Sunshine Act Meetings

Federal Register
Vol 52, No. 66
Tuesday, April 7, 1987

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

FEDERAL DEPOSIT INSURANCE CORPORATION

Pursuant to the provisions of subsection (e)(2) of the "Government in the Sunshine Act" (5 U.S.C. 552b(e)(2)), notice is hereby given that at its open meeting held at 2:00 p.m. on Tuesday, March 31, 1987, the Corporation's Board of Directors determined, on motion of Chairman L. William Seidman, seconded by Director C.C. Hope, Jr. (Appointive), concurred in by Director Robert L. Clarke (Comptroller of the Currency), that Corporation business required the withdrawal from the agenda for consideration at the meeting, on less than seven days' notice to the public, of the following matter:

Memorandum re: Proposed Statement of Policy for Minimum Disclosure by Insured State Nonmember Banks which statement of policy would set forth the various types of information as insured state nonmember bank should make available to the public upon request.

The Board further determined, by the same majority vote, that Corporation business required the addition to the agenda for consideration at the meeting, on less than seven days' notice to the public, of the following matter:

Application of New WSB Savings Bank, New York City (Brooklyn), New York, a proposed stock savings bank in organization, for consent to merge, under its charter and with the title "The Williamsburgh Savings Bank," with The Williamsburgh Savings Bank, New York City (Brooklyn), New York, an insured mutual savings bank, and for consent to establish the main office and twelve existing branches of The Williamsburgh Savings Bank as the main office and branches of the resultant bank, and for consent to convert The Williamsburgh Savings Bank to a stock form of organization and to prepay its outstanding net worth certificates.

By the same majority vote, the Board further determined that no earlier notice of this change in the subject matter of the meeting was practicable.

Dated: April 2, 1987.

Federal Deposit Insurance Corporation.

Hoyle L. Robinson,

Executive Secretary.

[FR Doc. 87-7719 Filed 4-3-87; 11:34 am]

BILLING CODE 6714-01-M

FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION

April 1, 1987.

TIME AND DATE: Following the oral argument, April 9, 1987.

PLACE: Room 600, 1730 K Street, NW., Washington, DC.

STATUS: Closed (Pursuant to 5 U.S.C. 552b(c)(10)).

MATTERS TO BE CONSIDERED: In addition to the previously announced item, the Commission will consider and act upon the following:

2. *Secretary of Labor on behalf of Bobby C. Keene v. S & M Coal Company, Inc.*, Docket No. VA 86-34-D. (Issues include consideration of a petition for discretionary review).

3. *Harlon L. Thurman v. Queen Anne Coal Company*, Docket No. SE 86-121-D. (Issues include consideration of a petition for discretionary review).

It was determined by a unanimous vote of Commissioners that these items be considered in a closed meeting.

CONTACT PERSON FOR MORE INFORMATION: Jean Ellen (202) 653-5629.

Jean H. Ellen,

Agenda Clerk.

[FR Doc. 87-7696 Filed 4-3-87; 11:34 am]

BILLING CODE 6735-01-M

NATIONAL LABOR RELATIONS BOARD

TIME AND DATE: 2:00 p.m., Thursday, April 9, 1987.

PLACE: Board Conference Room, Sixth Floor, 1717 Pennsylvania Avenue, NW.

STATUS: Closed to public observation pursuant to 5 U.S.C. section 552b(c)(2) (internal personnel rules and practices) and (c)(6) (personal information where disclosure would constitute a clearly unwarranted invasion of personal privacy).

MATTERS TO BE CONSIDERED: Selection of Regional Director for Region 22—Newark, New Jersey, Region 3, Buffalo, New York.

CONTACT PERSON FOR MORE INFORMATION: John C. Truesdale, Executive Secretary, Washington, DC 20570, Telephone: (202) 254-9430.

Dated, Washington, DC, 1 April 1987.

By direction of the Board.

John C. Truesdale,

Executive Secretary, National Labor Relations Board.

[FR Doc. 87-7768 Filed 4-3-87; 3:07 pm]

BILLING CODE 7545-01-M

NUCLEAR REGULATORY COMMISSION

DATE: Weeks of April 6, 13, 20, and 27, 1987.

PLACE: Commissioners' Conference Room, 1717 H Street, NW., Washington, DC.

STATUS: Open and Closed.

MATTERS TO BE CONSIDERED:

Week of April 6

Monday, April 6

2:00 p.m.
Briefing on NRC Strategic Planning (Public Meeting)

Wednesday, April 8

10:00 a.m.
Discussion of Pending Investigations (Closed—Ex. 5 & 7)

Thursday, April 9

2:30 p.m.
Discussion of Management-Organization and Internal Personnel Matters (Closed—Ex. 2 & 6)

4:00 p.m.
Affirmation/Discussion and Vote (Public Meeting)
a. Review of ALAB-853, In the Matter of Public Service Company of New Hampshire

Friday, April 10

10:00 a.m.
Periodic Meeting with the Advisory Committee on Reactor Safeguards (ACRS) (Public Meeting)

2:00 p.m.
Discussion/Possible Vote on Full Power Operating License for Clinton (Public Meeting)

3:30 p.m.
Briefing on Status of Peach Bottom (Closed—Ex. 5 & 7) (Tentative)

3:45 p.m.
Briefing on Status of Peach Bottom (Public Meeting) (Tentative)

Week of April 13—Tentative

Wednesday, April 15

10:00 a.m.
Briefing by Office of Special Projects (Public Meeting)

2:00 p.m.
Briefing by DOE on the TMI-2 Core Examination Program (Public Meeting)

Thursday, April 16

11:00 a.m.
Periodic Meeting with the Advisory Panel for the Decontamination of TMI-2 (Public Meeting)

2:30 p.m.
Discussion of Management-Organization and Internal Personnel Matters (Closed—Ex. 2, 5, 6, & 7)

4:00 p.m.
Affirmation/Discussion and Vote (Public Meeting) (if needed)

Week of April 20—Tentative

Thursday, April 23

4:00 p.m.
Affirmation/Discussion and Vote (Public Meeting) (if needed)

Week of April 27—Tentative

2:00 p.m.
Briefing on Advanced Boiling Water Reactor Review (Public Meeting)
3:30 p.m.
Affirmation/Discussion and Vote (Public Meeting) (if needed)

TO VERIFY THE STATUS OF MEETINGS CALL (RECORDING): (202) 634–1498.

CONTACT PERSON FOR MORE INFORMATION: Robert McOsker (202) 634–1410.

Robert B. McOsker,

Office of the Secretary.

April 2, 1987.

[FR Doc. 87–7781 Filed 4–3–87; 3:52 pm]

BILLING CODE 7590–01–M

UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

TIME AND DATE: 8:00 a.m., April 13, 1987.

PLACE: Uniformed Services University of the Health Sciences, Room D3–001, 4301 Jones Bridge Road, Bethesda, Maryland 20814–4799.

STATUS: Open—under "Government in the Sunshine Act" [5 U.S.C. 552b(e)(3)].

MATTERS TO BE CONSIDERED:

8:00 Meeting—Board of Receipts

(1) Approval of Minutes—January 12, 1987; (2) Sunshine Act Report; (3) Faculty Matters: (a) Faculty Appointments, (b) Appointment of Chairperson, Department of Biochemistry, (c) Appointment of Acting Vice President, (d) Appointment of Adviser, Board of Regents; (4) Report—Admissions; (5) Report—Associate Dean for Operations; (6) Report—President, USUHS: (a) University Awards, (b) Certification of Medical Students, (c) Certification of Graduate Students, (d) Department of Defense/Veterans Administration Cooperative Medical Research Program, (e) Foreign Physicians Certification, (f) Militarily Unique Graduate Medical Education Curriculum, (g) Information Items; (7) Comments—Members, Board of Regents; (8) Comments—Chairman, Board of Regents

New Business

SCHEDULED MEETING: July 20, 1987.

CONTACT PERSON FOR MORE INFORMATION: Donald L. Hagengruber, Executive Secretary of the Board of Regents, 202/295–3028.

Particia H. Means,

OSD Federal Register Liaison Officer, Department of Defense.

April 3, 1987.

[FR Doc. 87–7787 Filed 4–7–87; 4:01 pm]

BILLING CODE 3810–01–M

federal register

Tuesday
April 7, 1987

Part II

Department of Education

Educational Media Research, Production, Distribution, and Training and Technology, Educational Media, and Materials; Notice of Proposed Annual Funding Priorities

DEPARTMENT OF EDUCATION

Office of Special Education and Rehabilitative Services

Educational Media Research, Production, Distribution, and Traininig and Technology, Educational Media, and Materials; Proposed Annual Funding Priorities

AGENCY: Department of Education.

ACTION: Notice of proposed annual funding priorities.

SUMMARY: The Secretary proposes to establish annual funding priorities for the Educational Media Research, Production, Distribution, and Traininig program and the Technology, Educational Media, and Materials program to ensure effective use of program funds and to direct funds to areas of identified need during fiscal year 1987.

DATE: Comments must be received on or before May 7, 1987.

ADDRESS: Comments should be addressed to the contact person listed in each individual proposed priority.

FOR FURTHER INFORMATION CONTACT: The person listed in each individual proposed priority.

SUPPLEMENTARY INFORMATION: Awards under the Educational Media Research, Production, Distribution, and Training program are authorized under Part F of the Education of the Handicapped Act. The purpose of this program is to promote the educational advancement of handicapped persons by providing assistance for research on the use of educational media for handicapped persons; producing and distributing educational media for handicapped persons, their parents, their actual or potential employers, and other persons directly involved in work for the advancement of handicapped persons; and training persons in the use of educational media for the instruction of handicapped persons. Awards under the Technology, Educational Media, and Materials program are authorized under Part G of the Education of the Handicapped Act which was established by section 317 of the Education of the Handicapped Act Amendments of 1986. The purpose of this program is to advance the use of new technology, media, and materials in the education of the handicapped.

Proposed Priorities

In accordance with the Education Department General Administrative Regulations (EDGAR) at 34 CFR 75.105(c)(3), the Secretary proposes to give an absolute preference under the Educational Media Research, Production, Distribution, and Training program in fiscal year 1987 to applications that respond to priorities 1, 2, and 3, described below. The Secretary also proposes to give an absoslute preference under the new Technology, Educational Media, and Materials program in fiscal year 1987 to applications that respond to priorities 4, 5, and 6 described below. An absolute preference is one under which the Secretary selects only those applications that meet the described priorities. In addition, for fiscal year 1987 the Secretary proposes to use the selection criteria for the Educational Media Research, Production, Distribution, and Training program at 34 CFR 332.32 to evaluate applications submitted under the Technology, Educational Media, and Materials program which will be funded under new Part G of the Act.

Priority 1—Closed-Captioned Real-Time News

This proposed priority would support one cooperative agreement for closed-captioned national real-time news and public information programming. This would provide hearing-impaired Americans with national up-to-date evening news, morning news, and weekend news as well as access to current events and other public information that affects the lives of all citizens. This priority is covered under section 651(a)(2) of the Act (Part F).

For Further Information Contact: Dr. Malcolm J. Norwood, Division of Educational Services, Office of Special Education Programs, Department of Education, 400 Maryland Avenue, SW., (Switzer Building, Room 3094—M/S 2313), Washington, DC 20202. Telephone: (202) 732–1177.

Priority 2—Closed-Captioned National Television Programming

This proposed priority would support a cooperative agreement to close-caption syndicated programs. Closed-captioning of syndicated programs increases access to programming available to the general population. This priority is covered under section 651(a)(2) of the Act (Part F).

For Further Information Contact: Dr. Malcolm J. Norwood, Division of Educational Services, Office of Special Education Programs, Department of Education, 400 Maryland Avenue, SW. (Switzer Building, Room 3094—M/S 2313), Washington, DC 20202. Telephone: (202) 732–1177.

Priority 3—Closed-Captioned Local News Projects

This proposed priority would support new projects for the closed-captioning of local news programs. Projects would be incrementally funded over a 3-year period to encourage closed captioning of local news. At the end of the third year the applicants are expected to continue the project without additional Federal support. This priority is covered under section 651(a)(2) of the Act (Part F).

For Further Information Contact: Dr. Malcolm J. Norwood, Division of Educational Services, Office of Special Education Programs, Department of Education, 400 Maryland Avenue, SW. (Switzer Building, Room 3094—M/S 2313), Washington DC 20202. Telephone: (202) 732–1177.

Priority 4—Compensatory Technology Applications

This proposed priority would support innovative adaptations of hardware and software technology and the field-test evaluation of those innovative adaptations. The technology adaptations must compensate for physical, sensory, or cognitive learning impediments in order to: (a) Alleviate the need to modify instructional materials and/or (b) increase the overall accessability to educational opportunities for handicapped learners. These projects must capitalize on advances in such areas as peripherals, memory, display, networking, and reproduction. Projects must develop prototypes which serve as models of transfer applications of existing technology for use in the education of handicapped children. Following the development phase, appropriate evaluation and field-testing of the adapted technology device must occur. In addition, a plan for national marketing and distribution including a rationale supporting the modifications based on the field-test results must be submitted as a final report. This priority is covered under section 661 of the Act (Part G).

For Further Information Contact: Linda Glidewell, Division of Innovation and Development, Office of Special Education Programs, Department of Education, 400 Maryland Avenue, SW. (Switzer Building, Room 3094—M/S 2313), Washington, DC 20202. Telephone: (202) 732–1099.

Priority 5—Improving Technolgoy Software

This proposed priority would support the investigation, synthesis, and transfer of research information related to designing, creating, and field-testing an

advanced computer-assisted instruction (CAI) program that demonstrates superior computerization of teaching/learning processes. This may include the collection of data for use in the design and development phase.

The resulting product from each project must be a CAI personal computer program designed for use in the education of handicapped children. The CAI program must be on a specific topic in one of these basic subjects: language arts, mathematics, or science. The CAI program must involve the handicapped student in an interactive, individualized way by including instructional options such as: student control of the entry point in lessons; student reponse to questions asked; branching of instruction or direction based on performance analysis as presented on the computer screen; and/or student manipulation via response devices other than the keyboard (e.g., graphics entry pad, light pen, touch screen, mouse, voice, or other non-keyboard input devices). Computer simulations of science experiments, and situations involving math and language arts skills are encouraged. This advanced programming must result in state-of-the-art software and demonstrate the benefits of student involvement and student control in CAI. This priority is covered under section 661 of the Act (Part G).

For Further Information Contact: Linda Glidewell, Division of Innovation and Development, Office of Special Education Programs, Department of Education, 400 Maryland Avenue, SW. (Switzer Building, Room 3094—M/S 2313), Washington, DC 20202. Telephone: (202) 732-1099.

Priority 6—Instructional Technology Research

This priority would support studies of the various secondary impacts of using technology in the education of handicapped children to enhance the effective use of technology in special education. For example, even with the growing number of microcomputers available in schools today this media technology is not being used to its fullest potential as an integral part of instruction. Research must be conducted on: (1) The effects of computer-developed versus noncomputer-developed individualized education programs (IEP's) on the administrators, teachers, and parents involved in developing and implementing IEP's; (2) the effects of cultural differences related to the use and outcomes of technology-based instruction; (3) the social impact on children from using technology as part of their instruction; (4) the organizational impact and change associated with the implementation of technology; or (5) the effects of computer-managed versus noncomputer-managed instruction. The results of this research are to be reported in a series of research monographs. This priority is covered under section 661 of the Act (Part G).

For Further Information Contact: Linda Glidewell, Division of Innovation and Development, Office of Special Education Programs, Department of Education, 400 Maryland Avenue, SW. (Switzer Building, Room 3094—M/S 2313), Washington, DC 20202. Telephone: (202) 732-1099.

Intergovernmental Review

These programs are subject to the requirements of Executive Order 12372 and the regulations in 34 CFR Part 79 (48 FR 29158; June 24, 1983). The objective of the Executive Order is to foster an intergovernmental partnership and a strengthened federalism by relying on State and local processes for State and local government coordination and review of proposed Federal financial assistance.

In accordance with the Order, this document provides early notification of the Department's specific plans and actions for this program.

Invitation to Comment

Interested persons are invited to submit comments and recommendations regarding the proposed priorities, and the proposed use of the current selection criteria at 34 CFR 332.32 to evaluate applications submitted under the new Technology, Educational Media, and Materials program. Written comments and recommendations may be sent to the address listed under each individual proposed priority. Written comments on the use of the selection criteria at 34 CFR 332.22 for applications under the Technology, Educational Media, and Materials program may be sent to Linda Glidewell, Division of Innovation and Development, Office of Special Education Programs, Department of Education, 400 Maryland Avenue, SW. (Switzer Building, Room 3094—M/S 2313), Washington, DC 20202. All comments received on or before the 30th day after publication of this document will be considered before the Secretary issues the final priorities.

All comments submitted in response to this notice will be available for public inspection, during and after the comment period, in Rooms 4092 (Priorities 1, 2, and 3) and 3522 (Priorities 4, 5, and 6); and the use of the selection criteria at 34 CFR 332.32), Switzer Building, 330 C Street, SW., Washington, DC 20202 between the hours of 8:30 a.m. and 4:00 p.m., Monday through Friday of each week except Federal holidays.

(20 U.S.C. 1451(a)(2), 1452(b)(5), and section 317 of the Education of the Handicapped Act Amendments of 1986 (Part G, Section 661))

(Catalog of Federal Domestic Assistance No. 84.026; Educational Media Research, Production, Distribution, and Training)

Dated: February 19, 1987.

William J. Bennett,

Secretary of Education.

[FR Doc. 87-7627 Filed 4-6-87; 8:45 am]

BILLING CODE 4000-01-M

federal register

Tuesday
April 7, 1987

Part III

Department of the Interior

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Species; Cave Crayfish, Marshall's, Curtus', Judge Tait's, and the Penitent Mussels, and Scrub Lupine; Final Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Endangered Status for Marshall's Mussel (Pleurobema marshalli), Curtus' Mussel (Pleurobema curtum), Judge Tait's Mussel (Pleurobema taitianum), the Stirrup Shell (Quadrual stapes), and the Penitent Mussel (Epioblasma (=Dysnomia) penita)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service has determined Marshall's mussel (*Pleurobema marshalli* Frierson), Curtus' mussel (*Pleurobema curtum* (Lea)), Judge Tait's Mussel (*Pleurobema taitianum* (Lea)), the stirrup shell (*Quadrula stapes* (Lea)), and the penitent mussel (*Epioblasma* (=*Dysnomia*) *penita* (Conrad)) to be endangered species under the Endangered Species Act (Act) of 1973, as amended. These five freshwater clams are restricted to areas in the Tombigbee River system that represent remnants of their historic ranges. They have been found in moderate-to-large rivers with moderate-to-swift current. Their preferred habitats are riffle or shoal areas with stable substrates ranging from sandy gravel to gravel-cobble. Much of the historic habitat has been modified by reservoir and barge canal construction. The remaining populations are in a bendway or meander of the Tombigbee River that was bypassed by the Tennessee-Tombigbee Waterway (TTW) and in a few tributaries of the Tombigbee River. They are away from and not affected by present operation of the completed TTW. The remaining habitat is threatened by siltation from a variety of sources and by gravel dredging. The U.S. Army Corps of Engineers is currently undertaking conservation efforts for these species through reconstruction and management of gravel bar habitat as well as ecological studies. The construction of impoundments adversely impacted these five species by physical destruction during dredging, increasing siltation, reducing water flow, suffocating juveniles with sediment, and possibly disturbing host fish movements. This determination implements the protection of the Endangered Species Act of 1973, as amended, for these five freshwater clams.

DATE: The effective date of this rule is May 7, 1987.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Endangered Species Field Station, U.S. Fish and Wildlife Service, Jackson Mall Office Center, Suite 316, 300 Woodrow Wilson Avenue, Jackson, Mississippi 39213.

FOR FURTHER INFORMATION CONTACT: Mr. Dennis B. Jordan, Endangered Species Field Supervisor, at the above address (601/965–4900 or FTS 490/4900).

SUPPLEMENTARY INFORMATION:

Background

Marshall's mussel was described as *Pleurobema marshalli* by Frierson in 1927 from specimens collected by A.A. Hinkley from the Tombigbee River in Greene County, Alabama (Stansbery 1983b). Marshall's mussel is a bivalve mollusk about 60 mm long, 50 mm high, and 30 mm wide. The shell has a shallow umbonal cavity, a rounded sub-ovate or obliquely elliptical outline, nearly terminal beaks, and very low pustules or welts on the postventral surface. This mussel was historically known from the main stem of the Tombigbee River from just above Tibbee Creek near Columbus, Mississippi, down to Epes, Alabama (Stansbery 1983b). Studies of clams of the Gulf Coast rivers from the Escambia River to the Suwannee River by Clench and Turner (1956) and of Mississippi streams by Grantham (1969), did not reveal Marshall's mussel in those areas. Extensive surveys of the Cahaba River by van der Schalie (1938) and Baldwin (1973) and of the Coosa River by Hurd (1974) did not find Marshall's mussel (Stansbery 1983b). This complete lack of specimens from anywhere except the Tombigbee River from Tibbee Creek to Epes, Alabama, suggests that the historical range of this species was restricted to this river reach. An extensive survey of the Tombigbee River in 1971–1976 by Williams (Stansbery 1983b) recorded Marshall's mussel in the lowermost half of the river from Tibbee Creek downstream to just above the mouth of the Noxubee River. Yokley (1978) did not find Marshall's mussel in his survey of the Buttahatchie River. The only remaining viable habitat for this species in the Tombigbee River is a gravel bar in a bendway in Sumter County, Alabama.

Curtus' mussel was originally described as *Unio curtus* by Lea in 1859. The Service recognizes the following name combinations (based on Stansbery 1983d) as equivalent to *Pleurobema curtum* (Lea, 1859):

Unio curtus Lea, 1859:113.
Margaron (*Unio*) *curtus* (Lea).—Lea 1870:40.
Pleurobema curta (Lea).—Simpson 1900:754.
Pleurobema curtum (Lea).—Simpson 1914:762.
Obovaria (*Pseudoon*) *curta* (Lea).—Frierson 1927:91.

Curtus' mussel is a bivalve mollusk 50 mm long, 35 mm high, and 30 mm wide. The shell varies from green in young shells to a dark greenish-brown in older shells. The shell is subtriangular, is inflated in front, and has a bluish-white, iridescent, thin nacre (Simpson 1914). Curtus' mussel was historically found in the main stem of the Tombigbee River. The Service considers the single record of this species from the Big Black River in Mississippi (Hinkley 1906:54) to be erroneous. The species has been collected from only five locations, and only two living specimens are known to have been collected. The single remaining viable habitat is in the East

Fork Tombigbee River, Mississippi. Grantham (1969) did not record Curtus' mussel from the Big Black River, nor have more recent surveys found it there (P. D. Hartfield, Mississippi Museum of Natural Science, pers. comm.).

Judge Tait's mussel was described as *Unio taitianus* by Lea in 1834, with the type locality identified as the Alabama River (Stansbery 1983a). The Service recognizes the following abbreviated synonymy (based on Stansbery 1983a) for *Pleurobema taitianum* (Lea, 1834):

Unio taitianus (Lea) 1834:39.
Margarita taitianus (Lea).—Lea 1836:21.
Margaron taitianus (Lea).—Lea 1852:25.
Pleurobema taitiana (Lea).—Simpson 1900:754.
Pleurobema taitianum (Lea).—Simpson 1914:764.
Pleurobema tombigbeanum Frierson 1908:27.

Judge Tait's mussel is a bivalve mollusk about 50 mm long, 45 mm high, and 30 mm wide. The shell is brown to brownish-black, obliquely triangular, and inflated, with narrowly pointed beaks directed forward, a very shallow but distinct furrow, pink-tinted nacre, and shallow beak cavities (Stansbery 1983a, Simpson 1914). Judge Tait's mussel was historically found in the Tombigbee River from the mouth of Tibbee Creek near Columbus, Mississippi, to Demopolis, Alabama; the Alabama River at Claiborne and Selma, Alabama; the lower Cahaba River, Alabama; and possibly the Coosa River, Alabama (Stansbery 1983a, Williams 1982). Several shells from recently dead specimens were found at one location on the Buttahatchie River, a tributary of the Tombigbee, in Mississippi (Schultz 1981). This species has also been reported from the East Fork Tombigbee River (Schultz 1981) and from the Sipsey River, Alabama. Only four sites with suitable habitat remain: these consist of localities in a bendway of the Tombigbee River, Sumter County, Alabama; the East Fork Tombigbee River, Mississippi; the Buttahatchie River, Mississippi; and the Sipsey River, Pickens and Greene Counties, Alabama.

The stirrup shell was originally described from the Alabama River as *Unio stapes* by Lea in 1831. The Service recognizes the following name combinations (based on Stansbery 1981) as equivalent to *Quadrula stapes* (Lea, 1831):

Unio stapes Lea, 1831:77.
Margarita (Unio) stapes (Lea).—Lea 1836:15.
Margaron (Unio) stapes (Lea).—Lea 1852b:22.
Quadrula stapes (Lea).—Simpson 1900:775.
Orthonymus stapes (Lea).—Haas 1969:310.

The stirrup shell is a bivalve mollusk about 55 mm long, 50 mm high, and 30 mm wide. The shell is yellowish-green, with the green, zigzag markings of young individuals becoming brown with age. It is irregularly quadrate, with a sharp posterior ridge, truncated posterior, tubercles, and a silvery white nacre that is thinner and iridescent behind (Simpson 1914). The stirrup shell was found historically in the Tombigbee River from the mouth of Tibbee Creek near Columbus, Mississippi, downstream to Epes, Alabama; The Black Warrior River in Alabama; and in the Alabama River (Stansbery 1981, Williams 1982). One specimen was found recently in the Sipsey River, Pickens and Greene Counties, Alabama, by Dr. Paul Yokley. Only two small areas of viable habitat remain: one in the Sipsey River and the other in a bendway of the Tombigbee River in Sumter County, Alabama.

The penitent mussel was described as *Unio penitus* by Conrad in 1834. The type locality is the Alabama River near Claiborne, Alabama (Stansbery 1983c). The Service recognizes the following name combinations (based on Stansbery 1983c) as equivalent to *Epioblasma penita* (Conrad, 1834):

Unio penitus Conrad, 1834:33.
Margarita (Unio) penitus (Conrad).—Lea 1836:19.
Margaron (Unio) penitus (Conrad).—Lea 1852a:24.
Truncilla penita (Conrad).—Simpson 1900.
Dysnomia penita (Conrad).—Frierson 1927:93.
Epioblasma penita (Conrad).—Stansbery 1976:48.
Plagiola (Plagiola) penita (Conrad) [in part].—Johnson 1978:254.

The penitent mussel is a bivalve mollusk about 55 mm long, 40 mm high, and 34 mm wide. The shell is yellowish, greenish-yellow, or tawny, sometimes with darker dots; is rhomboid with irregular growth lines and a radially sculptured posterior; and has white or straw-colored nacre (Simpson 1914). The females have a large radially-grooved swelling projecting behind the shell. This species was historically known from the Tombigbee River from Bull Mountain Creek above Amory, Mississippi, downstream to Epes, Alabama; the Alabama River at Claiborne and Selma; the Cahaba River below Centreville, Alabama; and the Coosa River in Alabama and Georgia (Stansbery 1983c, Williams 1982). Live specimens were found recently in the Buttahatchie River in Alabama (Yokley 1978, Schultz 1981). The only remaining viable habitats are in the Buttahatchie River, Alabama, the East Fork Tombigbee River, and a single locality in a bendway of the Tombigbee River, Sumter County, Alabama.

These five species have historically been found in moderate-to-large rivers with moderate-to-swift current. Their preferred habitats are riffle-run or shoal areas with stable substrates ranging from sandy gravel to gravel-cobble (Stansbery 1976, 1980, 1981, 1983a, 1983b, 1983c, 1983d). These clams have been taken in water up to 0.7 meters deep (Williams 1982).

Land ownership in the portions of the Tombigbee and Alabama River systems where these species have been collected includes Federal, State, corporate, and individual. Governmental regulation of alterations of these habitats is primarily the responsibility of the U.S. Army Corps of Engineers (COE).

The status of each of these clams has declined owing to habitat alteration. The modification of the free-flowing Tombigbee River into a series of impoundments to form a barge canal has adversely impacted these species through physical destruction during dredging, increased siltation, reduction of water flow, and possible disturbance of host fish movements. Remaining populations are in a bendway and tributaries that are outside of the navigation channel of the Tennessee-Tombigbee Waterway (TTW). The COE has authorized channelization and snagging projects in portions of the Buttahatchie, Sipsey, Tombigbee, East Fork, and Cahaba Rivers where these species have been found.

On April 11, 1980, the Service published a notice in the **Federal Register** (45 FR 24904), that a status review was being conducted for these five clam species. In comments received in response to that notice, former Congressman David Bowen of Mississippi opposed the notice and possible listing based on his concern that Service employees opposed the construction of the TTW. The Service responds that it has based the notice, proposed rule, and final rule to list these five clams solely on the most current biological data available, as required by the Endangered Species Act. Former Governors Fob James of Alabama and William F. Winter of Mississippi commented that the classification and life histories of these five species required clarification, and that the species were not threatened by the TTW. Both governors cited van der Schalie (1980) in support of their comments. The Service responds that it

has examined the reports by Drs. van der Schalie and Stansbery and all relevant scientific literature and museum collections and believes that the taxonomic characterizations presented in the previous paragraphs represent the soundest and most current interpretation of available data. The Service also notes that the TTW populations survive only at sites that are outside of the navigation channel, which is now completed, and conservation efforts for these species are likely to be expended on habitats that have not been altered by the waterway.

The COE submitted documents describing studies of these species and suggesting possible conservation and management procedures for remaining populations. The Service has incorporated the distributional data from these studies with data from other sources in the process of making final determinations of endangered status. As stated above, the Service has considered taxonomic questions raised in these and other studies and believes that the taxonomy employed here is most consistent with all available information.

Three conservation groups and two individuals, including a professional malacologist, presented or cited data in support of a proposal of protective status under the Endangered Species Act for these species. The proposed rule was published in the **Federal Register** (51 FR 11761) on April 7, 1986.

Summary of Comments and Recommendations

In the April 7, 1986, proposed rule (51 FR 11761) 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. Newspaper notices that invited general public comment were published in the *Columbus Commercial Dispatch* on April 27, 1986, the *Jackson Clarion Ledger* on April 25, 1986, the *Jackson Daily News* on April 25, 1986, the *Tupelo Journal* on April 22, 1986, the *Birmingham News* on April 26, 1986, the *Birmingham Post Herald* on April 26, 1986, and the *Tuscaloosa News* on April 22, 1986. A public hearing was requested by the Tenn-Tom Waterway Authority. The hearing was held in Columbus, Mississippi, on July 10, 1986, and the comment period was reopened until July 20, 1986, to accommodate the public hearing. Comments, either written or presented orally at the public hearing, were received from eight parties.

Three parties supported the proposal; these included the Mississippi Department of Wildlife Conservation, the U.S. Army Corps of Engineers, and a professional malacologist. One individual expressed concern over the listing of a short river reach at Columbus as habitat for the mussels but did not otherwise comment on the listing. One professional malacologist expressed taxonomic concerns about Marshall's mussel. One agency requested the designation of critical habitat if these species were listed but did not express a position on the listing.

The two statements obtained at the public hearing were opposed to listing until further data were collected. All comments and statements of similar content are grouped in a number of general issues. These issues and the Service's response to each are discussed below.

Issue 1: The data do not support the continued existence of these species since none of them were collected alive during the status surveys in the 1970's upon which much of the proposed rule is based. The collections were made before the TTW construction extirpated the species. Response—The available data support the continued existence of all five species. Marshall's mussel was collected alive in 1972 in Sumter County, Alabama by Stansbery and in Pickens County, Alabama by Williams. The Sumter County gravel bar is still viable habitat in a bendway that is assured a continous water flow. The Pickens County collection site has heavy sedimentation and is not considered viable habitat. Curtus' mussel was collected alive in 1972 and 1974 by Williams in Pickens County, Alabama. Shells of recently dead (less than two years) individuals were collected by Williams from the East Fork in 1974. The Pickens County site has heavy sedimentation. The East Fork continues to provide excellent habitat for this species, and the Service finds no basis for doubting that it continues to exist there. The lack of live specimens is due to the scarcity of the species and the lack of collecting effort during the past decade. Judge Tait's mussel was collected alive by Stansbery in 1972 in Sumter County, Alabama. Shells of recently dead individuals were collected by Service biologists in 1984 from the Sipsey and Buttahatchie Rivers. The stirrup shell was collected alive in 1972 by Stansbery in Sumter County, Alabama, and by Williams in Pickens County, Alabama. Service biologists collected the shell of a recently dead individual in 1984 from the Sipsey River. The Sumter County and Sipsey River sites continue to provide viable habitat for this species. The penitent mussel was collected alive in 1972 by Stansbery in Sumter County, Alabama; in 1974 by Williams, and in 1977 by Yokley in the Buttahatchie River. In 1984, the shell of a recently dead individual was collected by Service biologists in the Buttahatchie River. The Sumter County and Buttahatchie River sites continue to provide viable habitat. The collection of shells of recently dead individuals in 1984 indicates that the TTW has not completely extirpated these species. The lack of records of live individuals since surveys of the 1970's is due to the difficulties in censusing low-density populations in rivers that represent the remaining habitat.

Issue 2: The taxonomy of *Pleurobema* is questionable and should be clarified before listing. Response—One commenter questioned the validity of Marshall's mussel based upon a review of the type specimen and one shell. The Service views this as an inadequate sample on which to base a taxonomic decision, and has based its recognition of the species' validity on the examination of more than 300 shells. The appropriate use of the specific epithet *taitianum* for Judge Tait's mussel was questioned by a commenter who suggested that an earlier name "may" exist. The commenter did not suggest what that earlier name might be. If an earlier, valid name for Judge Tait's mussel is discovered and generally accepted by the scientific community, the Service will recognize that name as applying to this species. The peril of the species remains, regardless of its formal scientific name. Curtus' mussel was not specifically addressed by any commenters. The species within the genus *Pleurobema* remain a subject of discussion by many malcologists. The current scientific literature supports the Service's position. Should future research, published in the scientific literature, support a generally accepted view that is significantly different, the Service will reassess the status of these species.

Issue 3. The COE and other agencies will be required to continuously monitor (look for mussels) their activities during the operation and maintenance of the TTW and associated channel and port facilities. Response—The service does not believe that any of these species currently exist in the TTW. The current operation and maintenance procedures of the TTW do not affect any of the five species. Unless the operation and maintenance of the TTW is significantly

changed, the COE will not be required to monitor these activities within the TTW. Any channel or port facilities proposed for construction outside the TTW may be required to conduct a biological assessment prior to construction. If none of the species are found in the project area or the area impacted by the project, the Service does not anticipate a need for continuously monitoring project activities. Should the activities change from those included in the biological assessment, a new assessment may be required.

Issue 4: Critical habitat should be designated so that areas outside of critical habitat would be free of the restrictions that listing may invoke. Response—The designation of critical habitat does not remove the mandates of the Endanger Species Act in areas where a listed species occurs outside of critical habitat. The Service's reasons for not designating critical habitat are presented in the Critical Habitat section of this rule.

Issue 5: The fish hosts of these clams should be identified. Response—The Service expects this to be accomplished as part of its effort to recover these species.

Issue 6: Surveys should be conducted to determine whether these species are common in other locations. Response—Surveys have been and are continuing to be conducted on other streams. Since impoundment of the Coosa River, none of these species have been found outside the Tombigbee River system. Should any of the five species be found in other systems, the Service will reassess the status of these species and take appropriate action. The Service sees little likelihood that these species exist elsewhere in numbers that would abrogate the need for protection under the Act.

Issue 7: Laws Bar in the Colombus bendway should not be included in the listing. Response—Specific areas of habitat are not designated except when critical habitat is determined. A survey of Laws Bar in 1985 found a thick layer of sediment and no mussels, which generally prefer sand and gravel substrates. The Service no longer considers Laws Bar to be viable habitat for any of the five species.

Issue 8: Mussels in bendways should be relocated to suitable habitat before the bendways receive enough sediment to kill the mussels. Response—The only remaining bendway where these species still are known to occur is in Sumter County, Alabama, and it appears to remain clear of sediment.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that these five species of mussels should be classified as 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 Marshall's mussel (*Pleurobema marshalli*), Curtus' mussel (*P. curtum*), Judge Tait's mussel (*P. taitianum*), the stirrup shell (*Quadrula stapes*), and the penitent mussel (*Epioblasma penita*) are as follows:

A. *The present or threatened destruction, modification, or curtailment of their habitat or range.* All five of the subject species have greatly declined in range and/or numbers in the Tombigbee River owing to alteration of their habitat from a free-flowing riverine system to an impounded system by the construction of the Tennessee-Tombigbee Waterway (TTW). The modification of the free-flowing Tombigbee River into a series of impoundments adversely impacted these clams by physical destruction druing dredging, increasing siltation, reducing water flow, and suffocating juveniles with sediment (Stansbery 1980, 1983b; Stein 1971, Williams 1982) These species survive in the Tombigbee River proper only in meander or bendway that was bypassed by the TTW. The situation of this population away from the navigation channel allowed it to escape the full force of the threats that extirpated these species elsewhere in the Tombigbee River. Dredging and snagging for channel maintenance and flood control threaten populations in tributaries of the Tombigbee River.

Marshall's mussel has been collected from only the Tombigbee River in a reach from just above the confluence with Tibbee Creek downstream to Epes, Alabama. Construction of the TTW effectively eliminated, by impoundment, the historic habitat of Marshall's mussel except for gravel bars in one river bendway bypassed by the TTW. The gravel bars are receiving some sedimentation. In addition, the river flows are significantly reduced by backwater from impoundments. This flow reduction impacts clams by increasing siltation and changing the fishery habitat This latter impact may result in the loss of the fish host for glochidial development. Since Marshall's mussel has only been found in large river systems, the fish host may be a large-river species that has been adversely impacted by impoundments.

The known historic range of Curtus' mussel is the main stem Tombigbee River, but it is now limited to the East Fork. The East Fork is the principal extension of the Tombigbee River proper upstream from the confluence of the East Fork and Town Creek. The East Fork site remains similar to historic habitat but continues to face threats. The COE has approved a final supplement to the environmental impact statement to conduct dredging and snagging activities in a 53-mile reach of the East Fork in the area where the last known collection of a live Curtus' mussel was made. The East Fork water flows have been affected by construction of the TTW canal, which has diverted the flow of Bull Mountain Creek. Bull Mountain Creek provides nearly half the flow of the East Fork (U.S. Army Corps of Engineers 1984). Even with flow now restored to the East Fork, the water quality is undoubtedly altered. Bull Mountain Creek is a cool water stream that is likely warmed to some degree when it is routed through the TTW canal.

Judge Tait's mussel is known historically from the Tombigbee River in a reach from Bull Mountain Creek above Amory, Mississippi, downstream to Demopolis, Alabama; the Alabama River at Claiborne and Selma, Alabama; the lower Cahaba River, Alabama; and the Coosa River, Alabama (Stansbery 1983a, Williams 1982). Shells of recently dead Judge Tait's mussel were found recently on the Buttahatchie River (Schultz 1981) and the Sipsey River. Judge Tait's mussel has not been collected from the Alabama and Cahaba Rivers since the 1800's (Stansbery 1983a) or the Coosa River since 1974, which was prior to impoundment of its habitat there (Williams 1982). Judge Tait's mussel was last collected from the mainstem Tombigbee River in 1972 (Stansbery 1983a). Habitat remaining there is marginal and remaining clams must cope with the continuing impacts of siltation, reduced water flows, water quality degradation, and possible loss of their fish host. Judge Tait's mussel is surviving in the Buttahatchie River (Schultz 1981), East Fork Tombigbee River, and Sipsey River. The species is threatened in these three Tombigbee River tributaries by a 59-mile channel improvement project in the Buttahatchie, a 53-mile clearing and snagging project in the East Fork (U.S. Army Corps of Engineers 1983), and an 84.5-mile

channel improvement project in the Sipsey River (U.S. Army Corps of Engineers 1981). The COE has the authority to spend up to $100,000 per year per stream for the removal of snags, clearing, and straightening for flood control purposes. Such a project has been carried out on the East Fork upstream of Mill Creek (U.S. Army Corps of Engineers 1984). The East Fork population is also impacted by water diversion. Bull Mountain Creek is a cool water stream that contributes nearly half the flow of the East Fork. During construction of the canal, the entire blow of Bull Mountain Creek was diverted. The cool inflow from Bull Mountain Creek will undoubtedly be warmed as it mixes with the canal water, resulting in warming of the East Fork. Changes in water temperatures can be physiologically stressful to clams, alter their food supply, and impact their fish hosts.

The stirrup shell is known historically from the Alabama River and the Tombigbee River. Museum records indicate the stirrup shell was restricted historically to the lowermost part of the Alabama River (Stansbery 1981). The lack of fresh shells or living specimens from the Alabama River for several decades indicates the likely extirpation of the stirrup shell from this portion of the historic range. This species has been collected from a reach of the Tombigbee River from near Epes, Alabama, upstream to just above the confluence of Tibbee Creek. One specimen was recently collected by Yokley in the lower Sipsey River, and a recent survey by Fish and Wildlife Service biologists found a fresh stirrup shell at the same site. The present known distribution of this clam is limited to a single Tombigbee River bendway and the Sipsey River. This limited distribution continues to be threatened by habitat modification. Impoundment of the Tombigbee River has altered water flows and increased siltation on the gravel bars. This alteration suffocated mussels with silt and may have modified habitat so as to eliminate the fish host, if the host is a riverine species that is intolerant of impoundments. The COE has a channel improvement project for 84.5 miles of the Sipsey River that includes 32 miles of clearing and snagging (U.S. Army Corps of Engineers 1981). Channel modifications adversely impact clams by alteration of the substrate, increased siltations, altered water flows, and direct mortality of mussels from dredging and snagging activities.

The penitent mussel is known historically from the Tombigbee River from the confluence of the East Fork and Bull Mountain Creek above Amory, Mississippi, downstream to Epes, Alabama; the Alabama River at Claiborne and Selma; the Cahaba River below Centreville, Alabama; and the Coosa River in Alabama and Georgia (Stansbery 1983c, Willimas 1982). Live specimens were found recently on the Buttahatchie River (Yokley 1978, Schultz 1981). The penitent mussel has not been collected from the Alabama and Cahaba Rivers since the 1800's (Stansbery 1983c) or the Coosa River since 1974, prior to impoundment of its habitat there (Williams 1982). The penitent mussel was last collected from the mainsteam Tombigbee River in 1972 (Stansbery 1983c). Remaining habitat in the Tombigbee River is in the bendway in Sumter County, Alabama. This habitat is marginal and is subject to siltation, reduced water flows, water quality degradation, and possible loss of habitat of the fish host. The penitent mussel is surviving in the Buttahatchie River (Yokley 1978, Schultz 1981) and the East Fork Tombigbee River. The species is threatened in these two Tombigbee River tributaries by a 59-mile channel improvement project in the Buttahatchie (U.S. Army Corps of Engineers 1981) and a 53-mile clearing and snagging project in the East Fork (U.S. Army Corps of Engineers 1983). The COE has the authority to spend up to $100,000 per year per stream for the removal of snags, clearing, and channel straightening for flood control purposes. Such a project has been conducted on the East Fork upstream of Mill Creek (U.S. Army Corps of Engineers 1984). The East Fork population is also impacted by water diversion. Bull Mountain Creek is a cool water stream that contributes nearly half the flow of the East Fork. During construction of the canal, the entire flow of Bull Mountain Creek was diverted. The cool inflow from Bull Mountain Creek will be warmed as it mixes with the canal water, resulting in warmer water temperatures in the East Fork. Changes in water temperatures can physiologically stress clams, alter their food supply, and impact their fish hosts.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* These rare species occur in such low numbers that collection for private collections and scientific purposes poses an additional threat. Considering the historic rarity of these species and their loss of historic habitat by construction of the TTW, collection of live specimens could result in the loss of a significant proportion of surviving individuals.

C. *Disease or predation.* There is no evidence of threats from disease or predation.

D. *The inadequacy of existing regulatory mechanisms.* These species occur in Mississippi and Alabama. Both States have regulations that require a permit to take clams. Enforcement of this regulation is very difficult and limited. Limited enforcement results from several factors, including limited enforcement resources, enforcement priorities, and the difficulty of apprehending violators. In addition, these regulations do not affect habitat degradation, the major threat to these species.

E. *Other natural or manmade factors affecting their continued existence.* Marshall's mussel is restricted to the lower half of the Tombigbee River and is found in free-flowing riffle areas (Stansbery 1983b). Construction of the TTW effectively eliminated this entire reach of free-flowing river except for the site discussed earlier The isolation of the remaining population, along with very low population size, increases vulnerability to any single adverse event. Reproduction becomes increasingly difficult at low population densities owing to the decreased concentration of gametes in the water column.

Curtus' mussel is also limited to the Tombigbee River system. The population in Pickens County Alabama, has likely been extirpated by the TTW, which leaves the East Fork Tombigbee River as the only remaining occupied habitat. The historic low numbers and difficulties in successful reproduction for such a rare species increase the likelihood of a further decline.

Judge Tait's mussel is threatened by limited range and low numbers. The four remaining populations are isolated from each other by the TTW. This effectively isolates these small gene pools and leaves them susceptible to the loss of genetic variation, and thereby limits their adaptability to changing conditions. Isolation of populations and individuals also decreases the likelihood of successful reproduction because this species depends upon water currents to transport gametes from one individual to another.

The stirrup is restricted to the Sipsey River and one site in the Tombigbee River. The Sipsey River, Tombigbee River, and the bendway in Sumter County, Alabama, support the only viable populations, and these populations are threatened by low numbers and the associated difficulties of successful reproduction.

The penitent mussel is threatened by limited range and low numbers. The remaining populations are isolated from each other by the TTW. This effectively creates isolated gene pools of small size that are therefore subject to loss of genetic variability. Isolation of populations and low density of individuals also decreases the likelihood of successful reproduction, since this species also depends upon water currents to transport gametes from one individual to another

All five species are affected by runoff of fertilizers and pesticides. Runoff of fertilizers into small streams can exceed the assimilation ability of the stream and result in algal blooms and excesses of other aquatic vegetation. This condition can produce stream eutrophication and result in the death of the native fauna. Herbicides, insecticides, fungicides, and other pesticides are easily washed from fields into streams, along with silt particles to which these substances adhere. While being transported downstream, these particles may be ingested by filter feeders, which include these native clams. Pesticide laden silt particles eventually settle to and become a part of the substrate. This increases the concentrations of pesticides in the clams' habitat.

All five species may also be adversely affected by loss of their fish hosts. Although the host fish for these particular species have not been identified, the hosts of clams from riffle habitats tend to be riffle-dwelling species (Fuller 1974) and are likely to decline or become extirpated as this habitat is modified.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these five species of clams in determining to make this rule final. Based on this evaluation, the preferred action is to list Marshall's mussel, Curtus' mussel, Judge Tait's mussel, the stirrup shell, and the penitent mussel is endangered. Endangered status is appropriate because of the loss of historic habitat in the Tombigbee River by construction of the TTW and the reduction in quality of the remaining habitat owing to reduced water velocity and resulting sedimentation. Tributary populations also face threats. Threatened status would not be appropriate because these species are restricted to very limited areas, are reduced to low numbers, and remain vulnerable to a single catastrophic event. The Tombigbee River populations are close to extinction. Critical habitat is not proposed for these species for reasons given in the next section.

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 time a species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for these five mussels at this time owing to lack of benefit from such designation. The COE is the Federal agency most involved and is already aware of the location of the remaining populations of these five species. The COE has conducted numerous studies of the Tombigbee River system fauna and is very knowledgeable of the fauna and of project impacts. No additional benefits would accrue from a critical habitat designation that do not already accrue from the listing In addition, these species are so rare that taking for scientific purposes and private collections is a threat. The publication of critical habitat maps and other publicity accompanying critical habitat designation would increase that threat. The locations of populations of these species have consequently been described only in general terms in this rule. Precise locality data are available to appropriate Federal 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. Such actions are initiated by the Service following listing. 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 result in destruction or adverse modification of 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 COE projects for flood control and navigation and Soil Conservation Service watershed projects on Tombigbee River tributary streams. The COE will conduct annual maintenance dredging for navigation on the TTW and will manage a number of the bendways for recreation and other beneficial values. This will require the maintenance of some river flow and of boat access from one or both ends of these bendways. Structural management will be required at 12 bendways. Structural management actions include blockage structures, using dredged material, at the upstream end of seven bendways to prevent sedimentation. The downstream ends of the bendways would remain open for access. The upstream ends of five bendways would be dredged initially and maintained to pre-TTW channel dimensions, plus sediment basins designed to contain the projected annual sediment deposition would be dredged and maintained (U.S. Army Corps of Engineers 1984). This management action would maintain water flows and boat access, but would require periodic dredging to remove sediment. The remaining 22 bendways will be monitored to determine the need for further structural management measures. Other COE projects that occur in rivers where these species have been found are: 84.5 miles of channel improvements and 32 miles of clearing and snagging in the Sipsey River (U.S. Army Corps of Engineers 1981); 53 miles of clearing and snagging in the East Fork (U.S. Army Corps of Engineers 1983); and 70 miles of clearing, snagging, enlargement, channels, and cutoffs in 18 streams for flood control on the Tombigbee River (U.S. Army Corps of Engineers 1983). The Soil Conservation Service has eight watersheds in operation, one in the planning stage, and one application for planning in the western tributaries of the Tombigbee River in Mississippi (U.S. Department of Agriculture 1983). Channelization activities associated with watershed projects could increase siltation and adversely affect potential habitat.

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, 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, 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, and/or for incidental take in connection with otherwise lawful activities. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship that would be suffered if such relief were not available.

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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Authors

The primary authors of this proposed rule are James H. Stewart and John J. Pulliam, III (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Regulations Promulgation

PART 17—[AMENDED]

Accordingly, Part 17, Subcapter 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: Pub. L. 93–205, 87 Stat. 884; Pub. L. 94–359, 90 Stat. 911; Pub. L. 95–632, 92 Stat. 3751; Pub. L. 96–159, 93 Stat. 1225; Pub. L. 97–304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. Amend § 17.11(h) 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, Curtis'	*Pleurobema curtum*	U.S.A. (AL, MS)	NA	E	262	NA	NA
Mussel, Judge Tait's	*Pleurobema taitianum*	U.S.A. (AL, MS)	NA	E	262	NA	NA
Mussel, Marshall's	*Pleurobema marshalli*	U.S.A. (AL, MS)	NA	E	262	NA	NA
Mussel, penitent	*Epioblasma (=Dysomia) penita*	U.S.A. (AL, MS)	NA	E	262	NA	NA
*	*	*	*	*	*	*	*
Stirrup shell	*Quadrula stapes*	U.S.A. (AL, MS)	NA	E	262	NA	NA
*	*	*	*	*	*	*	*

Dated: March 24, 1987.

Susan Recce,

Acting Secretary for Fish and Wildlife and Parks.

[FR Doc. 87–7650 Filed 4–6–87; 8:45 am]

BILLING CODE 4310-55-M

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Cambarus Zophonastes

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines a cave crayfish, *Cambarus zophonastes*, to be an endangered species under the authority contained in the Endangered Species Act of 1973, as amended. This obligate cave dweller has been found only in one cave in Stone County, Arkansas. The species does not have an accepted common name. Groundwater contamination, collecting, and low population levels represent major potential threats to *Cambarus zophonastes*. Groundwater contamination is especially important because most of the stream channels in the cave's recharge area are sinking streams, which can readily introduce pollutants or contaminants into the cave system. This determination implements the protection of the Endangered Species Act of 1973, as amended, for this cave crayfish.

DATE: The effective date of this rule is May 7, 1987.

ADDRESS: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Endangered Species Field Station, U.S. Fish and Wildlife Service, Jackson Mall Office Center, Suite 316, 300 Woodrow Wilson Avenue, Jackson, Mississippi 39213.

FOR FURTHER INFORMATION CONTACT:

Mr. Dennis B. Jordan at the above address (601/965–4900 or FTS 490–4900).

SUPPLEMENTARY INFORMATION:

Background

Cambarus zophonastes is an albinistic cave crayfish endemic to the White River Basin in north-central Arkansas (Smith 1984). This obligate cave crayfish was first collected in 1961 and described in 1964 from five specimens taken from the type locality (Hobbs and Bedinger 1964). *Cambarus zophonastes* lacks pigment in the body and eyes, which are reduced, and the overall body length reaches about 65 mm (2.5 inches). It can be distinguished from related species by the following features of its carapace: the rostrum has strongly convergent margins bearing spines, and the areola is more than 29 times longer than wide. The species is known from only the type locality, and only eight specimens are known to exist in zoological collections. A search of over 170 additional caves in north-central Arkansas failed to locate any additional populations of *Cambarus zophonastes*. A survey of 436 caves and ten springs in Missouri revealed two closely related species (*Cambarus hubrichti* and *Cambarus setosus*), but failed to reveal *Cambarus zophonastes* (Smith 1984).

The type locality is situated in the Ozark Mountains, where the cave is formed in the Plattin Limestone (Hobbs and Bedinger 1964). This cave is a solution channel, most of which is wet year-round. It contains much mud, and many of its passages are flooded during storms and wet seasons. About 150 feet (45 meters) inside the cave entrance is a pool that ranges from 1 to at least 20 feet (0.3–6 meters) in depth. A narrow, shallow stream from the cave's interior enters the pool. This stream flows through 1400 feet (425 meters) of cave passage (Smith 1984). Water exits the cave through three springs that emerge about 150 feet (45 meters) from the cave entrance. The crayfish has been found only in the cave pool. The Arkansas Natural Heritage Commission and the Nature Conservancy recently purchased a 160-acre (65-hectare) tract that includes the cave's entrance. The cave's primary recharge area covers 3.51 square miles (9 square kilometers) (Aley and Aley 1985) and is largely privately owned. Population trends for *Cambarus zophonastes* have not been documented. The largest number of individuals sighted during a single trip was 15 crayfish recorded by a scuba diver in 1983. The total population is estimated at fewer than 50 individuals (Smith 1984).

The Service published a proposed rule to list this species as endangered in the **Federal Register** (51 FR 16569) on May 5, 1986.

Summary of Comments and Recommendations

In the May 5, 1986, proposed rule (51 FR 16569) 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. Newspaper notices that invited public comment were published in the *Arkansas Gazette* on May 25, 1986, and the *Arkansas Democrat* on May 24, 1986. Comments were received from two State agencies, one conservation organization, and one individual. All four comments supported the proposed listing.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Cambarus zophonastes* 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 *Cambarus zophonastes* are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* Groundwater contamination represents a major threat to *Cambarus zophonastes*. The only known population is in a geographic area characterized by sinking streams. A sinking stream is a surface watercourse that loses significant quantities of water into the subsurface in very localized areas. Sinking streams are of extreme importance in supplying water and nutrients to caves. This rapid flow of water into caves also allows the easy introduction of pollutants. A hydrological study of the area (Aley and Aley 1985) has identified several threats to the habitat of *Cambarus zophonastes*. An electrical transmission line crosses the recharge area for this cave. The use of herbicides to clear the right-of-way for this line could contaminate the cave.

A State highway borders the recharge area for the cave and is a potential source for accidental spills of materials hazardous to water quality. A 4,000 gallon (15,140 liter) spill of gasoline occurred in March 1985. There are three industrial operations within the cave recharge area that threaten the water quality. All three operations store petroleum products that could spill or leak into the cave. One of the operations, a concrete plant, contributes silt to the cave when its sediment ponds overflow (Aley and Aley 1985). The City of Mountain View has grown rapidly and will likely expand into the topographic basin, within which some subdivision roads have already been built. Continuing development presents a major threat to water quality in the cave from the use of septic tanks to dispose of wastewater.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Obligate cave species

characteristically live longer and have considerably lower reproductive abilities than their surface relatives. Cooper (1975), in his study of crayfish in Shelta Cave, Alabama, found that female *Orconectes australis* carried only 10 to 60 attached ova, while surface species of *Orconectes* carry up to 574 attached ova. *Cambarus zophonastes* probably also has low reproductive capabilities. The removal of adults from a limited population with a likely low reproductive potential would seriously endanger the existence of the population. With a maximum of 15 individuals of *Cambarus zophonastes* ever observed and with a total population estimate of 50 individuals, the removal of any reproducing females would dramatically impact and could eliminate a year's recruitment. The limited habitat and population size make the species vulnerable to vandalism and taking.

C. *Disease or predation.* Disease and predation have not been documented for this species.

D. *The inadequacy of existing regulatory mechanisms.* This species is not recognized or protected as a rare species by any existing Federal or State regulation. Arkansas requires a scientific collecting permit for collecting any species, except taking for fish bait under other State regulations. This affords very limited protection owing to the difficulty of apprehending violators and limited resources for law enforcement.

E. *Other natural or manmade factors affecting its continued existence.* Obligate cave species apparently have very low reproductive rates, as evidenced by the limited information available on other cave species (Poulson 1961). The low fecundity is partially due to the limited energy availability in caves. The cave occupied *Cambarus zophonastes* likely served as a maternity roost site for gray bats (*Myotis grisescens*), a species listed as endangered, at one time in the past (Harvey *et al.* 1981). The abandonment of this roost site represents a loss of energy input, in the form of guano, to the cave's aquatic community. This loss of energy reduces the available food supply and may have limited or reduced the population size of *Cambarus zophonastes*. Reproduction of *Cambarus zophonastes* is further impacted by low numbers of mature individuals, which reduces genetic diversity and the likelihood of successful mating encounters. Low reproductive capabilities and the small, single population naturally limit this species' ability to recover from any adversity.

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 *Cambarus zophonastes* as endangered. Endangered status was chosen because this species is known from only one cave system with an estimated population of 50 individuals. The species is especially vulnerable to water quality degradation at this site. It therefore requires the greatest possible protection available under the Act. The reason critical habitat is not being designated is discussed in the next section.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extend prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for this species at this time. As discussed under Factor B in the "Summary of Factors Affecting the Species," *Cambarus zophonastes* is endangered by taking, an activity difficult to prevent. Publication of critical habitat descriptions would make this species even more vulnerable and increase enforcement problems. All involved parties and landowners will be notified of the location and importance or protecting the species' habitat. Protection of this species' habitat will be addressed through the recovery process and through the section 7 jeopardy standard (see below). Therefore, it would not be prudent to determine critical habitat for *Cambarus zophonastes* at this time.

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. Such actions are initiated by the Service following listing. 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 with this species is expected to be minimal. The continuing development of this region could lead to sub-surface water degradation which may involve the Environmental Protection Agency or other agencies with jurisdiction over the groundwater. The Federal Housing Administration may be required to consult with the Service on Federal loans for housing development within the cave's recharge area.

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, import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship that would be suffered if such relief were not available.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined by the National

Environmental Policy Act, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

Aley, T., and C. Aley. 1985. Water Quality Protection Studies. Hell Creek Cave, Arkansas. A contract report for the Arkansas Natural Heritage Commission.

Cooper, J.E. 1975. Ecological and Behavioral Studies in Shelta Cave, Arkansas, with Emphasis on Decapod Crustaceans. Ph.D Dissertation, University of Kentucky.

Harvey, M.J., J.J. Cassidy, and G.G. O'Hagan. 1981. Endangered Bats of Arkansas: Distribution, Status, Ecology, and Management. A report to Arkansas Game and Fish Commission, Little Rock.

Hobbs, H.H., Jr., and M.S. Bedinger. 1964. A New Troglobitic Crayfish of the Genus *Cambarus* (Decapoda, Astacidae) from Arkansas with a Note on the Range of *Cambarus cryptodytes* Hobbs. Proceedings of the Biological Society of Washington, 77:9–15.

Poulson, T.L. 1961. Cave Adaptation in Amblyopsid Fishes. Ph.D Dissertation, University of Michigan.

Smith, K.L. 1984. The Status of *Cambarus zophonastes* Hobbs and Bedinger, An Endemic Cave Crayfish from Arkansas. A status survey report for the U.S. Fish and Wildlife Service.

Author

The primary author of this final rule is James Stewart (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

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: Pub. L. 93–205, 87 Stat. 884; Pub. L. 94–359, 90 Stat. 911; Pub. L. 95–632, 92 Stat. 3751; Pub. L. 96–159, 93 Stat. 1225; Pub. L. 97–304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. Amend § 17.11(h) by adding the following, in alphabetical order under CRUSTACEANS, 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						
CRUSTACEANS							
Crayfish (no common name)	Cambarus zophonastes	U.S.A. (AR)	NA	E	263	NA	NA

Dated: March 24, 1987.

Susan Recce,

Acting Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 87–7651 Filed 4–6–87; 8:45 am]

BILLING CODE 4310–55–M

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Endangered Status for Lupinus Aridorum (Scrub Lupine)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines a plant in the pea family, *Lupinus aridorum* (scrub lupine), to be an endangered species pursuant to the Endangered Species Act of 1973 (Act), as amended. This plant has been found at only 16 sites in Orange and Polk Counties, Florida; fewer than 350 individual plants are known to exist. All sites are on privately owned property, and are highly desirable for residential and commercial development. Populations have already suffered losses from home building, road construction, off-road vehicle use, and/or land clearing for pastures and other purposes.

This rule will implement the Federal protection and recovery provisions afforded by the Act for *Lupinus aridorum.*

DATES: The effective date of this rule is May 7, 1987.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Jacksonville Endangered Species Field Station, U.S. Fish and Wildlife Service, 2747 Art Museum Drive, Jacksonville, Florida 32207.

FOR FURTHER INFORMATION CONTACT: Mr. David J. Wesley, Endangered Species Field Supervisor, at the above address, or telephone 904/791–2580 or FTS/946–2580.

SUPPLEMENTARY INFORMATION:

Background

Lupinus aridorum, a member of the pea family (Fabaceae), was first collected by Meislahn in 1900 in Orange County, Florida. It was not collected again until McFarlin found it in Polk County in 1928 and 1937. Renewed efforts by Beckner in the early 1970's, and again in the early 1980's by Beckner and Wunderlin, greatly expanded knowledge of the distribution of the species in both Orange and Polk Counties. Beckner recognized and named the species as distinct in 1982. Prior to that, the plants were variously misidentified by workers as *Lupinus diffusus* and *Lupinus westianus.* Since the plant was described as a full species by Beckner, there have been no alternative taxonomic treatments.

Lupinus aridorum is a biennial or short-lived perennial growing from a soft woody base; the stems are up to one meter (3 feet) tall. Its leaves are obovate-elliptic in shape, 4–7 centimeters (1.5–2.8 inches) long, and 2–4 centimeters (0.8–1.5 inches) wide. The ends of the leaves are rounded with sharp pointed tips and the bases are rounded; the upper and lower surfaces are covered with silvery hairs. The petioles are 2–4.5 centimeters (0.8–1.8 inches) long; the stipules are very small. The inflorescences are racemose with stalks 4–13 centimeters (1.5–5.2 inches) long, and the flowering portion 4–15 centimeters (1.5–5.8 inches) long. The petals are pale flesh-pink except for the standard, which has a black center surrounded by a maroon-red area. The standard is about 1.5 centimeters (0.5 inch) long, the wing petals about 1.4 centimeters (0.5 inch) long, and the keel petals slightly shorter. The fruit is 2–2.5 centimeters (0.8–1.0 inch) long, woody, and elliptic in shape, tapering to a sharp apex.

Lupinus aridorum is distinctive in the field, being the only upright pink-flowered lupine in Florida. It is further distinguished from the only other pink-flowered lupine, the prostrate *Lupinus villosus,* by the lack of long, shaggy hairs on stems and leaves, and vestigial

(rather than large and conspicuous) stipules. It is most closely related to *Lupinus westianus* of the Florida panhandle, but differs in flower color, *Lupinus westianus* having blue flowers.

Lupinus aridorum is endemic to central Florida. It is known from Orange County, between the city of Orlando and Walt Disney World, and from Polk County, between Winter Haven and Auburndale. Recently N.J. Bissett, a Winter Haven horticulturist, (pers. comm. 1986) reported that there is also a "fairly sparse population" visible from State road 64, west of the Avon Park Bombing Range in Polk County. The scrub lupine is a sand pine scrub species that grows primarily in well drained sandy soils of the Lakewood or St. Lucie series. The sands are white or occasionally yellow where the turkey oak woods have invaded the sand pine scrub. The tree layer may be a mixture of *Pinus clausa* (sand pine), *Pinus elliotii* (slash pine), and *Quercus laevis* (turkey oak) (Wunderlin 1982). The scrub layer is usually sparse which many be the result of disturbance at many of the sites where the lupine occurs. The most frequent shrubs include *Ceratiola ericoides* (rosemary), *Quercus geminata* (scrub live oak), *Lyonia ferruginea* (rusty lyonia), *Palafoxia feayi, Ximenia americana* (tallowwood), and scattered *Sabal palmetto* (cabbage palm). The herbaceous layer is dominated by *Aristida stricta* (wiregrass) intermixed with *Pityopsis graminifolia, Helianthemum nashii, Rhynchospora megalocarpa, Bonamia grandiflora, Polygonella myriophylla,* and *Opuntia humifusa* (prickly-pear cactus). In the open areas, *Selaginella arenicola* (sand spikemoss) is often common. All currently known populations of *Lupinus aridorum* are on privately owned land. They are in danger of extirpation because they occur in two of the most rapidly growing areas of Florida.

On December 15, 1980, the Service published in the **Federal Register** (45 FR 82480) its Review of Plant Taxa for Listing as Endangered or Threatened. On November 28, 1983 (48 FR 53640), the Service published a supplement to this review. *Lupinus aridorum,* which had not been named when the 1980 review was published, was listed in the 1983 supplement as a category 2 species (those candidate species for which the Service needs additional information before proceeding with a proposal). The 1985 updated version of the review (September 27, 1985; 50 FR 39526) included *Lupinus aridorum* as a category 1 species (those candidate species for which the Service possesses information indicating listing is appropriate).

All plant taxa included in the 1980 review, 1983 supplement, and 1985 review, are treated as being under petition. Section 4(b)(3)(B) of the Endangered Species Act, as amended in 1982, requires the Service to make findings on pending petitions within 12 months of their receipt. On October 12, 1984, and again on October 11, 1985, the Service made its 12-month finding that listing of *Lupinus aridorum* was warranted, and that although proposal of other higher priority species had precluded its proposal, expeditious progress was being made to add other species to the list. Biological data, supplied by Wunderlin in 1984, fully supported a proposed rule listing *Lupinus aridorum* as endangered, and on April 24, 1986, the Service published the proposed rule which constituted the next 12-month finding for this species.

Summary of Comments and Recommendations

In the April 24, 1986, proposed rule (51 FR 15514) 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. Newspaper notices that invited general public comment were published in the *Orlando Sentinel* and the *Winter Haven News Chief.* The following six comments were received concerning the proposal.

The Florida Department of Agricultural and Consumer Services, and the Bok Tower Gardens, Lake Wales, Florida, fully supported the listing of *Lupinus aridorum* as endangered. The Florida Department of Environmental Regulation determined that the proposed listing was consistent with the Florida Coastal Management Program. The Florida State Clearing House, in compliance with Presidential Executive Order #12372 and the Governor's Executive Order 85–150, noted that the action was in accord with State plans, programs, procedures, and objectives. The International Union for Conservation of Nature and Natural Resources wrote that it had no additional data on the status of *Lupinus aridorum,* but appreciated receiving the detailed considerations published in the proposal. Nancy J. Bissett, a Winter Haven horticulturist, supported the listing, and reported a new site for the species on State road 64, west of the Avon Park Bombing Range in Polk County.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Lupinus aridorum* 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 *Lupinus aridorum* McFarlin ex Beckner (scrub lupine) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range. Lupinus aridorum* is known from only 16 sites (Wunderlin 1984, Bissett 1986 pers. comm.). Ten of these are in Orange County between the city of Orlando and Walt Disney World. Orlando has been, and continues to be, one of the most rapidly growing cities in Florida. The sites on which scrub lupines are growing are prime property for development. Six sites for *Lupinus aridorum* are in Polk County, near the towns of Winter Haven, Auburndale, and Avon Park. These are also rapidly expanding communities whose growth threatens the continued existence of the species.

Altogether, fewer than 350 plants of *Lupinus aridorum* are thought to exist, most of which occur in habitats that have already been highly modified, or are threatened by housing developments, road construction and maintenance, conversion to pastureland, and pedestrian, horse, and off-road vehicular traffic. One site occurs on highway right-of-way lands; all other sites are privately owned and subject to development or modification by the landowners at any time.

B. *Overutilzation for commercial, recreational, scientific, or educational purposes.* Although the scrub lupine has not been in commercial trade, it is a large and attractive plant when in bloom and has the potential to be used as a decorative landscape addition. The attractive nature of the scub lupine, and its potential for landscaping use, is emphasized by the fact that at one site, where a single large plant, seven feet in diameter, was growing, the landowner actually divided a fence he was building in order to avoid destroying it (Wunderlin 1984). The scrub lupine is only sporadically collected for scientific purposes.

C. *Disease or predation.* Not applicable.

D. *The inadequacy of existing regulatory mechanisms. Lupinus aridorum* is listed as endangered under the Preservation of the Native Flora of Florida Law (Section 581.185 of the Florida Statutes). This Florida law regulates taking and the intrastate sale of plants, but it does not provide habitat protection.

E. *Other natural or manmade factors affecting its continued existence.* The scrub lupine is restricted in distribution and occurs in relatively small numbers (largest site has fewer than 100 plants). Such rarity increases the species' vulnerability to disturbance and natural disasters.

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 *Lupinus aridorum* as endangered. It occurs in three small disjunct population centers (Orlando area, Winter Haven area, and Avon Park area), and is known from only 16 sites. Human population pressures in all three areas are increasing annually. Currently, all 16 known populations are on private lands and their continued existence is not secure. Critical habitat is not determined for the scrub lupine for reasons discussed in the "Critical Habitat" section below.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate any habitat of a species which is considered to be critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for *Lupinus aridorum* at this time. This species is a large plant which bears attractive pink flowers. There are indications that it might be a desirable species for landscaping purposes. In addition, it occurs very near areas of high human concentration where it could readily be located and vandalized. The identification of the precise sites where populations occur, through publication of critical habitat descriptions and maps in the **Federal Register**, might increase the threats to the species. It would be difficult to safeguard it from curiosity seekers or vandals. In addition, critical habitat benefits apply only when Federal activities and/or Federal lands are involved. The scrub lupine occurs only on privately owned lands where no Federal involvements are known at present. Therefore, there would be no benefits to this species by a designation of critical habitat. Because of these factors, the Service finds that a designation of critical habitat for *Lupinus aridorum* is not prudent.

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. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking 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 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 the Service. Since all presently known sites for *Lupinus aridorum* are on privately owned land, there will be no effect from the above requirement unless a private activity requires some Federal action, such as funding or issuance of permits.

Section 9 of the Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general trade prohibitions and exceptions that apply to all endangered plants. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export endangered plants, transport such in interstate or foreign commerce in the course of a commercial activity, sell or offer them for sale in interstate or foreign commerce, or remove them from areas under Federal jurisdiction and reduce them to possession. Certain exceptions can apply to agents or the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances. With respect to *Lupinus aridorum*, it is anticipated that few trade permits will ever be sought or issued since the species is not known to be in cultivation and is scarce in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Federal Wildlife Permit Office, U.S. Fish and Wildlife Service, Washington, DC 20240 (703/235–1903).

National Environmental Policy Act

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

References Cited

Beckner, J. 1982. *Lupinus aridorum* J.B. McFarlin ex Beckner (Fabaceae), a new species from central Florida. Phytologia 50:209–211.

Wunderlin, R.P. 1982. Guide to the vascular plants of central Florida. University Presses of Florida, 472 pp.

Wunderlin, R.P. 1984. Endangered and threatened plant status survey, *Lupinus aridorum* McFarlin ex Beckner. Unpublished report prepared under contract with U.S. Fish and Wildlife Service.

Author

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List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Regulations 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: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. Amend § 17.12(h) by adding the following, in alphabetical order under Fabaceae, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species						
Scientific name	Common name	Historic range	Status	When listed	Critical habitat	Special rules
FABACEAE—PEA FAMILY						
Lupinus aridorum	Scrub lupine	U.S.A. (FL)	E	264	N/A	N/A

Dated: March 24, 1987.

Susan Recce,

Acting Assistant Secretary for Fish and Wildlife and Parks.

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