(2) as (dd)(4) (i) and (ii) and paragraph (dd)(5)(1) and (dd)(5)(i).

§ 32.32 [Amended]

4. Section 32.32 is amended by redesignating paragraph (t)(3)(1) as (t)(3)(i) and paragraphs (rr)(4) (1) through (5) as (rr)(4) (i) through (v).

Dated: December 20, 1990.

Bruce Blanchard,

Acting Director, Fish and Wildlife Service.

[FR Doc. 91-417 Filed 1-8-91; 8:45 am]

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Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB42

Endangered and Threatened Wildlife Plants; Endangered Status Determined for the Tulotoma Snail

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines the tulotoma snail, *Tulotoma magnifica*, to be an endangered species under the authority of the Endangered Species Act (Act) of 1973, as amended. This freshwater snail is currently known from the Coosa River system, Alabama. Habitat modification for navigation and hydropower represent major threats to this species.

EFFECTIVE DATE: February 8, 1991.

ADDRESSES: The complete file for this rule is available for inspection by appointment during normal business hours at the Jackson Field Office, U.S. Fish and Wildlife Service, 6578 Dogwood View Parkway, Jackson, Mississippi 39213.

FOR FURTHER INFORMATION CONTACT: Paul D. Hartfield at the above address (telephone 601/965-4900 or FTS 490-4900).

SUPPLEMENTARY INFORMATION:

Background

Tulotoma magnifica was described from the Alabama River in 1834 as *Paludina magnifica* by T.A. Conrad. An additional three species in the genus *Paludina* were described from the Alabama-Coosa River system between 1834 and 1841. Haldeman erected *Tulotoma* as a subgenus of *Paludina* in 1840 based on shell and opercle characters of the Alabama-Coosa species. All four species of *Tulotoma* were differentiated by only minor differences in shall size, shape and sculpture and the genus is now considered to be monotypic by most authors (Clench 1962, Burch 1982).

Patterson (1965) documented differences in chromosome numbers between two tulotoma populations and suggested that species status of the several forms might be valid. She compared chromosome data on snails from the Coosa River at Wetumpka, Alabama (2N=26) with similar data from an earlier study on specimens from the Coosa River near Wilsonville, Alabama (2N=24). A Service study (Hershler 1989) examined snail chromosome preparations from the Coosa River at Wetumpka, over 50 miles south of Wilsonville, and from Kelly Creek, a tributary of the Coosa River approximately 18 miles north of Wilsonville. For both populations, the chromosome number was 2N=26, suggesting that the earlier study, which was based on a less accurate paraffin section technique, was probably incorrect.

Based on these results and the general consensus of the taxonomic community, the Service considers the genus *Tulotoma* to be monotypic. This species has been previously known by the common name of the Alabama live-bearing snail. This rule uses the common name tulotoma, as recommended by Turgeon et al. (1988), in support of the effort to standardize nomenclature of mollusks.

The historic range of tulotoma was from the Coosa River in St. Clair County, Alabama, to the Alabama River in Clarke and Monroe Counties, Alabama. Historic collecting localities in the Coosa River system included numerous sites on the river as well as the lower reaches of several large tributaries. This snail has only been recorded from two localities in the Alabama River system, the type locality near Claiborne, Monroe County, Alabama, and Chilachee Creek southwest of Selma, Dallas County, Alabama. Other than isolated archaeological relics, the species has never been recorded from the Tombigbee, Black Warrior, Cahaba, or the Tallapoosa drainages. Archaeological records from these drainages are doubtful since tulotoma were Indian food items with shells of ornamental value and were likely to be transported outside of their natural range. Collections from these drainages since the mid-19th century have not verified the presence of this species.

Tulotoma is a gill-breathing, operculate snail in the family Viviparidae. The shell is globular, reaching a size somewhat larger than a golf ball, and typically ornamented with spiral lines of knob-like structures. Its adult size and ornamentation distinguish it from all other freshwater snails in the Coosa-Alabama River system. Tulotoma is also distinguished by its oblique aperture with a concave margin (Burch 1982).

Tulotoma occurs in cool, well-oxygenated, clean, free-flowing waters, with the habitat including both the mainstem river and the lower portions of large tributaries (Hershler 1989). This species is generally found in riffles and shoals and has been collected by Service divers (1989) at depths over five meters (15 feet) with strong currents. The species is strongly associated with boulder/cobble substrates and is generally found during daylight hours clinging tightly to the underside of large rocks. Other aspects of its biology are virtually unknown, apart from the fact that it broods young and filter-feeds, as do other members of the Viviparidae.

The current known range of tulotoma includes four localized populations in the lower, unimpounded portions of Coosa River tributaries: Kelly Creek, St. Clair and Shelby Counties; Weogufka and Hatchet Creeks, Coosa County; and Ohatchee Creek, Calhoun County. A single population continues to survive in the Coosa River between Jordan Dam and Wetumpka, Elmore County. All of these locations, with the exception of Ohatchee Creek, where only a few snails have been observed, appear to have self-sustaining populations. All five populations are separated by large reaches of impounded river and are probably genetically isolated. The snail has apparently been extirpated in the Alabama River.

Decline of tulotoma has been evident for at least 50 years. The snail could no longer be found in the Alabama River at Claiborne by the mid-1930's (Goodrich 1944; Clench 1962), nor has it been found elsewhere in the Alabama River drainage in the past 50 years. Reduction of numbers of all prosobranch snails in the Coosa River was obvious by 1944 (Goodrich 1944). Prior to 1988, the last live collections of tulotoma were those of Athearn (Stein 1976) and Yokley (U.S. Army Corps of Engineers 1981). Athearn located three populations in the upper Coosa River drainage between 1955-1963. Two of those sites, Big Canoe and Choccolocco Creeks, have since been flooded by impoundments. Tulotoma still occur at the third site, Kelly Creek. Yokley found a single live individual in the Coosa River above Lay Reservoir and below Kelly Creek. During a 1988 search of the Lay Reservoir site by Service biologists, neither the species nor suitable habitat was found and it was concluded that the single individual

collected by Yokley had most likely washed in from Kelly Creek. Since publication of the proposed rule, Service biologists have located live tulotoma snails in the Coosa River approximately 0.5 kilometers (0.3 miles) below Kelly Creek. An extensive search of the area found 20 individuals, but very little of the boulder cover tulotoma requires. Due to the limited habitat and low number of snails, it is likely that this short reach of the Coosa River is dependent on Kelly Creek for recruitment, and as such, is considered as a part of the Kelly Creek tulotoma population. Other 1990 searches in the mainstem found neither tulotoma or appropriate habitat.

Tulotoma, *Tulotoma magnifica*, was listed as a category 2 candidate (a taxon for which data in the Service's possession indicate listing is probably appropriate) in the Notice of Review published in the **Federal Register** on January 6, 1989 (54 FR 554). The proposed rule to list the tulotoma snail as an endangered species was published on July 11, 1990 (55 FR 28573).

Summary of Comments and Recommendations

In the proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate State agencies, County governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice inviting general public comment was published in the *Birmingham News*, Birmingham, Alabama on July 22, 1990, *The Anniston Star*, Anniston, Alabama on July 28, 1990, and in the *Montgomery Advertiser*, Montgomery, Alabama on July 29, 1990. The only comments were from two State agencies, both in support of the proposed rule. Neither provided new information on the status of the species.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the tulotoma snail (*Tulotoma magnifica*) should be classified as an endangered species. Procedures found at Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR Part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in Section 4(a)(1). These factors and their application to the tulotoma (*Tulotoma magnifica*) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* Historically, the tulotoma was locally abundant in the main channels of the Coosa and Alabama Rivers and the lower reaches of some of their tributaries from St. Clair/Talledega Counties to Clarke/Monroe Counties, Alabama, a distance of approximately 350 river miles. It has apparently been extirpated from the Alabama River and is now known from approximately three miles of the main channel of the Coosa River and in localized portions of four tributaries. It has apparently been extirpated from three of the seven known historic tributary populations. Of the extant populations, one, Ohatchee Creek, is considered to be marginal or declining due to the low numbers of snails recently observed. This represents at least a 98 percent range reduction in main channel habitat, and an approximately 50 percent reduction in known tributary habitat.

The range reduction of tulotoma can be attributed to extensive channel modifications in the Coosa-Alabama River system for navigation and hydropower. Dredging of the Alabama River channel began in 1878 and continues to the present day. Locks and dams on that river were completed in the 1960's, impounding tulotoma habitat from the lowermost known site near Claiborne, Alabama, to the confluence of the Coosa and Tallapoosa Rivers. The Coosa River has been impounded for hydropower from just above its confluence with the Tallapoosa for approximately 230 river miles by a series of six large dams constructed between 1914 and 1966. Most Alabama and Coosa River tributaries within the historic tulotoma range have been affected in their lower reached by backwater from the impoundments.

Additional impacts on the species include population, siltation and hydropower discharge. Hurd (1974) noted industrial and municipal waste problems in the Coosa drainage as well as the effects of excessive siltation. Service biologists in a 1989 survey noted that tulotoma habitat in the river channel and tributaries affected by reservoir backwater may be limited by siltation.

Hydropower discharge regimes through Jordan Dam may affect the last known main channel tulotoma population. Currently, Jordan Dam discharges 4500 cubic feet per second (cfs) into the Coosa River for only a 2.25 hour period daily Between releases, there is an estimated flow of 188 cfs due to seepage. It has been estimated that less than four percent of the Coosa River's annual discharge is passed into the natural river channel below Jordan Dam (USFWS 1989). The remaining annual flow is discharged to the Coosa River about four miles upstream of its confluence with the Tallapoosa River via a hydropower canal at Walter Bouldin Dam. This bypasses approximately 14 miles of Coosa River natural channel, a portion of which supports a population of tulotoma. Any decrease in discharge will likely lead to the extirpation of tulotoma at this location. Water quality problems, low dissolved oxygen and elevated temperatures have been associated with current Jordan Dam discharge regimes (USFWS 1989) and may be a limiting factor to the tulotoma population.

Each of the five known tulotoma populations may be vulnerable to localized water quality changes due to construction activities. Siltation from bridge and road construction through or above tulotoma habitat could result in adverse impact. There are pending permit applications to the U.S. Army Corps of Engineers to construct two lakes upstream of the Kelly Creek population. Construction of these lakes could potentially affect the species through the sedimentation of downstream habitat during construction.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* The species is currently not of commercial value; any collecting is likely to be for scienfic purposes. However, the localized populations would be susceptible to over collecting should this orriate snail become important to the commercial pet trade.

C. *Disease or predation.* Unusual levels of disease or predation were not apparent during recent observations of the extant populations.

D. *The inadequacy of existing regulatory mechanisms.* Existing laws are inadequate to protect this species. It is not officially recognized by Alabama as needing any special protection but will be upon Federal listing. The species is not given any special consideration under other environmental laws when project impacts are reviewed.

E. *Other natural or manmade factors affecting its continued existence.* Known tulotoma populations are isolated, localized and restricted. There is little, if any, possibility of genetic exchange between populations. Over time, this isolation may result in genetic drift with each population becoming unique and vulnerable to environmental disturbance. As noted above, the

Ohatchee Creek population is very small and as such is more susceptible to environmental changes. The life history and biology of this species is virtually unknown.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list the tulotoma snail as endangered. Endangered status is determined because of the irretrievable loss of over 90 percent of the historic habitat, and the vulnerability and isolation of existing populations. Critical habitat is not determined for reasons discussed below.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate critical habitat at the same time species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not presently prudent for this species due to the lack of benefit of such designation and the potential for collecting, should this species become commercially important. No additional benefits would accrue from a critical habitat designation that do not already accrue from the listing. All involved parties and the principal landowner have been notified of the location and importance of protecting this species habitat. Precise locality data are available to appropriate agencies through the Service office described in the "**ADDRESSES**" section.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with 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)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal involvement is expected to include the Environmental Protection Agency through the Clean Water Act's provisions for pesticide registration and waste management actions. The Corps of Engineers will include this species in project planning and operation and during the permit review process. The Federal Energy Regulatory Commission will consider the species when licensing or relicensing hydropower plants. The Federal Highway Administration will consider impacts of bridge and road construction when known habitat may be impacted. Continuing urban development within the drainage basins may involve the Farmers Home Administration and their loan programs.

The Act and implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect; or to attempt any of these), import or export, ship in interstate 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, delivery, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, for incidental take in connection with otherwise lawful activities, and/or for prevention of economic hardship.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

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Author

The primary author of this rule is Paul D. Hartfield (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for part 17 continues to read as follows:

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

2. Amend § 17.11(h) for animals by adding the following, in alphabetical order under "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:							
* * *	* * *	*	*				
Snail, tulotoma (=Alabama live-bearing)	Tulotoma magnifica	U.S.A. (AL)	NA	E	412	NA	NA
* * *	* * *	*	*				

Dated: December 7, 1990.

Bruce Blanchard,

Director, Fish and Wildlife Service.

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