SW., Room CY-B402, Washington, DC 20554, telephone 202-863-2893, facsimile 202-863-2898, or via e-mail qualexint@aol.com

**List of Subjects in 47 CFR Part 73**

Radio Broadcasting.

Part 73 of Title 47 of the Code of Federal Regulations is amended as follows:

**PART 73—RADIO BROADCAST SERVICES**

1. The authority citation for Part 73 continues to read as follows:

**Authority:** 47 U.S.C. 154, 303, 334, 336.

**§ 73.202 [Amended]**

2. Section 73.202(b), the Table of FM Allotments under Kentucky, is amended by adding Burgin, Channel 290A and by adding Science Hill, Channel 291A.

Federal Communications Commission.

**John A. Karousos,**

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 01-31830 Filed 12-26-01; 8:45 am]

BILLING CODE 6712-01-P

**DEPARTMENT OF THE INTERIOR****Fish and Wildlife Service****50 CFR Part 17****RIN: 1018-A119****Endangered and Threatened Wildlife and Plants; Listing the Tumbling Creek Cavesnail as Endangered****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Emergency rule.

**SUMMARY:** We, the Fish and Wildlife Service (Service), exercise our authority to emergency list the Tumbling Creek cavesnail (*Antrobia culveri*) as endangered under the Endangered Species Act of 1973, as amended (Act). This species is known to occur in one cave in Missouri. The distribution of this species has decreased in Tumbling Creek by 90 percent since 1974. Although cavesnail numbers fluctuated seasonally and annually between 1996 and 2000, the species was not found in the monitored section of the cave stream during five surveys in 2001. Because the sudden population decline demonstrates a significant and imminent risk to the well-being of the Tumbling Creek cavesnail, we find that emergency listing is necessary to provide Federal protection pursuant to the Act for 240 days. A proposed rule to list the Tumbling Creek cavesnail as endangered is published concurrently with this emergency rule, and can be found in this issue of the **Federal Register** in the proposed rules section.

**DATES:** This emergency rule becomes effective December 27, 2001 and expires August 26, 2002.

**ADDRESSES:** The complete file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Columbia, Missouri Field Office, 608 E. Cherry St., Room 200, Columbia, Missouri 65201-7712.

**FOR FURTHER INFORMATION CONTACT:** Paul McKenzie, Ph.D., Columbia, Missouri Field Office, at the address listed above (telephone: 573-876-1911, ext. 107; e-mail: paul\_mckenzie@fws.gov; facsimile: 573-876-1914). Individuals who are hearing-impaired or speech-impaired may call the Federal Relay

Service at 1-800-877-8337 for TTY assistance.

**SUPPLEMENTARY INFORMATION:****Background**

The Tumbling Creek cavesnail (*Antrobia culveri*) was described as a new species by Hubricht (1971) from specimens taken by David Culver, Thomas Aley, and Leslie Hubricht in 1969 and 1970. *Antrobia culveri* is the type species for the genus *Antrobia*, also described new to science in 1971 by Hubricht. Hershler and Hubricht (1988) examined specimens of *Antrobia culveri* and confirmed the taxonomic placement of this species in the subfamily Littoridininae of the Gastropod family Hydrobiidae. They also noted the apparent close relatedness of the genus *Antrobia* to the genus *Fontigens*, which contains cave-adapted snails found in other Missouri caves and springs. The Tumbling Creek cavesnail is a small, white, blind, aquatic snail (height 2.3 millimeters (mm) (0.09 inches (in)); diameter 2.0 mm (0.08 in); aperture height 1.2 mm (0.05 in); aperture diameter 1.1 mm (0.04 in)) with a small, conical, well-rounded, pale-yellow shell containing about 3.5 whorls (Hubricht 1971). The Tumbling Creek cavesnail is restricted to a single cave stream in Tumbling Creek Cave in Taney County, southwestern Missouri.

Greenlee (1974) provided the first information on the habitat of the species. He reported that the species was found primarily on "3 inch gravel substrate" (presumably meaning small stones or cobble of 3-inch diameter), with a few individuals observed using the recesses of a solid rock stream bottom. Greenlee (1974) did not note whether the snails used the upper or lower surface of the 3-inch gravel he observed them on, or whether the species was ever observed using larger rocks within the cave stream. Subsequent surveyors, however, have failed to document *Antrobia culveri* using a solid rock bottom, and the species is usually observed on the undersurface of rocks with a diameter greater than 3 inches (Ashley 2000). Additionally, Greenlee (1974) stated that the Tumbling Creek cavesnail was absent from areas of the stream that contained bat guano. Subsequent observers (McKenzie *in litt.* 1996; Ashley 2000, 2001a, 2001b) have noted *Antrobia culveri* in portions of Tumbling Creek where bat guano occurs. Finally, Greenlee (1974) and subsequent observers have all noted that the species appears to prefer areas of the stream that lack silt.

Although little is known regarding the life history of this cavesnail, Greenlee (1974) postulated that the species feeds on aquatic microfauna. Because Tumbling Creek cavesnails have been concentrated in sections of Tumbling Creek Cave that are usually adjacent to large deposits of bat guano, it has been theorized that *Antrobia culveri* is indirectly dependent upon these deposits for food (Greenlee 1974). Other life history aspects of this species, including its reproductive behavior, are unknown. Although little is known about the longevity or movements of this species, some limited information is available on the frequency of shell sizes within the population across different seasons. Ashley (2000) examined shell length data collected between 1996 and 2000 and noted that the average length of *Antrobia culveri* shells exhibited a slight peak during summer months but further noted that the difference was not statistically significant. Ashley (2000) also analyzed the frequency distribution of cavesnail shell lengths from fall data collected between 1997 and 2000 and noted a decrease in the frequency of smaller shells over that period. Ashley (2000) concluded that both fewer snails and fewer snails in the younger age classes were observed in the more recent fall visits conducted from 1997 through 2000. This suggests that there has been a reduction in recruitment of younger age classes into the population between 1997 and 2000.

Tumbling Creek Cave is a highly diverse cave (Thomas Aley, Ozark Underground Laboratory (OUL), *in litt.* 1978; Cecil Andrus, USDI, *in litt.* 1980). In addition to species included in the Missouri Department of Conservation's (MDC) Checklist of Species of Conservation Concern (Missouri Natural Heritage Program 2001) (e.g., a cave millipede (*Scoterpes dendropus*)), *Antrobia culveri* is associated with at least three, possibly six, species that are new to science but have not yet been formally described: a millipede (*Chaetaspis* sp.), a terrestrial isopod (*Caucasonethes* sp.), an amphipod (*Stygobromus* sp.), a dipluran (*Plusiocampa* sp.), a phalangid harvestman (*Phalangium* sp.), and a cave spider (*Islandiana* sp.). Tumbling Creek Cave also provides habitat for a large maternity colony of federally listed gray bats (*Myotis grisescens*), with a recent estimated breeding population of 12,400 in 1998 (Dr. William Elliott, MDC, *in litt.* October 9, 2001). Historically, the breeding population included an estimated 50,000 individuals (MDC 1992, Missouri Natural Heritage Program 2000). There

have also been historical observations of a very small hibernating population of the federally listed Indiana bat (*Myotis sodalis*). However, the Indiana bat has not been documented at the site since 1989 (Missouri Natural Heritage Program 2000). The Gray Bat Recovery Plan lists Tumbling Creek Cave as a "Priority 1" cave. Priority 1 gray bat caves have the highest level of biological significance for a gray bat maternity site (i.e., a cave deemed to be "absolutely essential" in preventing the extinction of the endangered gray bat) (U.S. Fish and Wildlife Service 1982).

Tumbling Creek Cave is owned by Tom and Cathy Aley of Protom, Missouri. Because of its rich cave fauna, the large maternity colony for the endangered gray bat, and its diverse physical features, Tumbling Creek Cave was designated as a National Natural Landmark and approved for inclusion on the National Registry of Natural Landmarks under the authority of the Historic Sites Act of 1935 (49 Stat. 666; 16 U.S.C. 461 *et seq.*) (Cecil Andrus, USDI, *in litt.*, 1980; 48 FR 8693). Tumbling Creek Cave and approximately 395 acres surrounding the cave were embodied in the designation, including about 140 surface acres owned by the Aleys and about 255 surface acres owned by two adjacent property owners.

#### Status and Distribution

*Antrobia culveri* is known only from Tumbling Creek Cave in Taney County, southwestern Missouri. In an extensive survey of publicly and privately owned Missouri caves, no additional populations of this cavesnail were discovered (Gardner 1986). Recent surveys conducted in nearby caves and springs by Dr. David Ashley of Missouri Western State College, St. Joseph, Missouri, have also failed to locate this species at any other sites (David Ashley, *in litt.* November 2001). The fact that no additional populations were found in springs in close proximity to Tumbling Creek Cave supports the long-held contention that Tumbling Creek cave is the only location where this species occurs.

*Antrobia culveri* was historically known from an estimated area of 1,016 square meters (m<sup>2</sup>) (10,900 square feet (ft<sup>2</sup>) or 0.25 acres) (Greenlee 1974) of Tumbling Creek along approximately 229 meters (m) (750 feet (ft)) of the stream in the approximate middle one-third of the lower stream passage in Tumbling Creek Cave (Greenlee 1974). Based on a survey of approximately 630 m<sup>2</sup> (6,800 ft<sup>2</sup>) of suitable habitat within the 457 m (1,500 ft) of human-accessible cave-stream habitat, Greenlee (1974)

estimated the population of Tumbling Creek cavesnails at 15,118 individuals.

In 1995, we reviewed the status of the species, including the survey methodology originally established by Greenlee (1974), and determined that an inadequate description of the survey methods made it difficult to determine the number of plots taken. Our lack of knowledge on the number of plots sampled by Greenlee made it difficult to interpret his population estimates and impossible to duplicate his survey methods. Therefore, we concluded that a more rigorous statistical survey design would be necessary to establish population trends for the species. Following meetings with Dr. Pam Haverland of the U.S. Geological Survey, Columbia Environmental Research Center in Columbia, Missouri, and Mr. Tom Aley, President of Ozark Underground Laboratory (OUL) and owner of Tumbling Creek Cave, a sampling protocol was established within an approximate 75 m (247 ft) section of Tumbling Creek that was known to be inhabited by *Antrobia culveri* but that would minimize any potential impacts to the federally endangered gray and Indiana bats.

Following the establishment of sampling stations within Tumbling Creek Cave, and an initial September 1996 survey using those stations (McKenzie, *in litt.* 1996), we contracted Dr. David Ashley, of Missouri Western State College, St. Joseph, Missouri, to monitor population trends of the Tumbling Creek cavesnail. Ashley completed 16 separate monitoring trips between September 3, 1997, and August 31, 2001 (Ashley 2000, 2001a, 2001b, 2001c). Ashley (2000, 2001a, 2001b, 2001c) determined that population estimates of *Antrobia culveri* within the monitoring stations fluctuated both seasonally and annually, and ranged from a high of 1,166 individuals on September 3, 1997, to a low of 0 individuals on January 11, March 17, May 8, July 16, and August 31, 2001. Ashley statistically analyzed the data and concluded that a significant decrease in the numbers of cavesnails had occurred between September 9, 1996, and August 31, 2001 (Ashley 2001c).

Although the 2001 surveys failed to document the presence of any cavesnails within the established monitoring stations, 40 individuals were discovered upstream of the sampling stations in March 2001. During March 16–18, 2001, Ashley and others surveyed the entire human-accessible 457 m (1,500 ft) of Tumbling Creek, including a small tributary that has approximately 9 additional meters (30

ft) of accessible habitat. A total of 39 person-hours was expended in searching a total of 1,054 rocks in the 466 m (1,530 ft) of available habitat. A total of 39 cavesnails were located in a 14-m (45-ft) section of the stream upstream from the monitoring stations, and another cavesnail was found in the tributary (Ashley 2001a). Subsequent surveys in May, July, and August 2001 documented the presence of cavesnails only in this 14-m section upstream of the established sampling stations. The small tributary stream was not searched during those subsequent surveys. A more thorough search was not conducted in either the tributary or the area upstream from the sampling stations in order to minimize disturbance to cavesnails in those areas. Observations between March and August 2001 suggest that the numbers of *Antrobia culveri* have declined drastically from estimates obtained by Greenlee (1974); however, differing sampling methods make it impossible to directly compare Ashley's estimates with those of Greenlee.

In addition to Greenlee's 1974 survey and the standardized surveys conducted between 1996 and 2001, other attempts have been made to monitor the species' status and derive estimates of its abundance. A June 1991 survey conducted by Tom Aley, Paul McKenzie (Service, Columbia, Missouri), and Dennis Figg (MDC, Jefferson City, Missouri) located 42 individuals after a 9 person-hour search (McKenzie, pers. obs.). A June 1993 survey conducted by Monty Holder (a high school biology instructor) of Sedalia, Missouri, and three assistants located 21 individuals during 6 person-hours of search effort (Tom Aley, *in litt.* 1993), but the number of plots sampled is unknown. On August 29, 1995, Paul McKenzie and Cathy Aley searched for the species and attempted to estimate the number of cavesnails discovered per 0.3048 m<sup>2</sup> (1 ft<sup>2</sup>) plot. This survey yielded 6 cavesnails in 22 plots or 0.27 cavesnails per plot (McKenzie, unpubl. data). This compares to an estimated 2.16 cavesnails per plot observed by Greenlee (1974) when equivalent plot sizes were calculated for analysis purposes. Although it is impossible to determine the exact number of plots sampled by Greenlee (1974), he did record the average number of snails per plot, and this can be compared to the same variable measured in 1995. A decrease from 2.16 cavesnails per plot to 0.27 cavesnails per plot would represent an approximate 88 percent decrease in the species' density over the 22-year period between 1974 and 1995.

#### Previous Federal Action

On January 6, 1989, the Service published an Animal Notice of Review (54 FR 54554–54579) which included the Tumbling Creek cavesnail as a category 2 candidate species for possible future listing as threatened or endangered. Category 2 candidates were those taxa for which information contained in the Service's files indicated that listing may be appropriate but for which additional data were needed to support a listing proposal. On November 21, 1991, the Service published an Animal Candidate Notice of Review (56 FR 58804–58836), which elevated the Tumbling Creek cavesnail to category 1 status. Category 1 candidates were those taxa for which the Service had on file sufficient information on biological vulnerability and threats to support preparation of listing proposals. In the subsequent February 28, 1996, Candidate Notice of Review (61 FR 7596–7613), we indicated that the category 2 candidate species list was being discontinued, and that henceforth the term "candidate species" would be applied only to those taxa that would have earlier fit the definition of the former category 1 candidate taxa, that is, those species for which we had on hand sufficient information to support a listing proposal. The Tumbling Creek cavesnail has remained a candidate species until now.

In 1996, we initiated a 5-year set of standardized surveys designed to better assess and quantify the decline in the species' population that was apparent from the earlier data. In January 2001, Ashley (pers. comm. January 14, 2001) notified the Service that no cavesnails were observed within the established monitoring stations during the January 11 survey. He further reported that an analysis of 5 years of data collected between September 1996 and March 2001 indicated that population numbers of the species had exhibited an alarming decline (Ashley 2001b). Based on this information, the Service determined that it was necessary to more closely monitor the species by having surveys conducted once every two months.

Recognizing the need for prompt additional conservation actions for the species, on January 30, 2001, Region 3 of the Service recommended changing the listing priority number for the Tumbling Creek cavesnail from 7 to 1 based upon the mid-January monitoring that failed to locate any cavesnails (Service 2001). Region 3 also recommended pursuing an emergency listing of the species and simultaneously publishing a proposal

for long-term listing as endangered under the Act as soon as funding became available. On October 30, 2001, we published an updated Candidate Species Notice of Review (66 FR 54808) that formally changed the listing priority number for *Antrobia culveri* from 7 to 1, reflecting our increased concern for the survival of the species.

On August 29, 2001, the U.S. Department of the Interior reached an agreement with several conservation organizations regarding a number of listing actions that had been delayed by court-ordered critical habitat designations and listing actions for other species. That agreement was subsequently approved by the U.S. District Court for the District of Columbia. Under the agreement, the Service and the organizations agreed to significantly extend the existing court-approved deadlines for the actions on the other species, thereby making funds available for a number of listing actions judged to be higher priority by the Service. Those higher priority listing actions include the emergency listing of the Tumbling Creek cavesnail.

#### Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the Tumbling Creek cavesnail warrants classification as an endangered species. We followed procedures found in section 4 of the Act (16 U.S.C. 1533) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act. 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) of the Act. These factors and their application to the Tumbling Creek cavesnail (*Antrobia culveri*) are as follows:

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

*Antrobia culveri* has exhibited a drastic decline in numbers since the first estimate was made by Greenlee (1974) (see Status and Distribution, above). Systematic sampling conducted at established stations between 1996 and 2001 revealed that a statistically significant decline in population has occurred over that period (McKenzie *in litt.* 1996; Ashley 2000, 2001a, 2001b, 2001c). Additionally, no cavesnails have been located at established monitoring stations during the last five surveys (Ashley 2001a, 2001b, 2001c).

We have also documented a dramatic reduction in the portion of the cave

stream occupied by the cavesnail. *Antrobia culveri* was historically known from an estimated 229 m (750 ft) of Tumbling Creek (Greenlee 1974). The 229 m of occupied habitat in 1974 constituted 50 percent of the 457 m (1,500 ft) of human-accessible cave-stream habitat that is believed to be suitable for the cavesnail. The entire accessible 457 m (1,500 ft) of Tumbling Creek, including a small tributary that has approximately 9 additional meters (30 ft) of accessible suitable habitat, was surveyed in March 2001. Cavesnails were found solely in one small (14-m) (45-ft) section of the stream and in the small tributary (Ashley 2001a). Observations between March and August 2001 suggest that *Antrobia culveri* is now restricted to 23 m of available stream habitat or approximately 5 percent of the 457 m of accessible suitable habitat. These figures indicate that distribution of this species in Tumbling Creek Cave has decreased by 90 percent.

Species such as the Tumbling Creek cavesnail, which spend part or all of their life cycle in subterranean water systems, are highly vulnerable to changes in the quality and quantity of that water. In turn, the quality and quantity of the subsurface water is highly dependent upon conditions and human activities on the land surface from which water feeds into losing streams and sinkholes that drain into underground karst conduits. Surface water moves into the subsurface system by a number of mechanisms, including sinkholes, percolation through sandy or gravelly soils and stream bottoms, and seepage and flowage into crevices. As water moves from the surface to the subsurface system, it carries the chemicals and particulate matter from the surface. The land surface that feeds water into a particular cave stream is referred to as the "recharge area" for that cave stream. Because recharge areas may be large and may consist of all or parts of several surface watersheds, it is critically important to accurately determine the boundaries of the recharge area with reliable hydrogeological methods. Only when the recharge area is accurately delineated can water quality threats be successfully addressed (Aley and Aley 1991).

The recharge area that feeds water into Tumbling Creek Cave has been recently delineated by the cave owner, Mr. Thomas Aley of the OUL, who is also a recognized cave specialist and expert karst hydrogeologist (Aley and Aley 2001). Pending the results of additional recharge delineation studies currently being conducted by Aley on a

tract of land recently purchased by him and Cathy Aley (Tom Aley, pers. comm., September 24, 2001), he estimated the recharge area to be approximately 2,349 hectares (5,804 acres or 9.07 square miles). Land ownership based on current data within the recharge area is: (1) Tom and Cathy Aley own approximately 1,550 acres, or 25 percent of the total; (2) employees of Ozark Underground Laboratory and other private individuals who manage their property to protect water quality and benefit the species own approximately 1,268 acres or 22 percent; (3) an estimated 1,300 acres or 23 percent is within Mark Twain National Forest; (4) the U.S. Army Corps of Engineers (CE) owns an estimated 100 acres or 2 percent; and (5) other private landowners whose land use practices and knowledge of the cavesnail are currently unknown to us own approximately 1,636 acres or 28 percent. Thus, within the delineated recharge area for Tumbling Creek Cave, roughly 4,168 acres or approximately 72 percent is either in public or private ownership by entities who can be expected to manage their land to benefit the species. This includes 920 acres recently purchased by Tom and Cathy Aley, or about 22 percent of the total conservation ownership. However, most of this recently purchased land was subject to recent land use practices (e.g., over-grazing and removal of riparian vegetation) that resulted in heavy soil erosion that probably continues to contribute to deteriorating water quality in Tumbling Creek Cave. Remediation and restoration of these lands are planned and will require considerable funds, effort, and time.

The Tumbling Creek cavesnail is likely threatened by habitat degradation through diminished water quality from upstream locations within the unprotected or improperly managed areas within the cave's delineated recharge zone. The dramatic decrease in the population and area occupied by this species is probably attributable to degraded water quality from these sources. In recent years, there has been a noticeable increase in water turbidity in Tumbling Creek; the increased turbidity has probably had an adverse effect on the water quality in the cave's stream (Tom and Cathy Aley, pers. comm., August 30, 2001). Increased silt loads within Tumbling Creek could adversely affect the cavesnail by hampering reproduction and recruitment by suffocating juvenile cavesnails (Ashley 2000). Tom and Cathy Aley have also observed that clay particles within deposited silt have

settled between gravel and rocks and cemented them together and to the stream bottom (Tom and Cathy Aley, pers. comm., August 2001). Such cementing decreases habitat available to cavesnails, because they are generally restricted to the undersurface of gravel and rocks. This hypothesis is supported, in part, by the observations of Greenlee (1974), who reported that cavesnails occurred primarily on "3 inch gravel substrate" rather than on the larger rocks the species has been seen using during more recent surveys.

Interestingly, Ashley's (2000) results revealed that some older individuals use silt-covered substrates. This is different from the observations made by Greenlee (1974) who noted that cavesnails were not observed in areas of the stream where fine silt was deposited. Ashley's observations may be because of a reduction in the amount of silt-free substrates preferred by cavesnails which could force the species to use less favorable habitats. Although silt has been a component of Tumbling Creek since Greenlee's initial survey in 1974, it has apparently increased significantly since that date (Tom and Cathy Aley, pers. comm., August 2001). Additional research is needed to determine the degree of silt deposition within Tumbling Creek and if the deposition of silt into the cave is adversely impacting the species, especially smaller and younger individuals (Ashley 2000).

Potential sources of silt within the cave's recharge area have been identified on the two tracts recently purchased by Tom and Cathy Aley, including an earthen dam that burst, and severely degraded and eroded pastureland due to overgrazing. In the latter case, soil erosion has been exacerbated in the last six years by the removal of nearly all vegetation within the riparian corridors of all semi-permanent and intermittent streams on one of those parcels. Harvey (1980) concluded that "accelerated erosion and sediment transport" was a problem within drainage basins that have "excessive slopes," and identified "timber cutting and land clearing for raising livestock, extending urban sprawl, and highway building" as potential sources of "accelerated erosion." In addition to these sources, the construction of fire lanes associated with controlled burning on Forest Service property within the recharge area may increase the threat of soil erosion with a resulting decrease in water quality in Tumbling Creek.

Other factors within the recharge area of Tumbling Creek Cave that could contribute to the deterioration of the water quality of Tumbling Creek

include: (1) increase in ammonia and nitrate loads from livestock feedlots that could lead to reductions in dissolved oxygen levels, (2) chemicals used for highway maintenance or from accidental spills, and (3) contaminants from different types of trash or hazardous waste materials deposited into sinkholes, ravines, and depressions. Whether these factors are occurring on the parts of the recharge area that are outside of the current "conservation ownership" remains to be determined. Refer to Factor E for a discussion of these potential threats.

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

Because access to Tumbling Creek Cave is controlled by the cave owners, all collection of and research on *Antrobia culveri* is strictly controlled. Consequently, there is no evidence of overutilization of this species for commercial, recreational, scientific, or educational purposes. There is also no evidence that disturbance associated with conducting regular surveys is adversely affecting the species. Rocks that are examined are carefully replaced in the location from which they were removed, any specimens discovered are disturbed as little as possible and kept moist to reduce stress, and only a small percentage of the available habitat is sampled during each survey.

#### *C. Disease or Predation*

The direct effect of disease on the Tumbling Creek cavesnail is not known and such risks to the species have not been determined. Because the Tumbling Creek cavesnail is known from a single location, disease must be considered a potential threat to the survival of the species. Certain species of salamanders have been shown to be adversely impacted by the bacterium *Acinetobacter* that flourished due to increasing levels of nitrogen associated with the overstocking of livestock (Worthylake and Hovingh 1989). Similarly, Lefcort *et al.* (1997) and Kiesecker and Blaustein (1997) found that amphibians exposed to high levels of silt are susceptible to infection by different species of water mold of the genus *Saprolegnia*. *Saprolegnia* spp. are widespread in natural waters and commonly grow on dead organic material (Wise *et al.* 1995). Speer (1995) stated that some species of *Saprolegnia* are parasitic on aquatic invertebrates such as rotifers, nematodes, diatoms, and arthropods. High nitrogen and silt levels from overgrazing or other agricultural or urban runoff may increase the cavesnail's susceptibility to

disease and act synergistically with other risk factors (e.g., competition from limpets, discussed below) to jeopardize the survival of the remaining individuals. Whether the Tumbling Creek cavesnail is being adversely affected by bacteria or water molds associated with increased loads of nitrogen or silt into Tumbling Creek is unknown but warrants further investigation.

During the December 6, 1997, survey, a few individuals of an unknown species of limpet (*Ferrissia* sp.) were discovered for the first time on the same substrates used by *Antrobia culveri* within the established monitoring stations (Ashley, pers. comm., September 10, 2001). Limpets were not observed again until the January 11, 2001, survey, after which their numbers began to increase. By the August 31, 2001, survey, limpet numbers had increased explosively, and the presence of many small limpets, as well as larger limpets with visible, developing embryos, indicated that reproduction was taking place (Ashley, pers. comm., September 10, 2001; McKenzie pers. obs.). The reasons why these organisms have appeared and increased in numbers within Tumbling Creek are unknown; it is also unknown whether they compete with the cavesnails for food, breeding substrates, or other necessary resources. Other cave invertebrates (e.g., a troglobitic isopod, *Caecidota antricola*.; a troglobitic amphipod, *Stygobromus* sp.; and a troglomorphic amphipod, *Gammarus* sp.) coexist with *Antrobia culveri*, often on the same rocks, but it is unknown if these species compete with the cavesnail in any way. Additional research is needed to determine if local environmental changes have provided a competitive advantage for one or more of these species over the Tumbling Creek cavesnail.

#### *D. The Inadequacy of Existing Regulatory Mechanisms*

The primary cause of the decline of the Tumbling Creek cavesnail is unknown but is believed to be associated with factors within the 2,349-hectare (5,804-acre) delineated recharge area that have adversely affected the water quality of Tumbling Creek. Federal, State, and local laws have not been sufficient to prevent past and ongoing impacts to areas within the cave's delineated recharge area. *Antrobia culveri* is listed as critically imperiled globally (G1) by The Nature Conservancy, as well as critically imperiled in the State (S1) on the *Missouri Species of Conservation Concern Checklist* (Missouri Natural

Heritage Program 2001). The designation as G1/S1 on this checklist, however, provides no legal authority, but is simply utilized for planning and communication purposes (Missouri Natural Heritage Program 2001). Nonetheless, the species currently receives some protection under the *Wildlife Code of Missouri* (Wildlife Code) (Missouri Department of Conservation 2001) as a "biological diversity element" (Missouri Natural Heritage Program 2001). "Biological diversity elements" are protected under the following general prohibitions of chapter 4 of the Wildlife Code (3CSR10-4.110): "(1) No bird, fish, amphibian, reptile, mammal or other form of wildlife, including their homes, dens, nests and eggs in Missouri shall be molested, pursued, taken, hunted, trapped, tagged, marked, enticed, poisoned, killed, transported, stored, served, bought, imported, exported or liberated to the wild in any manner, number, part, parcel or quantity, at any time, except as specifically permitted by these rules and any laws consistent with Article IV, sections 40-46 of the *Constitution of Missouri*. (2) Except as otherwise provided in this Code, wildlife may be taken only by holders of the prescribed permits and in accordance with prescribed methods. (3) No person, corporation, municipality, county, business or other public or private entity shall cause or allow any deleterious substance to be placed, run or drained into any of the waters of this State in quantities sufficient to injure, stupefy or kill fish or other wildlife which may inhabit such waters."

Under the Section 6 Cooperative Agreement between MDC and the Service, if a species is listed as endangered under the ESA, the Conservation Commission of Missouri shall list the species as State endangered. The protection of all species in Missouri is outlined in Chapter 4 of the Wildlife Code and regulations pertaining to endangered species are listed in section 3CSR10-4.111. Under the Wildlife Code, citizens can possess (but not sell or purchase) up to five individuals of any species without a permit and when not specifically protected elsewhere in the code (3CSR10-9.110). However, when a species is listed as endangered, citizens cannot possess any individuals and can not import, transport, purchase, take or possess without a scientific collecting or special use permit. Although the term "refuge" is not defined under the Wildlife Code, there is also a provision that enables MDC's Director to establish refuges not to exceed 1 square mile for

not more than 60 days to provide essential protection to endangered species. Furthermore, the Wildlife Code states that a species' "home" is protected. The term "home" is not defined in this statute and may provide limited or no protection for the cavesnail's habitat. For instance, the creek where the cavesnail resides and the cave's recharge area would probably not be considered a home and thus receive no protection under the Wildlife Code (Bob White, MDC, Protection Division Chief, pers. comm., October 2, 2001).

The Federal Cave Resources Protection Act of 1988 (18 U.S.C. 4301–4309; 102 Stat. 4546) was passed to "secure, protect, and preserve significant caves on Federal lands \* \* \*" and to "foster increased cooperation and exchange of information between governmental authorities and those who utilize caves located on Federal lands for scientific, educational, or recreational purposes." Although this statute and a final rule to implement the Federal Cave Resources Protection Act on Forest Service land (59 FR 31152; June 17, 1994) provides protection for caves located on property owned by the Forest Service, they do not provide protection for caves whose recharge areas are within Forest Service boundaries if the caves themselves are under private lands, as is the case with Tumbling Creek Cave.

The protection afforded *Antrotia culveri* from the above-mentioned statutes is limited, does not provide any protections to its habitat, and includes no provisions to protect areas within the delineated recharge area for Tumbling Creek Cave. Therefore, we conclude the most likely threats to the species cannot be addressed by existing regulatory mechanisms.

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

Several other potential factors, including point and non-point pollution, threats from residential and commercial development, and recent changes to the hydrological cycle within the 2,349-hectare (5,804-acre) delineated recharge area supporting Tumbling Creek Cave may have negative effects on the species. It is possible that the recent decline in cavesnail numbers is attributable to some yet to be identified point or non-point source pollution within the cave's recharge area. Because the Tumbling Creek cavesnail occupies a permanent, flowing stream, it will likely come in contact with any deleterious chemical or other material that enters the cave's recharge system. Silt deposition has been identified as a

potential problem, especially to younger cohorts of the cavesnail's population, but additional research is needed to determine if other contaminants are potentially involved. (See Factor A above.)

Non-point source pollution may be a problem in a significant portion of the recharge area that feeds Tumbling Creek Cave. Potential sources of pollution include the drainage of barnyard and feedlot wastes and the discharge of treated sewage into sinkholes and losing streambeds within the cave's recharge area. The water quality of Tumbling Creek is also threatened due to accidental spills into sinkholes or losing stream valleys feeding Tumbling Creek Cave from State and county highways passing through the recharge area. Such sources of pollution have been identified as potential problems for ground water in the Springfield-Salem Plateaus of southern Missouri (including the watershed that encompasses Tumbling Creek and its identified recharge zone) (Harvey 1980). The decline in numbers of the Tumbling Creek cavesnail may be due to one or several sources of pollution that have resulted in a deterioration of water quality within the recharge area for Tumbling Creek as outlined in Factor A. In comparing ground-water quality of sites within the Ozark Plateaus (including SW Missouri) with other National Water-Quality Assessment Program (NAWQA) sites, Petersen *et al.* (1998) documented that: (1) nitrate concentrations in parts of the Springfield Plateau aquifer were higher than in most other NAWQA drinking-water aquifers, and (2) volatile organic compounds were detected more frequently in drinking-water aquifers within the Ozark Plateaus than in most other drinking-water aquifers. Tumbling Creek Cave is within the NAWQA study boundaries; consequently, the cavesnail could be threatened from these contaminants. Although no detailed water analyses have yet been performed on Tumbling Creek, an instrumentation package to measure water quality parameters will be installed in Tumbling Creek cave during the fall of 2001.

Aley (pers. comm., Jan. 19, 2001) postulated that the decline in cavesnail numbers may actually be because of too much gray bat guano that could deplete oxygen levels in Tumbling Creek, especially during periods of reduced flows as occurred during 1999–2001. What importance gray bat guano plays in the life history requirements of the Tumbling Creek cavesnail is yet to be tested experimentally. The instrumentation package mentioned

above will provide data on dissolved oxygen levels once it is installed.

Tumbling Creek Cave is approximately 25 to 30 miles southeast of Branson, Missouri, which is one of the most rapidly expanding areas in the State due to tourism, outdoor recreation, and entertainment developments. If recent trends continue, it has been projected that the number of visitors attracted to this area would increase from an estimated level of 6 million in 1992 to 11 million by the year 2015. The accompanying growth in entertainment- and recreation-related activities will place even greater demands on this area of the State (Mullen and Keith 1992). Tumbling Creek Cave is 2 to 3 miles northwest of Bull Shoals Lake which is also undergoing additional real estate development. Consequently, it is likely that sections of the recharge zone for Tumbling Creek Cave will be adversely affected by real estate development and related construction and land management activities.

Another potential threat to the species results from the close hydrologic association of Tumbling Creek with nearby Bull Shoals Lake. Occasional high water levels in this CE reservoir are believed to cause water to backup into the cave stream, threatening roosting bats and the cavesnail (Aley, pers. comm., July 16, 2000). The CE is considering raising the conservation pool of the reservoir by 10 feet, which will likely increase the frequency and duration of the backup events in Tumbling Creek Cave.

Climatic changes, especially recent periods of drought, may also be a contributing factor to the decline of the cavesnail. The National Oceanic and Atmospheric Administration's (NOAA) Palmer Drought Severity Index provides a widely recognized and accepted standard measurement of moisture conditions (NOAA 2001). The Index varies roughly from -6.0 (extreme drought) to +6.0 (extremely wet), with -0.49 to 0.49 indicating near normal conditions. Since the 1974 survey by Greenlee, there have been 4 periods in Southwest Missouri where the Index was below normal for 6 months or longer and exceeded an Index value of -2.0 (moderate drought) for some part of that period. These events occurred in 2-year cycles: 1980–1981; 1991–1992; 1995–1996; and 1999–2000. The 1980–1981 drought was the most prolonged and severe, with the Index reaching -5.0 (extreme drought). We further analyzed a 6-year period between 1995 and 2000, which is the approximate period that Ashley conducted his cavesnail monitoring. The Index was below normal for 6 months or more for 4 of

these 6 years. The years, number of months the Index was below normal, and the averages for the negative indices are: 1995, 6 months, average Index -1.54; 1996, 7 months, average Index -1.2; 1999, 6 months, average Index -1.29; 2000, 10 months, average Index -1.65. Preliminary data on NOAA's website indicate that below-normal moisture (negative Palmer Index) occurred in this region during the early part of 2001 but precipitation levels are now near normal levels.

According to this climatic data, in 2 recent periods (1995–1996 and 1999–2000) precipitation within the recharge area for Tumbling Creek Cave was below normal for an extended period. The direct or indirect impacts of these droughts on the cavesnail are unknown. Reduced flows in the cave stream, especially when combined with other threats, could hamper essential life history requirements (e.g., reproduction, food availability, water temperature); decrease the flushing of silt, guano, and harmful contaminants from the stream; and create an environment more favorable for competitors (e.g., limpets, isopods, and amphipods).

The small population size and endemism (i.e., restricted to a single site) of *Antrobia culveri* makes it vulnerable to extinction due to genetic drift, inbreeding depression, and random or chance changes to the environment (Smith 1990) that can significantly impact cavesnail habitat. Inbreeding depression can result in death, decreased fertility, smaller body size, loss of vigor, reduced fitness, and various chromosome abnormalities (Smith 1990). Despite any evolutionary adaptations for rarity, habitat loss and degradation increase a species' vulnerability to extinction (Noss and Cooperrider 1994). Numerous authors (e.g., Noss and Cooperrider 1994; Thomas 1994) have indicated that the probability of extinction increases with decreasing habitat availability. Although changes in the environment may cause populations to fluctuate naturally, small and low-density populations are more likely to fluctuate below a minimum viable population (i.e., the minimum or threshold number of individuals needed in a population to persist in a viable state for a given interval; Gilpin and Soule 1986; Shaffer 1981; Shaffer and Samson 1985). Current threats to the habitat of the Tumbling Creek cavesnail may exacerbate potential problems associated with its low population numbers and increase the chances of this species going extinct.

### Reason for Emergency Determination

Under section 4(b)(7) of the Act and regulations at 50 CFR 424.20, we may emergency list a species if the threats to the species constitute an emergency posing a significant risk to its well-being. Such an emergency listing expires 240 days following publication in the **Federal Register** unless, during this 240-day period, we list the species following the normal listing procedures. Below, we discuss reasons why emergency listing the Tumbling Creek cavesnail as endangered is necessary. In accordance with the Act, if at any time after we publish this emergency rule, we determine that substantial evidence does not exist to warrant such a rule, we will withdraw it.

In making this determination, we have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the Tumbling Creek cavesnail. *Antrobia culveri* is restricted to one cave and population monitoring conducted between 1996 and 2001 has indicated that a significant and precipitous decline in the population of the species has occurred. This decline has continued to the point that we are no longer finding any cavesnails in a part of the cave where they had always been found prior to 2001 by using the same monitoring methodology. From the discussion under Factor D of this section, it is clear that currently applicable Federal, State, and local laws, regulations and ordinances, individually and collectively, do not provide adequate protection for the Tumbling Creek cavesnail or its habitat or assure that the species will continue to survive.

We believe that the survival of the Tumbling Creek cavesnail now depends on protecting the delineated recharge area of Tumbling Creek Cave from further degradation and restoring and rehabilitating areas within the recharge area to improve the water quality in Tumbling Creek. The few remaining individuals are vulnerable to extinction from ongoing threats, as well as from random natural or human-caused events unless sufficient habitat is protected, water quality improves, and the current small population greatly increases in size. The recent rapid population decline makes it clear that this cavesnail is on the brink of extinction. By this emergency listing as an endangered species, we believe the additional protections, funding, and recognition that immediately become available to the species will greatly increase the likelihood that it can be saved from

extinction and can ultimately be recovered.

### Critical Habitat

Critical habitat is defined in section 3, paragraph 5(A), of the Act 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 geographical 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 and our 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. However, our budget for listing and critical habitat activities is currently insufficient to allow us to immediately complete all of the listing actions required by the Act. Listing *Antrobia culveri* without designation of critical habitat will allow us to concentrate our limited resources on other listing actions that must be addressed, while allowing us to invoke the protections needed for the conservation of this species without further delay. This is consistent with section 4(b)(6)(C)(i) of the Act, which states that final listing decisions may be issued without critical habitat designation when it is essential that such determinations be promptly published. If prudent and determinable, we will prepare a proposed critical habitat designation for *A. culveri* in the future at such time as our available resources and priorities allow.

### 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 results in public awareness and conservation actions by Federal, Tribal, State, and local agencies, private organizations, and individuals. The Act provides for possible land acquisition and cooperation with the State and requires that recovery actions be carried out for



all listed species. The protection required of Federal agencies and the prohibitions against certain activities involving listed species 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. If a species is listed on an emergency basis, or is listed under a non-emergency listing proposal, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal agency action may adversely affect a listed species or adversely modify its designated critical habitat, the responsible Federal agency must initiate formal consultation with the Service. Section 7(a)(4) of the Act requires Federal agencies to confer 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. Federal agency actions that may affect the Tumbling Creek cavesnail and may require conference and/or consultation with the Service include, but are not limited to, those within the jurisdiction of the U.S. Forest Service, U.S. Army Corps of Engineers, Natural Resources Conservation Service, Environmental Protection Agency, and Federal Highway Administration.

The Act and its 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 (including harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt any such conduct), import or export, ship in interstate or foreign 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 Service agents and those of State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. Regulations governing permits are codified at 50

CFR 17.22 and 17.23. For endangered species, such permits are available for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities.

As published in the **Federal Register** on July 1, 1994 (59 FR 34272), it is the Service's policy 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.

We believe that, based on the best available information, the following actions are not likely to result in a violation of section 9, provided these actions are carried out in accordance with any existing regulations and permit requirements:

(1) Possession of a Tumbling Creek cavesnail legally acquired prior to the effective date of this rule;

(2) Actions that may affect the Tumbling Creek cavesnail that are authorized, funded, or carried out by a Federal agency, when the action is conducted in accordance with an incidental take statement issued by the Service under section 7 of the Act;

(3) Actions that may affect the Tumbling Creek cavesnail that are not authorized, funded, or carried out by a Federal agency, when the action is conducted in accordance with an incidental take permit issued by the Service under section 10(a)(1)(B) of the Act. Applicants design a Habitat Conservation Plan (HCP) and apply for an incidental take permit. These HCPs are developed for species listed under section 4 of the Act and are designed to minimize and mitigate impacts to the species to the greatest extent practicable; and

(4) Actions that may affect the Tumbling Creek cavesnail that are conducted in accordance with the conditions of a section 10(a)(1)(A) permit for scientific research or to enhance the propagation or survival of the species.

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

(1) Unauthorized possession, collecting, trapping, capturing, killing, harassing, sale, delivery, or movement, including interstate and foreign commerce, or harming, or attempting any of these actions, of Tumbling Creek cavesnails without a permit (research activities where cavesnails are collected will require a permit under section

10(a)(1)(A) of the Endangered Species Act);

(2) Discharges or dumping of toxic chemicals, silt, or other pollutants (point source and non-point source pollution) within the recharge area of Tumbling Creek Cave that alters or degrades the water quality of Tumbling Creek to the point that it results in death or injury to individuals of the species or results in degradation of cavesnail occupied habitat; and

(3) Release of exotic species (including, but not limited to, fish and crayfish) into Tumbling Creek that adversely affect the cavesnail.

Questions regarding whether specific activities will constitute a violation of section 9 should be directed to the Field Supervisor of the Columbia, Missouri Field Office (see **ADDRESSES** section).

Requests for copies of the regulations regarding listed species and inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Endangered Species Permits, Bishop Whipple Federal Building, 1 Federal Dr., Fort Snelling, MN 55111-4056 (612/713-5343, facsimile 612/713-5292).

#### **National Environmental Policy Act**

The 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 Act, as amended. The Service 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 collections of information that require additional Office of Management and Budget (OMB) approval under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* An information collection related to the rule pertaining to permits for endangered and threatened species has OMB approval and is assigned clearance number 1018-0094. This rule does not alter that information collection requirement. 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 permits and associated requirements for endangered wildlife, see 50 CFR 17.21 and 17.22.

#### **References Cited**

A complete list of all references cited in this rulemaking is available upon



request from the Field Supervisor, Columbia, Missouri Field Office (see ADDRESSES section).

**Author**

The primary author of this proposed rule is Paul M. McKenzie, Ph.D., U.S. Fish and Wildlife Service, Columbia, Missouri Field Office (see ADDRESSES section).

**List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and

recordkeeping requirements, Transportation.

**Regulation Promulgation**

For the reasons given in the preamble, we amend 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. Amend § 17.11(h) by adding the following, in alphabetical order under SNAILS, 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						
*	*	*	*	*		*	
SNAILS							
*	*	*	*	*		*	
Cavesnail, .....	<i>Antrobia</i> .....	U.S.A. ....	NA .....	E ...	719	NA	NA
Tumbling Creek .....	<i>culveri</i> .....	(MO).					

\* \* \* \* \*  
Dated: December 10, 2001.

**Marshall P. Jones, Jr.,**  
Acting Director, Fish and Wildlife Service.  
[FR Doc. 01–31305 Filed 12–26–01; 8:45 am]  
BILLING CODE 4310–55–P

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**50 CFR Part 660**

[Docket No. 011218302–1302–01; 120601A]

RIN: 0648–AP00

**Fisheries off West Coast States and in the Western Pacific; Coastal Pelagic Species Fisheries; Annual Specifications**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Final harvest guideline.

**SUMMARY:** NMFS announces the annual harvest guideline for Pacific sardine in the exclusive economic zone off the Pacific coast for the fishing season January 1, 2002, through December 31, 2002. This harvest guideline has been calculated according to the regulations implementing the Coastal Pelagic Species Fishery Management Plan (FMP), and establishes allowable

harvest levels for Pacific sardine off the Pacific coast.

**DATES:** Effective January 1, 2002, through December 31, 2002.

**ADDRESSES:** The report *Stock Assessment of Pacific Sardine with Management Recommendations for 2002* is available from Rodney R. McInnis, Acting Administrator, Southwest Region, (Regional Administrator), NMFS, 501 West Ocean Blvd., Suite 4200, Long Beach, CA 90802–4213.

**FOR FURTHER INFORMATION CONTACT:** James J. Morgan, Southwest Region, NMFS, 562–980–4036.

**SUPPLEMENTARY INFORMATION:** The FMP divides managed species into two categories: actively managed and monitored. Harvest guidelines for actively managed species (Pacific sardine and Pacific mackerel) are based on formulas applied to current biomass estimates. Harvest guidelines for monitored species (jack mackerel, northern anchovy, and market squid), which are underutilized or under the jurisdiction of the State of California, are not based on current biomass estimates, although a constant allowable biological catch (ABC) for each species is based on the long-term yield of each species. If an ABC for a monitored species is reached, it would be designated an actively managed species; at that time, the Pacific Fishery Management Council (Council) would review the condition of the resource and recommend management action.

At a public meeting each year, the biomass for each actively managed species is presented at a public meeting held by the Council’s Coastal Pelagic Species Management Team (Team). At that time, the biomass, the harvest guideline, and the status of the fishery is reviewed. Following review and recommendations by the Council, and after hearing all public comments, NMFS publishes the annual harvest guideline in the Federal Register before the beginning of the fishing season.

On October 10, 2001, in accordance with the procedures of the FMP, the biomass report and harvest guideline for Pacific sardine were reviewed at a public meeting of the Team at the offices of the California Department of Fish and Game in Los Alamitos, California. A public meeting between the Team and the Council’s Coastal Pelagic Species Advisory Subpanel was held in the same location that afternoon. The Council reviewed the report at its meeting on November 1, 2001, and heard comments from its advisory bodies and the public. No significant comments on the biomass estimate were received; therefore, the Council recommended to NMFS that the biomass and harvest guideline be published as presented.

The sardine population was estimated using a modified version of the integrated stock assessment model called Catch at Age Analysis of Sardine—Two Area Model (CANSAR–TAM). CANSAR–TAM is a forward-casting,