

that existed prior to the direct final rule, and returning the 1992 Regulation #19 submittal to the State, thereby mooted the proposed approval action. No further action will be taken by EPA on this September 14, 1992, SIP revision submittal. The Arkansas regulations approved by EPA in 1975 and last approved by EPA at 40 CFR 52.170(c)(27) in 1991 will continue to be the Arkansas SIP-approved regulations.

**EFFECTIVE DATE:** June 17, 1998.

**FOR FURTHER INFORMATION CONTACT:** Bill Deese, Air Planning Section (6PD-L), Environmental Protection Agency, 1445 Ross Avenue, Dallas, Texas 75202, Telephone (214) 665-7253.

**SUPPLEMENTARY INFORMATION:** See the information provided in the direct final rule located in the final rules section and the short informational document located in the proposed rules section of the April 10, 1998, **Federal Register**.

#### List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Carbon monoxide, Hydrocarbons, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Sulfur oxides, Volatile organic compounds.

Dated: June 8, 1998.

**Gregg A. Cooke,**  
Regional Administrator, Region 6.

For the reasons set out in the preamble 40 CFR part 52 is amended as follows:

#### PART 52—[AMENDED]

1. The authority citation for part 52 continues to read as follows:

**Authority:** 42 U.S.C. 7401 et seq.

#### § 52.170 [Amended]

2. Section 52.170 is amended by removing paragraph (c)(29).

3. Section 52.181 is amended by revising paragraph (a) to read as follows:

#### § 52.181 Significant deterioration of air quality.

(a) The plan submitted by the Governor of Arkansas on April 23, 1981 [as adopted by the Arkansas Commission on Pollution Control and Ecology (ACPCE) on April 10, 1981], June 3, 1988 (as revised and adopted by the ACPCE on March 25, 1988), and June 19, 1990 (as revised and adopted by the ACPCE on May 25, 1990), Prevention of Significant Deterioration (PSD) Supplement Arkansas Plan of Implementation For Air Pollution Control, is approved as meeting the requirements of Part C, Clean Air Act for

preventing significant deterioration of air quality.

\* \* \* \* \*

[FR Doc. 98-16080 Filed 6-16-98; 8:45 am]

BILLING CODE 6560-50-U

## FEDERAL COMMUNICATIONS COMMISSION

### 47 CFR Part 73

#### Radio Broadcasting Services; Various Locations

**AGENCY:** Federal Communications Commission.

**ACTION:** Final rule.

**SUMMARY:** The Commission, on its own motion, editorially amends the Table of FM Allotments to specify the actual classes of channels allotted to various communities. The changes in channel classifications have been authorized in response to applications filed by licensees and permittees operating on these channels. This action is taken pursuant to *Revision of Section 73.3573(a)(1) of the Commission's Rules Concerning the Lower Classification of an FM Allotment*, 4 FCC Rcd 2413 (1989), and the *Amendment of the Commission's Rules to permit FM Channel and Class Modifications [Upgrades] by Applications*, 8 FCC Rcd 4735 (1993).

**EFFECTIVE DATE:** June 17, 1998.

**FOR FURTHER INFORMATION CONTACT:** Kathleen Scheuerle, Mass Media Bureau, (202) 418-2180.

**SUPPLEMENTARY INFORMATION:** This is a summary of the Commission's Report and Order, adopted May 29, 1998, and released June 5, 1998. The full text of this Commission decision is available for inspection and copying during normal business hours in the Commission's Reference Center (Room 239), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, Inc., 1231 20th Street, NW, Washington, DC. 20036, (202) 857-3800, facsimile (202) 857-3805.

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

Radio broadcasting.

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

#### PART 73—[AMENDED]

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

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

#### § 73.202 [Amended]

2. Section 73.202(b), the Table of FM Allotments under Arizona, is amended by removing Channel 285C3 and adding Channel 285C2 at Willcox.

3. Section 73.202(b), the Table of FM Allotments under Iowa, is amended by removing Channel 298A and adding Channel 298C3 at Castana.

4. Section 73.202(b), the Table of FM Allotments under Missouri, is amended by removing Channel 260A and adding Channel 260C3 at Macon.

5. Section 73.202(b), the Table of FM Allotments under Oklahoma, is amended by removing Channel 295C1 and adding Channel 294C1 at Clinton.

Federal Communications Commission.

**John A. Karousos,**

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

[FR Doc. 98-16068 Filed 6-16-98; 8:45 am]

BILLING CODE 6712-01-P

## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 17

#### Endangered and Threatened Wildlife and Plants; Notice of Determination To Retain Endangered Status for the Bruneau Hot Springsnail in Southwestern Idaho Under the Endangered Species Act

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Notice of determination.

**SUMMARY:** The U.S. Fish and Wildlife Service, in a court-ordered reconsideration of the 1993 final listing decision, affirms its earlier determination that listing the Bruneau Hot Springsnail (*Pyrgulopsis bruneauensis*) as endangered is appropriate. Federal protection pursuant to the Endangered Species Act of 1973 (Act), as amended, for the Bruneau Hot Springsnail is thus continued. This species occurs only in a complex of flowing thermal springs arising from a single source aquifer along the Bruneau River in Owyhee County, Idaho. Bruneau Hot Springsnails are not known to occur elsewhere and have not been located outside of the thermal plumes of hot springs entering the Bruneau River. The primary threat to this species is the reduction of thermal spring habitats from agricultural-related ground water withdrawal/pumping.

**DATES:** The effective date of this notice is June 17, 1998.

**ADDRESSES:** The complete file for this notice is available for inspection, by appointment, during normal business hours at the Snake River Basin Office, U.S. Fish and Wildlife Service, 1387 S. Vinnell Way, Room 368, Boise, Idaho 83709.

**FOR FURTHER INFORMATION CONTACT:** Robert Ruesink at the above address, 208/378-5243.

**SUPPLEMENTARY INFORMATION:**

**Background**

This notice of determination is in response to a June 29, 1995, U.S. Court of Appeals for the Ninth Circuit (Court) decision directing the Service to reconsider the listing of the Bruneau Hot Springsnail (*Idaho Farm Bureau Federation v. Babbitt*, 58 F.3d 1392 (1995)). In its ruling, the Court directed the Service to provide the public with “\* \* \* notice and a period in which to comment on the U.S. Geological Survey’s (USGS) \* \* \* 1993 report and “\* \* \* also provide the public with any other new information \* \* \*” the Service planned to consider. The Court further stated that the public could submit any other information relevant to determining whether the Bruneau Hot Springsnail should continue to be listed as endangered. The following determination is based on a review of all existing information used in the original 1993 listing rule, and new information received since that time, including information contained in written comments received during three public comment periods, totaling 218 days.

**Current Status**

Boys Malkin first collected the Bruneau Hot Springsnail in thermal springflows at the Indian Bathtub in upper Hot Creek along the Bruneau River in 1952 (Hershler 1990). The following year, W.F. Bar collected additional specimens, which were sent to J.P. Morrison of the U.S. National Museum in Washington, D.C. (now the National Museum of Natural History) (Hershler 1990). Taylor (1982) pursued subsequent field and laboratory studies of this species from 1959 through 1982. Based on these studies, Taylor prepared a brief physiological and biological description of the species and suggested the common name of the Bruneau Hot Spring Snail. In 1990, Robert Hershler formally described the species from type specimens collected from the Indian Bathtub in Hot Creek, naming it *Pyrgulopsis bruneauensis*, with a new common name of Bruneau Hot Springsnail (Hershler 1990).

Adult Bruneau Hot Springsnails have a small, globose to low-conic shell

reaching a length of 5.5 millimeters (mm) (0.22 inch (in.)) with 3.75 to 4.25 whorls. Fresh shells are thin, transparent, white-clear, appearing black due to pigmentation (Hershler 1990). In addition to its small size (less than 2.8 mm (0.11 in.) shell height), distinguishing features include a verge (penis) with a small lobe bearing a single distal glandular ridge and elongate, muscular filament. They are dioecious (individuals are either male or female) and lay single round to oval eggs on hard surfaces such as rock substrates or other snail shells (Mladenka 1992).

The species occurs in flowing thermal (hot) springs and seeps with water temperatures ranging from 15.7° Celsius (C) (60.3° Fahrenheit (F)) to 36.9° C (98.4° F) (Mladenka and Minshall 1996). The highest Bruneau Hot Springsnail densities (greater than 1000 individuals per square meter (m<sup>2</sup>) (100 per square foot (ft<sup>2</sup>)) occur at temperatures ranging from 22.8° C (73° F) to 36.6° C (98° F) (Mladenka and Minshall 1996). Bruneau Hot Springsnails have not been located outside thermal plumes of hot springs entering the Bruneau River. They occur in these habitats on the exposed surfaces of various substrates, including rocks, gravel, sand, mud, algal film and the underside of the water surface (Mladenka 1992). However, during the winter period of cold ambient temperatures and icing, Bruneau Hot Springsnails are most often located on the undersides of outflow substrates, habitats least exposed to cold temperatures (Mladenka 1992). In madicolous habitats (thin sheets of water flowing over rock faces), the species has been found in water depths less than 1 centimeter (cm) (0.39 in.). Current velocity is not considered a significant factor limiting Bruneau Hot Springsnail distribution, since they have been observed to inhabit nearly 100 percent of the available current regimes (Mladenka 1992). In a September 1989 survey of 10 thermal springs in the vicinity of the Hot Creek-Bruneau River confluence, the total number of Bruneau Hot Springsnails per spring ranged from 1 to 17,319 (Mladenka 1992). The species abundance fluctuates seasonally but is generally stable under persistent springflow conditions (Mladenka 1992; Robinson, et al. 1992; Royer and Minshall 1993; Varricchione and Minshall 1995; Varricchione and Minshall 1996; Varricchione and Minshall 1997). Depending on site conditions, abundance is influenced primarily by temperature, spring

discharge, and chlorophyll ratios (Mladenka 1992).

Based on the most recent survey in 1996, Bruneau Hot Springsnails were found in 116 of 204 small, flowing thermal springs and seeps along an approximately 8 kilometer (km) (5 mile (mi)) length of the Bruneau River in southwestern Idaho (Mladenka and Minshall 1996). Surveys conducted since 1991 indicate a general decline in the number of occupied sites from a total of 130 occupied springs to the current 116 springs, representing a 10 percent decrease (Mladenka 1992, 1993; Mladenka and Minshall 1996). The majority (n = 86) of occupied springs are located upstream of the confluence of Hot Creek with the Bruneau River (Mladenka and Minshall 1996). In 1996, Bruneau Hot Springsnail occurred in an additional 10 spring sites at the confluence of Hot Creek and 20 sites downstream (Mladenka and Minshall 1996). Since 1991, the total number of thermal springs in the Bruneau River has decreased by approximately 5 percent (from 214 to 204), the number of springs occupied by Bruneau Hot Springsnails has decreased by 10 percent (from 130 to 116), and the total surface area of springs occupied by Bruneau Hot Springsnails has decreased by 13 percent (from 496 to 430.2 m<sup>2</sup> (5338.9 to 4630.7 ft<sup>2</sup>)) (Mladenka and Minshall 1996).

Total site area (including all thermal springs and seeps, occupied and unoccupied by Bruneau Hot Springsnails) increased by 4.3 percent from 1991 to 1996 (Mladenka and Minshall 1996). Most of this increase was due to lower flows at one unoccupied spring site, resulting in more exposure of thermal outflow area below Buckaroo Dam, downstream of the majority of the occupied springs (Mladenka and Minshall 1996). Further analysis of the total spring surface area shows that from 1991 through 1996, there was a 32 percent decrease at upper (above the confluence with Hot Creek) occupied spring sites versus a 41 percent increase in lower occupied springs (Mladenka and Minshall 1996). Most of the thermal springs and seeps containing Bruneau Hot Springsnails are small and occur mainly upstream of the confluence of Hot Creek with the Bruneau River. From 1991 to 1996, the number of occupied sites decreased 20 percent (107 to 86) upstream of the confluence of Hot Creek with the Bruneau River, decreased 17 percent (12 to 10) at the confluence, and increased 45 percent (11 to 20) downstream of the confluence. Many of the thermal springs located in the downstream section are unsuitable as habitat for the Bruneau

Hot Springsnail, due to high temperatures (greater than 37° C (98.6° F)). Surveys completed by Mladenka and Minshall in 1993 and 1996 found the size of occupied sites ranged from 0.1 m<sup>2</sup> (1 ft<sup>2</sup>) to 120 m<sup>2</sup> (1291.9 ft<sup>2</sup>) in 1993 and from 0.02 m<sup>2</sup> (0.22 ft<sup>2</sup>) to 84 m<sup>2</sup> (904 ft<sup>2</sup>) in 1996 (Mladenka 1993; Mladenka and Minshall 1996).

Bruneau Hot Springsnails prefer areas of locally warm water. Mladenka (1992) found, however, that there is a maximum thermal tolerance limit of 35 °C (95 °F), and that few Bruneau Hot Springsnails occurred in cooler springs, with minimum temperatures to 15.7 °C (60.3 °F). Springs with cooler minimum temperatures are likely warmer in the summer (greater than 20 °C (68 °F)), providing the species opportunities for increased growth and reproduction (Mladenka 1992). Temperature extremes affect both abundance and recruitment of Bruneau Hot Springsnails (Mladenka 1992).

Spring sites occupied by Bruneau Hot Springsnail are located primarily above the high-water mark of the Bruneau River. Some of the Bruneau Hot Springsnail colonies are separated by distances of less than 1 meter (m) (3.28 feet (ft)) (Mladenka and Minshall 1996). The Bureau of Land Management (BLM) measured spring outflow elevations at 12 thermal springs from November 1993 to December 1993 (J. David Brunner, BLM, *in litt.* 1994). Due to time constraints, thermal springs that were measured for elevations represented the upper and lower most springs within the Bruneau River corridor, a few thermal springs in between, and the Indian Bathtub spring. Spring elevations ranged from 803.7 m (2636.9 ft) to 815.7 m (2676.1 ft) (Brunner, *in litt.* 1994). Of the 12 thermal springs measured, 2 were not occupied by Bruneau Hot Springsnail. The Indian Bathtub (the type locality) occurs at an elevation of 814.7 m (2672.9 ft) and the uppermost thermal spring site occurs at 815.7 m (2676.61 ft).

The hot springs and seeps that occur along the Bruneau River are outflows of the Bruneau Valley geothermal aquifer (Berenbrock 1993). Based on studies conducted by Mladenka (1992) and Varricchione and Minshall (1997), seasonal fluctuations in water discharge (flow over rockfaces) and water temperatures occur at some occupied spring sites. Discharge fluctuations correspond with pumping; lower flows in the late spring to early fall when the need for pumping is greatest, and higher flows during late fall to spring when the need for pumping is lowest. Temperatures can affect Bruneau Hot Springsnail recruitment; reproduction

usually occurs between 20° and 35 °C (68° and 95 °F), but growth and reproduction is retarded at temperatures cooler than 24 °C (75.2 °F) (Mladenka 1992).

The Indian Bathtub area (now covered with sediment) and most of the thermal springs along the Bruneau River upstream of Hot Creek are on lands administered by the BLM, while most Bruneau Hot Springsnail habitats downstream of the Indian Bathtub and Hot Creek are on private land.

The Indian Bathtub spring and its outflow, Hot Creek, represent the type localities of the Bruneau Hot Springsnail. Taylor (1982) found that the Bruneau Hot Springsnail population and its habitat at the Hot Creek/Indian Bathtub spring site had been reduced by more than 90 percent from 1954 to 1981. Taylor (1982) noted in 1981 that the remaining Bruneau Hot Springsnail population at the Indian Bathtub spring occurred on vertical rock cliffs (rockface sites) protected from flash flood events. Varricchione and Minshall (1997) found that "The rockface sites are probably more suitable for Bruneau Hot Springsnail success \* \* \*" because they provide the necessary substrate for reproduction. In 1964, spring discharge at the Indian Bathtub spring was approximately 9,300 liters per minute (L/min) (2,400 gallons per minute (gal/min)). By 1978, discharge had dropped to between 503.8 to 627.8 L/min (130 to 162 gal/min) (Young et al. 1979). By the summer of 1990, discharge was zero during the summer and early fall (Berenbrock 1993). Taylor (1982) speculated that this reduction in rockface seep flows would leave the Bruneau Hot Springsnail vulnerable to the occasional flash-flood events known to occur in the Hot Creek drainage.

Today, water from the Indian Bathtub sinks below the ground surface and reemerges about 300 m (984.3 ft) below the bathtub area (Varricchione and Minshall 1997). In 1991, a flash flood event occurred sending large amounts of sediment into the Hot Creek drainage and resulting in a 50 percent reduction in the size of the Indian Bathtub (a portion of which is now covered by approximately 10 feet of sediment) (Mladenka 1992). Rockface habitat in the immediate vicinity of Indian Bathtub was also severely reduced and covered with sediment during this and other flash flood events (Mladenka 1992). Ongoing population monitoring studies indicate a lack of movement or recruitment of Bruneau Hot Springsnails back to the original Hot Creek/Indian Bathtub sites (Varricchione and Minshall 1997). Varricchione and Minshall (1997) suggest several factors

including unsuitable substrate type (primarily silt and sand, with little to no available rockface surfaces), weak migration abilities, fish predation, and a lack of an upstream colonization that may have prevented the Bruneau Hot Springsnails from returning to the upper Hot Creek and Indian Bathtub sites. Visible spring discharge at the Indian Bathtub continues to be low, ranging from 5.9 and 11 liters per second (0.21 and 0.39 cubic feet per second) and is intermittent in most years (Varricchione and Minshall 1997; Derrill J. Cowing, USGS, *in litt.* 1996).

The Bruneau Hot Springsnails appear to be opportunistic grazers feeding upon algae and other periphyton in proportions similar to those found in their habitat (Mladenka 1992). However, Bruneau Hot Springsnail densities are lowest in areas of bright green algal mats, while higher Bruneau Hot Springsnail densities occur where periphyton communities are dominated by diatoms (Mladenka 1992). Diatoms may provide a more nutritious food source than other food types and their presence may explain higher snail densities in such areas (Gregory 1983; Mladenka 1992). Bruneau Hot Springsnails may select for general food quality rather than selecting for individual food items. Mladenka (1992) noted that fluctuations in Bruneau Hot Springsnail abundance corresponded with changes in food quality based on chlorophyll content.

Sexual maturity can occur within 2 months, with a sex ratio approximating 1:1. Reproduction occurs throughout the year except when inhibited by high or low temperatures (Mladenka 1992). Reproduction occurs at temperatures between 24° to 35 °C (75.2° to 95 °F) (Mladenka 1992). At sites affected by high ambient temperatures during summer and early fall months, recruitment corresponds with cooler periods. Sites with cooler ambient temperatures also exhibit recruitment during the summer months. Bruneau Hot Springsnails use "hard" surfaces such as rock substrate to deposit their eggs, or they may deposit eggs on other snail's shells when suitable substrates are unavailable (Mladenka 1992).

Mladenka (1992) believed that some natural transfer of Bruneau Hot Springsnails may occur among sites. The mechanisms for dispersal possibly include waterfowl passively carrying Bruneau Hot Springsnails up or down the river corridor and spates (a sudden overflow of water resulting from a downpour of rain or melting of snow) in the Bruneau River that would carry Bruneau Hot Springsnails into other warm spring areas downstream. Thus,

dispersal would favor upstream to downstream genetic exchange (Mladenka 1992).

Common aquatic community associates of the Bruneau Hot Springsnail include three molluscs, *Physella gyrina*, *Fossaria exigua*, and *Gyraulus vermicularis*; the creeping water bug (*Ambrysus mormon minor*); and the skiff beetle (*Hydrosapha natans*) (Bowler and Olmstead 1991). In addition, Hot Creek and several of the thermal springs along the Bruneau River support populations of exotic guppies, (*Poecilia reticulata* and *Tilapia* sp.). Guppies were apparently originally released into upper Hot Creek at the Indian Bathtub, from which they spread downstream and into nearby thermal springs and seeps along the Bruneau River (Bowler and Olmstead 1991).

The Bruneau study area, delineated by Berenbrock (1993), was purposely limited geographically to focus on the hydrology of the regional geothermal aquifer system where the effects of pumping on thermal springs discharge may be occurring. Specifically, the USGS implemented a study of the geohydrology of the Bruneau area, including ground water recharge, discharge, movement and hydraulic head; and determined the effects of ground water pumping on hydraulic heads and spring flows that could affect the Bruneau Hot Springsnail and its habitat. Thermal spring habitats of the Bruneau Hot Springsnail are formed as a result of water discharging from faults or fractures originating from the underlying, confined volcanic-rock (geothermal) aquifer (Berenbrock 1993). These natural, artesian vents discharge at the ground surface where the ground surface level or elevation is lower than the potentiometric or hydraulic head of the geothermal aquifer. Berenbrock (1993) has developed a conceptual model of the geothermal aquifer system that characterizes the geohydrology of the aquifer system in the Bruneau study area. Using both direct and indirect evidence, the model describes the hydraulic connection between the large aquifer system underlying the Bruneau study area and the series of thermal springflows along the Bruneau River containing Bruneau Hot Springsnails. The 1554 square kilometer (km<sup>2</sup>) (600 square mile (mi<sup>2</sup>)) Bruneau study area encompasses the Bruneau, Little and Sugar valleys in north-central Owyhee County and is underlain with hydraulically connected sedimentary and volcanic rocks that together form a regional geothermal aquifer.

In general, ground water in the geothermal aquifer originates from natural recharge from precipitation in

and around the Jarbidge and Owyhee mountains south of the Bruneau study area (Young and Lewis 1982, Mink 1984). Ground water flows northward from volcanic rocks to sedimentary rocks where it is discharged as either natural springflow, ground water well withdrawals, or leaves the area as underflow (Berenbrock 1993). Natural recharge to the regional geothermal aquifer underlying the 1554 km<sup>2</sup> (600 mi<sup>2</sup>) Bruneau area was estimated to be approximately 70,281 cubic dekameters (dam<sup>3</sup>) (57,000 acre-feet (ac-ft)) (Berenbrock 1993). Prior to extensive ground water development, approximately 12,453 dam<sup>3</sup> (10,100 ac-ft) was discharged from springflows. The estimated recharge amount is a minimum value because 10 percent of the contributing area was not estimated due to inadequate data being available (Berenbrock 1993).

Ground water withdrawals from wells for domestic and agricultural purposes began during the late 1890's (Berenbrock 1993). From 1890 to 1978, well discharge increased from zero to approximately 50,059.8 dam<sup>3</sup> (49,900 ac-ft) per year. Changes in discharge from thermal springs corresponds with changes in hydraulic head, which fluctuate seasonally and are substantially less during late summer than in the spring (Berenbrock 1993). Water in the volcanic-rock in the northern part of the study area near Hot Creek is confined by the overlying sedimentary rocks, with temperatures at the surface ranging from 15 °C to more than 80 °C (59 to 176 °F) (Young et al. 1979).

Berenbrock (1993) described both the geothermal aquifer as well as a shallow, unconfined cold-water aquifer within the upper layer of sedimentary rock. This "second" aquifer system is recharged from the infiltration of precipitation, streamflow, and applied irrigation water. Both Mink (1984) and Berenbrock (1993) indicated that there may be recharge from upward-moving geothermal water into the cold-water aquifer. Mink (1984) also believes that additional recharge to the shallow water aquifer may be occurring through leaks in irrigation wells. Mink (1984) believed that leaks from uncased or poorly cased wells were an additional reduction in water levels in the geothermal aquifer.

#### Previous Federal Actions

Dr. Dwight Taylor carried out a field survey of the status of the Bruneau Hot Springsnail in 1981 and 1982. His status report, received by the Service on November 3, 1982, was the basis for the placement of this species on the Service's comprehensive notice of

review on invertebrate candidate species published in the **Federal Register** (49 FR 21664) on May 22, 1984. A candidate species is a species for which the Service has substantial information on hand to support the biological appropriateness of proposing to list as endangered or threatened. The Service first proposed the Bruneau Hot Springsnail for listing as endangered on August 21, 1985 (50 FR 33803). The comment period on this proposal, which originally closed on October 21, 1985, was extended to December 31, 1985 (50 FR 45443). To accommodate public hearings in Boise and Bruneau, Idaho, the comment period was reopened until February 1, 1986 (50 FR 51894). At the time of the hearings and subsequently, the Idaho Department of Water Resources (IDWR) and others questioned the Service's analysis of available scientific information. In particular, IDWR believed that surveys of available habitat were incomplete and the analysis of human induced impacts, such as pumping, was erroneous. To address these concerns and to solicit additional information, on December 30, 1986, the Service reopened the public comment period until February 6, 1987 (51 FR 47033).

Following the extension of the comment period in which the IDWR proposed additional biological and hydrological studies in the Bruneau-Grandview area, a decision was agreed upon by two former Idaho U.S. Senators and the Service to develop a multi-agency cooperative conservation plan for the Bruneau Hot Springsnail. In 1987, the U.S. Congress appropriated additional monies to the Service to fund these studies. Information developed from these studies was to be used to develop a cooperative conservation (management) plan to conserve and protect the Bruneau Hot Springsnail, precluding the need to list the species under the Act. Three agencies conducted these studies: IDWR, USGS, and Idaho State University (ISU). The IDWR was funded to: (1) prepare a Geographic Information System for the study area to provide a detailed information base from which to derive management decisions, including existing data and data to be developed by USGS and ISU; (2) prepare geological maps to define the bedrock geology and record the location, elevation, flow and temperature of area springflows; and (3) evaluate and analyze Federal and State laws applicable to a conservation plan for Bruneau Hot Springsnails and assess management alternatives open to the IDWR to protect Bruneau Hot Springsnail habitats. The USGS was

funded to develop and implement a three-phase ground water study of the Bruneau River valley and basin. The study focused on describing the hydrology of the regional geothermal aquifer system and associated thermal springs, with an overall goal to determine the cause of declining springflows affecting the Bruneau Hot Springsnail and its habitat. Finally, funds were provided to ISU to study the biological, ecological, and physiological needs of the Bruneau Hot Springsnail.

The Service entered into a short-term conservation easement with Owen Ranches, Inc., landowners of the Bruneau Hot Springsnail's habitat in Indian Bathtub spring. The conservation agreement included fencing, through funds provided by the Service, to regulate livestock use and improve stream conditions. Although the agreement expired in October 1992, the current landowner has honored the terms of the agreement and voluntarily excludes livestock grazing from the Indian Bathtub spring.

On July 6, 1992, the Idaho Conservation League and the Committee for Idaho's High Desert filed a lawsuit over the failure of the Service to make a determination and publish in the **Federal Register** a decision regarding the listing of the Bruneau Hot Springsnail. To respond to the lawsuit, and to ensure the accuracy of any final decision concerning the appropriateness of listing, the Service reopened the public comment period to solicit any new information on October 5, 1992 (57 FR 45762), for a period of 30 days, and on December 18, 1992 (57 FR 60610), for a period of 10 days.

A final rule listing the Bruneau Hot Springsnail as endangered, without critical habitat, was published in the **Federal Register** on January 25, 1993 (58 FR 5938). On February 26, 1993, the Idaho Farm Bureau Federation, Owyhee County Farm Bureau, Idaho Cattle Association, Owyhee County Cattleman's Association and Owyhee County Board Of Commissioners (Plaintiffs), jointly filed a Notice of Intent to challenge the listing. On May 7, 1993, the Plaintiffs filed a Complaint for Declaratory and Injunctive Relief in the U.S. District Court for the District of Idaho to overturn the final listing rule. On December 14, 1993, Senior United States District Court Judge Harold L. Ryan issued a ruling in favor of the Plaintiffs and set aside the final listing rule (Judgment) for the Bruneau Hot Springsnail (Civil No. 93-0168-E-HLR). In the Judgment, Judge Ryan stated that the Service committed " \* \* \* serious due process violations \* \* \*" and " \* \* \* court finds the final rule to be

arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with law."

The district court decision was appealed to the United States Court of Appeals for the Ninth Circuit by two intervening conservation groups, the Idaho Conservation League and Committee for Idaho's High Desert. On June 29, 1995, the appellate court overturned the district court decision and reinstated the Bruneau Hot Springsnail to the endangered species list. However, the appellate court concluded that the Service should have made the draft USGS report (i.e., Berenbrock 1992) available for public review, as the Service relied largely on this report to support the final listing rule. The appellate court directed the Service to provide an opportunity for additional public comment on the final USGS report (Berenbrock 1993) and other new information, and to reconsider its original 1993 listing decision.

To comply with the appellate court's direction, the Service published a notice on September 12, 1995 (60 FR 47339), announcing that the USGS report (Berenbrock 1993), and other reports and data pertaining to the listing of the Bruneau Hot Springsnail were available for public comment for 60 days, until November 13, 1995. In response to a request from Susan E. Buxton on behalf of her client (John B. Urquidí, J & J Ranches, Bruneau, Idaho), the Service, in a notice published on November 13, 1995 (60 FR 56976), extended the public comment period until December 15, 1995. Over 400 comments were received from individuals and agencies during this 95-day public comment period.

Public Law 104-6 enacted by Congress on April 10, 1995, placed a moratorium on the expenditure of the Service's listing funds beginning in October 1995 that remained in effect until April 26, 1996, when President Clinton approved the Omnibus Reconciliation Act of 1996. As a result, the Service was unable to comply with the June 1995 court decision and complete a reconsidered listing decision. After the moratorium was lifted, the Service established priorities for completing listing actions based on interim guidance issued on March 11, 1996 (61 FR 9651), final guidance for fiscal year 1996 on May 16, 1996 (61 FR 24722), and final guidance for fiscal year 1997 issued on December 5, 1996 (61 FR 64475). These guidance documents focused the Service's limited listing funding on emergency listing and multi-species final rules. Consequently, the Service took no action on the Bruneau Hot Springsnail during fiscal

year 1996. Although listing priorities allowed the Service to take final action on this court decision beginning in fiscal year 1997, it had been over one year since the close of the last public comment period. Therefore, the Service solicited additional comments and made available for public review new information and other data pertaining to the Bruneau Hot Springsnail received since the last comment period. On January 23, 1997 (62 FR 3493), the Service opened a second public comment period for 46 days until March 10, 1997. Because of requests from the High Desert Coalition Inc., Bruneau Valley Coalition and Quey Johns, the Service opened a third public comment period, for an additional 77 days, until June 9, 1997, in a notice published on March 25, 1997 (62 FR 14101). Fifteen comments were received from individuals and agencies during these two additional comment periods in 1997. In total, 416 comments were received between September 1995 and June 1997 during 3 public comment periods.

#### Summary of Comments and Recommendations

Comments were received from 416 individuals and agencies during the 3 public comment periods from September 1995 to June 1997 (60 FR 47339, 60 FR 56976, 62 FR 3493, 62 FR 14101) for a total of 218 days. Additionally, advance notice of re-opening the comment periods was given to several people by telephone for the January and March 1997 comment periods. Persons notified represented various interested parties in this issue including; Dick Bass, Owyhee County Commissioner; Tim Lowry, Chair of the Owyhee County Land Use Planning Committee (OCLUPC); Cindy Bachman, Chair of the Endangered Species Subcommittee for the OCLUPC; Eric Davis, President of the Bruneau Valley Coalition; and Laird Lucas, Land and Water Fund. Advance notice, including a press release and background information, was also sent by mail, fax and/or phone to Idaho Senators Larry Craig and Dirk Kempthorne, Idaho Representatives Mike Crapo and Helen Chenoweth, Idaho State Senator Laird Noh, and Idaho State Representative Golden Longhaired. Legal notices announcing each of the public comment periods were published in five Idaho newspapers: Idaho Statesman, Boise; Glens Ferry Pilot, Glens Ferry; Idaho Press Tribune, Nampa; Owyhee Avalanche, Homedale; and Mountain Home News, Mountain Home. Fifty-three copies of the **Federal Register** notices of public comment periods were

sent to various interested parties, including 7 Federal agencies, the 8-member Idaho Water Resources Board, IDWR, Idaho Department of Fish and Game (IDFG), Idaho Department of Parks and Recreation (IDPR), ISU, the Idaho Congressional delegation, Governor Phillip Batt, State of Idaho elected officials including State Representatives Frances Field and Golden Longhaired and State Senators Laird Noh and R. Clair Wetherell, Elmore and Owyhee County Commissioners and 19 other individuals.

The majority of the comments opposed endangered species status for the Bruneau Hot Springsnail—of the dissenting comments, 349 comment letters were derived from the same source (i.e., a form letter) received during the first re-opened comment period in September 1995 and were considered together as one comment. Comments opposed to endangered species status were received from Idaho Governor Phillip Batt, Idaho State Senator Grant Ipsen, IDWR, the Office of the State Treasurer, the Owyhee County Board of Commissioners, OCLUPC, and other user groups. No request for a public hearing was received.

Comments of a similar nature or point of concern are grouped for consideration and response. A summary of these issues and the Service's response to each are discussed below.

**Issue 1:** Several respondents believe that the range of the Bruneau Hot Springsnail is not completely known. They stated that comprehensive surveys have not been conducted throughout all potentially suitable habitat in the region and one study (Mladenka 1995) surveyed fewer sites than previous surveys. Because it is believed that the Bruneau Hot Springsnail has stabilized (based on studies from 1992 through 1996) or appears to be increasing in certain areas, some respondents stated that the species is not truly endangered. Also, some respondents believe that the fish predation study was inadequate to determine if fish predation is a threat to the Bruneau Hot Springsnail. It is also believed that Bruneau Hot Springsnails are highly adaptable and can easily relocate. For example, a colony is being kept in an aquarium at the BLM, Boise District office indicating that the species may be adaptable to environments outside their thermal spring habitats in the Bruneau River.

**Service Response:** Snail surveys have been conducted in Idaho and elsewhere since 1994 (Frest, *in litt.* 1994; Frest and Johannes 1995; Robert Hershler, Smithsonian Institution, *in litt.* 1994, 1995). Surveys included regions within

the Great Basin, including Utah, Nevada and eastern Idaho, and the Interior Columbia Basin. Thermal springs along the Bruneau River have been re-surveyed specifically for additional Bruneau Hot Springsnail sites in 1993 and 1996 (Mladenka and Minshall 1993, 1996). No other new information has been presented to the Service to substantiate the claim that the Bruneau Hot Springsnail is not endemic to springs along Hot Creek and the Bruneau River drainage. No historic collections of this species have been verified in other areas of the United States. In 1991, Mladenka (Mladenka 1992) described the known range of the Bruneau Hot Springsnail as an 8 km (5 mi) reach of the Bruneau River, above and below the confluence of Hot Creek. Other studies outside the Bruneau River corridor (Terrence J. Frest, DEXIS, *in litt.* 1994; Frest and Johannes 1995; Hershler *in litt.* 1994, 1995) have not located additional sites for the Bruneau Hot Springsnail.

Studies conducted by Mladenka (1992) and Mladenka and Minshall (1993; 1996) indicate a general decline in the total number of thermal springs along the Bruneau River, the number of springs occupied by Bruneau Hot Springsnails and a general decline in densities of Bruneau Hot Springsnails (see **BACKGROUND** section for further discussion). Mladenka and Minshall (1993) found dead Bruneau Hot Springsnails at one previously occupied spring site where flows had recently diminished and nine additional spring sites showed noticeable reductions in discharge. From 1991 to 1996, the total number of springs had been reduced from 214 to 204. The number of springs occupied by Bruneau Hot Springsnails had declined from 130 to 116. Additionally, although Mladenka and Minshall's (1993; 1996) population densities were only estimates, there appears to be a trend in declining densities overall that corresponds to the decline in the number of occupied spring sites.

While two of the three populations of the Bruneau Hot Springsnail monitored since 1991 appear to be stable (Varricchione and Minshall 1997), the Service believes that all remaining habitat for this species is threatened by those factors described in this rule (Factors A and E, Summary of Factors Affecting the Species). Given that all thermal springs along this reach of the Bruneau River arise from a single regional geothermal aquifer (Berenbrock 1993), Bruneau Hot Springsnails and their habitats continue to be threatened by long-term declines in the Bruneau Valley aquifer. The Bruneau Hot

Springsnail, endemic to this small geographic area in southwestern Idaho, and its habitat are totally dependent on remaining thermal springflows originating from this single source of ground water. As noted by Varricchione and Minshall (1997), "Given enough reduction in springflow, Bruneau Hot Springsnail populations (at the two monitored sites) could be reduced to abundances that are too small to remain viable."

Regarding the comment that Mladenka's 1995 survey study looked at fewer sites than previous surveys, the purpose of the study was to survey the macroinvertebrate assemblages in several thermal springs along the Bruneau River in the vicinity of its confluence with Hot Creek. The Service funded this study to further define the species richness of the thermal springs occupied by the Bruneau Hot Springsnail. Due to the replication of species found in several of the initial hot springs sampled, the Service made a decision that sampling fewer sites would be representative of all thermal springs along the Bruneau River. This study, therefore, was not strictly a Bruneau Hot Springsnail survey.

A study to determine the effects of fish predation on the Bruneau Hot Springsnail was conducted by Varricchione and Minshall (1995a). The study focused on two exotic species of fish, *Gambusia* and *Tilapia*, in the Hot Creek drainage. Hot Creek no longer has a viable population of Bruneau Hot Springsnails (too few in total numbers of individuals), and no Bruneau Hot Springsnails were detected in the diet of these two species of fish (Varricchione and Minshall 1995a). Mladenka (1992) however, found *Gambusia* aggressively preying upon Bruneau Hot Springsnails in a controlled (aquarium) environment. Additionally, a commenter indicated that the time of year that the fish predation study was undertaken was inappropriate since water temperatures may have been too cold and Bruneau Hot Springsnails are less available during winter conditions. The fish predation study was undertaken during the winter months, which for the Hot Creek site is the optimal time for reproduction and recruitment of Bruneau Hot Springsnails. Water temperatures in the summer reach or exceed the thermal maximum temperature due to exposure to higher ambient temperatures (Varricchione and Minshall 1997). During periods of higher temperatures, the species retreats to areas protected from high ambient temperatures among sedges, underneath rocks or under superficial algal mats (Mladenka 1992). Pending further study,

the Service considers the presence of these two exotic fishes a possible threat to Bruneau Hot Springsnails residing in Hot Creek and at other thermal spring sites along the Bruneau River.

Bruneau Hot Springsnails may be limited in their ability to relocate and re-colonize new spring sites. The parameters required for acceptable habitat are specific in nature, i.e. minimum and maximum temperatures of 7.6 and 35.7° C (45 and 96° F) respectively and adequate substrate and spring discharge (Varricchione and Minshall 1997). Mladenka (1992) found that reproduction occurred at temperatures between 20 and 35° C (68 and 95° F), with a noted decline in reproduction (and hence recruitment) at 24° C (75.2° F). Few springs along the Bruneau River meet these requirements. Mladenka (1992) indicated that dispersal likely occurs through spates within the Bruneau River corridor.

Since approximately 1985, the BLM has maintained a population of Bruneau Hot Springsnails in an aquarium. The environment is being artificially maintained using an aquarium heating device and periodic additions of distilled water, with occasional augmentations of water from Hot Creek. Due to the regular maintenance required of this system, the Service does not consider this population a viable and sustainable population under the definition of recovery for endangered species.

**Issue 2:** Many respondents believe that the Service did not use the best or sufficient scientific information in listing this species. Other comments indicated that few sites have been surveyed for the presence of the Bruneau Hot Springsnail and that the surveys were biased against farming and ranching. Other concerns were that monitoring has not been adequate to assess the status of the species. Many respondents believe that this species is widespread and additional populations exist elsewhere that have not been reported. Several respondents also stated that because Bruneau Hot Springsnail populations are stable or increasing at some sites, listing is not appropriate. One commenter indicated that because monitoring was terminated in 1993, data collected subsequently was not reliable.

**Service Response:** The Service believes that the decision to retain the Bruneau Hot Springsnail as endangered is based on the best available scientific information. The Service is unaware of any bias on the part of the researchers involved in biological or ground water studies. The Service believes that all research has been conducted in a

professional and credible scientific manner.

Ground water studies conducted by the USGS, funded by the Service beginning in 1989, with monitoring of water levels, spring discharge and pumping rates continuing until September 1996. Biological surveys and monitoring for the Bruneau Hot Springsnail, funded by the BLM and the Service, have been ongoing through ISU from 1991 through 1996. Although Bruneau Hot Springsnails have been located at new thermal spring sites, all these sites are within the known range of the species, an 8 km (5 mi) reach of the Bruneau River (Mladenka and Minshall 1993, 1996) and all these thermal springs are subject to similar threats affecting the single source geothermal aquifer providing the necessary springflows. It has been documented that from 1992 to 1996, there has been an overall reduction in the number of thermal springs along the Bruneau River; the number of thermal spring sites occupied by Bruneau Hot Springsnails; and a reduction in the overall densities of Bruneau Hot Springsnails at the known occupied sites (see **BACKGROUND** section and issue #1 for further discussion). As already discussed, thermal springs along the Bruneau River are influenced by activities affecting the condition of a single geothermal aquifer. The decision to continue the listing of the Bruneau Hot Springsnail is appropriate based primarily on continued habitat loss and modification resulting from reduced thermal springflows.

As previously stated in the issue #1 response, snail surveys have been conducted in Idaho and elsewhere since 1994 (Frest, *in litt.* 1994; Frest and Johannes 1995; Hershler, *in litt.* 1994, 1995). These surveys included regions within the Great Basin, including Utah, Nevada and eastern Idaho, and the Interior Columbia Basin. Thermal springs along the Bruneau River have been re-surveyed specifically for additional Bruneau Hot Springsnail sites in 1993 and 1996 (Mladenka and Minshall 1993, 1996). No other new information has been presented to the Service to substantiate the claim that the Bruneau Hot Springsnail is not endemic to springs along Hot Creek and the Bruneau River drainage. No historic collections of this species have been verified in other areas of the United States. The Bruneau Hot Springsnail is part of a small group of thermophile species (requiring high temperatures for normal development), most or all of which are highly endemic (Frest and Johannes 1995). In addition, most taxa in the *Pyrgulopsis* genus are endemic to

a single spring or spring groups widely separated from each other geographically (Frest and Johannes 1995).

In regard to the comment about an abrupt halt to monitoring efforts \* \* \* "In light of Mr. Lobdell's abrupt termination of the 1992 data collection for the (Bruneau Hot Springsnail), reliance on the ISU Stream Ecology Center Studies—all referencing the 1992 data gathering activities—are suspect.", the Service believes this refers to a brief halt in 1992–1993 data gathering as a result of the 1993 listing of the Bruneau Hot Springsnail, at which time the species was given the full protection of the Act. The Service issues permits to individuals wishing to conduct research to further the recovery of the species. Once the necessary permitting requirements under section 10 of the Act were satisfied, data collection for the 1992–1993 season continued and was completed. The Service is satisfied with the reliability of the data.

**Issue 3:** Some respondents believed that the Bruneau Hot Springsnail is not native or does not appear to have any ecological significance and therefore should not be listed.

**Service Response:** Congress directed that, in determining whether a species warrants listing under the Act, the Service may consider only the five factors set forth in section 4(a)(1) of the Act. These factors do not include the "ecological significance" of the species; hence, the Service has no authority to decline to list a species on the basis of whether or not the species is considered ecologically significant.

**Issue 4:** Many respondents believe that the hydrologic studies conducted to date are inconclusive with regard to determining that water withdrawals cause the decline in the geothermal aquifer. Many noted that the 1993 USGS report (Berenbrock 1993) is incorrect or incomplete because it does not account for the effects of climatic (e.g., drought) or geologic factors that may be affecting springflow and well discharge characteristics and Bruneau Hot Springsnail population estimates, even accounting for the significant reductions in pumping in recent years. Recent reports (Cowing, *in litt.* 1996; Karl J. Dreher, IDWR, *in litt.* 1997) indicate that water levels in the aquifer have increased. It was also suggested that studies on the dynamics of the local aquifer system should be subject to independent peer-review. Many respondents believe that the recharge calculation error found in the draft USGS report (Berenbrock 1992) is still unresolved and should be corrected



before further assessment of the aquifer can occur.

*Service Response:* Berenbrock (1993) indicated that water levels and spring discharge were likely not related to recent climatic (drought) conditions. It has been established that recharge to the aquifer is related to precipitation in the Jarbidge Mountain range (Berenbrock 1993). The effect of this recharge is over several thousand years, as evidenced by the age of the water currently residing in the aquifer. Although the amount of withdrawals has been reduced since 1981, from 61,526.7 dam<sup>3</sup> (49,900 ac-ft) to a low of 40,935.6 dam<sup>3</sup> (33,200 ac-ft) in 1987 (1995 levels were 45,374.4 dam<sup>3</sup> (36,500 ac-ft)), spring discharge and available Bruneau Hot Springsnail habitat have continued to decline (Cowing, *in litt.* 1996). Berenbrock (1993) calculated natural recharge to the geothermal aquifer to be 70,281 dam<sup>3</sup> (57,000 ac-ft) (Berenbrock 1993). This value does not account for the underflow (recharge) drained by the Little Jacks and Logan creeks, which represents 10 percent of the contributing area. Therefore, the natural recharge estimated by Berenbrock (1993) is a minimum value only. Total estimated discharge from springs prior to extensive ground water development was approximately 12,453 dam<sup>3</sup> (10,100 ac-ft). Between 1978 and 1991 total well withdrawals were 673,218 dam<sup>3</sup> (546,000 ac-ft), averaging 51,786 dam<sup>3</sup> (42,000 ac-ft) per year.

The Service concurs with Berenbrock's (1993) conclusions and with the results of the continued monitoring efforts by USGS through September 1996 (Cowing, *in litt.* 1996). The conclusions reached by Berenbrock and the monitoring data demonstrate a relationship between water levels in the aquifer, seasonal variations in water levels, spring discharge, and pumpage rates. Annual pumpage rates are related to climatic conditions in the Bruneau Valley, i.e., well withdrawals increase when spring precipitation is low. Spring discharge exhibits a similar seasonality to water level measurements June through September, reflecting the amount of pumping through the irrigation season (Cowing, *in litt.* 1996). A relation between potentiometric levels and spring discharge has persisted through the drought and into "normal" precipitation cycles. As indicated above, although ground water levels may be depleted fairly rapidly by human utilization for agricultural or other uses, the geothermal aquifer recharge typically occurs very slowly and from a source well outside the Bruneau area (see Factor A of the Summary of Factors Affecting the

Species section for further discussion). Therefore, although there was a slight increase in water levels at some well monitoring sites in 1996, and a slight increase in spring discharge at some springs monitored at the same time, the general trend for Bruneau Hot Springsnail habitat remains in decline and water levels in the geothermal aquifer are low when compared to historic levels. Of the 19 wells within the Bruneau study area, 11 wells have continued to show slight declines in water levels, and 6 have shown slight increases in water levels (2 wells were difficult to determine from graphs) (Cowing, *in litt.* 1996). In general, water levels in the geothermal aquifer continue to decline.

A relation between hydraulic head and spring discharge has been established, the Service has not received any new information indicating a change in this relation between total aquifer discharge (including spring discharge, underflow and well withdrawals) and recharge. The question of what levels of pumping can occur without further declines in aquifer water levels and thermal spring flows has not been defined.

The USGS report and document review process consists of a three-step process: (1) local (originating office) review includes review by 2 district (Idaho) colleagues that are experts in the technical information contained in the report, review by the section supervisor and editorial review by an experienced editor; (2) regional USGS review includes another specialist review by a technical expert in the discipline of the report and a second editorial review; and (3) USGS headquarters review involves a third technical reviewer and a third editorial review. The final document is then signed by the Director of the USGS. In the case of Berenbrock (1992), IDWR was provided a copy of the draft document prior to the Service completing the original listing rule. IDWR used the information in preparing their contractual report submitted to the Service entitled "Analysis of Management Alternatives and Potential Impacts on Ground-Water Development Due to Proposed Endangered Species Classification of The Bruneau Hot Springs Snail" (IDWR 1992).

The recharge "error" referred to by comments relates to a miscalculation of natural recharge using Darcy's equation in the draft 1992 Berenbrock report. The error in natural recharge occurred due to a miscalculation in average hydraulic conductivity (Jerry Hughes, USGS, *in litt.* 1993). The final (1993) version of the Berenbrock report (pages 23 through 26) incorporates the correct information

for calculating natural recharge by another method. Therefore, the Service believes that the issue of "errors" in the draft report has been resolved.

*Issue 5:* Some respondents believed that there is no evidence that reducing agricultural or domestic water use will actually benefit Bruneau Hot Springsnail habitat. Other comments suggested that casing deep wells to reduce leakage would contribute to water conservation and reduce or remove the need to list this species. Two respondents referred to the disappearance of "Deer Water" in Hot Creek (as an indicator that declining water levels have occurred in the historic past). It was also speculated that stabilization of the aquifer will occur at some point in the future.

*Service Response:* The Service believes that on-going, unrestricted ground water pumping has contributed to the loss of Bruneau Hot Springsnail thermal spring habitats in the Bruneau River drainage. Protection of the remaining Bruneau Hot Springsnail habitat can only be achieved through cooperative efforts with the State of Idaho and others, which address water levels within the geothermal aquifer and the maintenance of thermal springflows.

It is recognized that the geothermal aquifer in the Bruneau Valley is a complex, multi-layered aquifer, and that water leakage may occur in a stepwise fashion upward between permeable zones through faults, fractures, and wells (Kimball E. Goddard, USGS, *in litt.* 1995; IDWR 1992; Mink 1984; Leland R. Mink, IWRRI, *in litt.* 1995) (see **BACKGROUND** section for further discussion). The ground water reservoir in the aquifer functions as a three-dimensional flow system: (1) water flows northward from the recharge area in the Jarbidge and Owyhee mountains, where it is discharged as springs and as seepage to streams or leaves the area as ground water underflow; (2) in recharge areas there is a downward component of water movement; and (3) in discharge areas there is an upward component (Berenbrock 1993). In 1984, the Idaho Water Resources Research Institute (IWRRI), along with the University of Idaho, proposed an investigation of geothermal wells to determine whether older or uncased wells are losing water to the upper aquifer and determine the feasibility and estimated cost of repairing those wells (Mink and Lockwood 1995). Mink and Lockwood (1995) indicated that Ron Hiddleston (drilling expert in Mountain Home) believed that " \* \* \* there are very few properly constructed wells in the Bruneau Valley." Mink and Lockwood (1995) also found that Merion Kendall



(in 1989) estimated that 77 percent of the wells in the Bruneau area had the potential for interaquifer flow. Mink and Lockwood (1995) concluded that water is moving horizontally out of wells into shallower, more permeable zones. It was not determined what volume of water could be moved from the deeper aquifer (geothermal) to the shallower aquifer (cold-water) system. In 1995, the Service provided \$2,500 to IWRRI to evaluate the cross-flow potential of individual wells. It was not until the summer of 1997 that IWRRI was able to obtain permission to investigate a single well. By the close of the public comment period in June 1997, the Service had not received a report from IWRRI on the results of their limited investigation. The Service agrees with others (Goddard 1995; IDWR 1992; Mink 1984, Mink and Lockwood 1995) who believe that leakage from some agricultural wells may be a contributing factor in the loss of water from the geothermal aquifer.

No information has been provided to the Service regarding the specifics of the disappearance of "Deer Water" and there has been no reference to "Deer Water" in previous studies. Therefore, the Service is unaware of a prehistoric disappearance of "Deer Water" on Hot Creek.

Although the Service agrees that "stabilization" of the aquifer may occur some time in the future, it is uncertain that "stabilization" can occur before there is further loss of thermal spring habitats. A relationship between hydraulic head and spring discharge has been established; the Service has not received any new information indicating a change in this relation between total aquifer discharge (including spring discharge, underflow and well withdrawals) and recharge. The question of what levels of pumping can occur without further declines in aquifer water levels and thermal spring flows has not, to our knowledge, been defined. If water levels in the geothermal aquifer system in the Bruneau area continue to decline, the Service believes that thermal springs will eventually cease to flow and Bruneau Hot Springsnails and their habitat will be eliminated.

**Issue 6:** Many respondents stated that existing regulatory mechanisms are sufficient to protect this species in lieu of listing. For example, the Bruneau Valley Coalition has developed a habitat conservation plan; the Governor of Idaho stated that "as soon as the bull trout conservation plan is complete, (he) will turn the State's attention to developing a conservation plan for the (Bruneau Hot Springsnail)" (Phillip E. Batt, Governor of Idaho, *in litt.* 1995);

and the Idaho State Legislature has developed State law to prevent the waste or "mining" of ground water (Dreher, *in litt.* 1997). Dreher (*in litt.* 1997) asserted that water withdrawals have never exceeded 61,526.7 dam<sup>3</sup> (49,900 ac-ft), which is below the natural recharge calculated by USGS and therefore, concern for further loss of thermal springs is probably not warranted. Many respondents believe that listing the Bruneau Hot Springsnail would adversely affect local and regional planning efforts that are currently in progress. For example, the IDWR has designated the area as a Ground Water Management Area (GWMA), which should provide protection for the aquifer and ensure adequate flows for the Bruneau Hot Springsnail. IDWR has presented alternatives to listing that would protect Bruneau Hot Springsnail habitat and these alternatives have been incorporated into the Owyhee County Land Use and Management Plan.

**Service Response:** IDWR can regulate ground water development in the Bruneau area. Through this regulatory authority, IDWR may designate an area as a GWMA if it has been determined that a ground water basin or part thereof may be approaching the conditions of a "critical ground water area" (I.C. 42-233a *et seq.*). Under this designation, the Director of IDWR may approve applications for permits only after it is determined that sufficient water is available (I.C. 42-233a *et seq.*). In 1982, the IDWR established the Bruneau-Grandview area as a GWMA (Dreher *in litt.* 1997). Since that time, no new water withdrawal permits have been issued for agricultural use. The Director may also determine whether or not a ground water supply is insufficient to meet demand within a designated water management area and will order those water rights holders on a time priority basis to cease or reduce withdrawal of water until it is determined that there is sufficient ground water (I.C. 42-233a *et seq.*). The State of Idaho has determined that a level of 61,526.7 dam<sup>3</sup> (49,900 ac-ft) does not constitute "mining" of ground water in the Bruneau-Grandview area. This amount of withdrawal was reached in 1981 (Cowing, *in litt.* 1996). Withdrawals have ranged from 56,471 to 40,935.6 dam<sup>3</sup> (45,800 to 33,200 ac-ft), with an average amount of 45,390 dam<sup>3</sup> (36,813 ac-ft) over a 13-year period from 1982 to 1995, excluding 1994 (Cowing, *in litt.* 1996). Although withdrawal rates have remained below the 1981 level, aquifer levels continued to decline through 1994, with only a slight increase in water levels occurring in

early 1996. At this time, pumping rates during the late 1996 to early 1997 irrigation season are unknown. Pumping rates have been similar to 1995 levels due to higher precipitation during the 1996 irrigation season. To date, the State of Idaho has not taken any action to implement legislation intended to control existing withdrawals (Dreher *in litt.* 1997).

In 1992, IDWR developed four management alternatives to preclude the listing of the Bruneau Hot Springsnail. Three of the alternatives were included by the Owyhee County Commissioners (OCC) in the Owyhee County Interim Comprehensive Land Use and Management Plan (OCC 1993). The preferred alternative by both IDWR and OCC was Alternative A, to "Do Nothing." In support of Alternative A, IDWR (1992) stated that "it is not reasonable to assume that all spring flows are declining or that water levels will decline at the same rate as monitored springs and wells." IDWR further stated that there are "no data to support how much of (the) decline (in spring flow) is related to the extended drought in southern Idaho and how much might be related to ground water withdrawals." IDWR also asserted that "with the existing reduced level of ground water withdrawal, due in large part to the Conservation Reserve Program, aquifer water levels would normally be expected to reduce their rate of decline if drought conditions were no longer present." IDWR assumed that only those springs with elevations lower than Indian Bathtub are being affected by reduced spring flows and that at some point in the future, when the aquifer stabilizes, these springs also will stabilize. As indicated under issue #4 the Service believes that there is a strong relationship between water levels in the geothermal aquifer, spring discharge and ground water pumping rates, with short-term climatic patterns not a significant factor in the long-term declines that have occurred. Until the trend of declining thermal springflows is reversed, the Bruneau Hot Springsnail will remain endangered because of threats to its habitat.

In 1995, the State of Idaho authorized the creation and supervision of Water Management Districts (WMD) by IDWR (Idaho Code (I.C.) 42-705 *et seq.*). Activities to be performed include monitoring of ground water levels at ground water diversions before and during pumping activities; and immediate reporting to the Director any water diversions that may have been diverted without a water right or in violation of a water right. To date, the Bruneau/Grandview area has not been

designated as a WMD. The Service is aware of only one WMD to be developed for the State of Idaho—for the Eastern Snake River Plain.

The Service recognizes that the water conservation and other measures could be implemented to the benefit of Bruneau Hot Springsnail habitat in this region, and finds that participation in these programs could contribute significantly to reducing some of the short-term threats to the Bruneau Hot Springsnail. However, only the State of Idaho has the regulatory authority to set limits on the development of new wells, impose conservation measures, and require meters on all wells in the Bruneau/Grandview area (IDWR 1992). Other than the restriction mentioned above for new agricultural use wells, no other regulatory measures have been exercised by IDWR. It should be noted that as of June 9, 1997, and the implementation of the Conservation Reserve Program (CRP) and the restriction of no new agricultural use wells, there has not been any significant improvement to water levels in the geothermal aquifer.

In 1995, the Bruneau Valley Coalition developed a proposed "Habitat Maintenance and Conservation Plan for the Bruneau Hot Springsnail" (Plan). The Plan proposed two phases of implementation. Phase 1 had four tasks including: (1) collection and analysis of existing data; (2) downhole geophysical testing to identify wells that may have subsurface leakage problems; (3) development of corrective action plans and cost estimates for repair of leaking wells; and (4) identification of additional wells that may be impacting Bruneau Hot Springsnail habitat. Phase 2 included six tasks: (1) implementing corrective actions, such as casing, grouting, sealing and/or abandoning specific wells identified in Phase 1; (2) information and education programs targeting congressional offices, farm and ranch families and other entities to support water conservation programs such as the Conservation Reserve Program; (3) locate private abandoned leaking wells previously inaccessible due to private property access constraints; (4) investigate water transfers, including swapping ground water for early season surface flood water; (5) develop an alternative water supply for the Indian Bathtub spring; and (6) evaluate the feasibility of transplantation sites for new Bruneau Hot Springsnail colonies. On March 3, 1995, the Service met with Jim Yost, representing the Bruneau Valley Coalition, to discuss our comments and suggestions regarding the proposed Plan. In summary, the Service noted

that the Plan: (1) was limited to a 6-mile radius from the Indian Bathtub spring and failed to address other critical ground water withdrawal areas; (2) appears to be a "more studies" approach rather than corrective actions; (3) does not provide information on the amount of water that would be conserved if a well was repaired or provide an accounting system for monitoring the success of well repairs; and (4) needed to state a goal that reflected the removal of threats to the species or that the aquifer would be maintained at a specific level, measured by water levels within specific wells. Additionally, the Plan makes no commitment on the part of any of the signatory parties to implement specific actions. The Service has not been contacted subsequently and is unaware whether the Bruneau Valley Coalition's Plan has been finalized or approved by any of the affected interested parties.

During the September 1995 public comment period, the Governor of Idaho stated that "as soon as the bull trout conservation plan is complete, (he) will turn the State's attention to developing a conservation plan for the (Bruneau Hot Springsnail)" (Phillip E. Batt, Governor of Idaho, *in litt.* 1995). As of June 9, 1997, no conservation plan for the Bruneau Hot Springsnail had been initiated or developed by the Governor's office. On August 11, 1997, the Governor's office invited several agencies and individuals to participate in a Bruneau Hot Springsnail Conservation Committee. Two meetings have been organized by the State to discuss and update the Bruneau Hot Springsnail biological information. Actions to remove the threats to the species have not been discussed. The Service strongly supports this effort and will continue to participate in these efforts by the State.

*Issue 7:* Many respondents indicated that the Service should consider the following actions for restoration/recovery of the species to preclude listing of the species: transplant the Bruneau Hot Springsnail back to Hot Creek; exchange water rights with BLM-held water rights to benefit the Bruneau Hot Springsnail; substitute surface water for the loss of ground water; mitigate the effects of flash flooding in Hot Creek; develop individual Habitat Conservation Plans. It was also noted that the ban on new wells and rehabilitation of new wells has occurred and therefore additional protection for the Bruneau Hot Springsnail is unnecessary.

*Service Response:* According to section 2(b) of the Act, " \* \* the purposes of this Act are to provide a

means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." Although captive propagation and translocation can be valid conservation tools in recovery efforts for some species, the Service maintains that in the case of the Bruneau Hot Springsnail, these measures would not contribute to secure, self-sustaining populations in their natural habitat. Translocation can only occur into native, secure habitats; therefore, the question of adequate thermal springflows must be addressed prior to any translocation efforts. The Service acknowledges that restoring springs flows within the historic range (i.e., Hot Creek) of the Bruneau Hot Springsnail would contribute to recovery of this taxon. Without the assurance of adequate springflows in Hot Creek or at the Indian Bathtub spring, actions to remove sediment from the Indian Bathtub would not provide for improved habitat conditions at that site. Water rights exchange, surface water substitution, development of Habitat Conservation Plans and other actions that may improve habitat suitability for the Bruneau Hot Springsnail will be addressed during the development of a recovery plan for this species.

The Service has acknowledged that in 1982 IDWR instituted a ban on all new *agricultural* (nondomestic) wells. We are unaware however, of any rehabilitation efforts for leaking of existing wells (see issue #4 for further discussion of well leakage). The persistent trend in decline of the geothermal aquifer continues to be the primary concern for the survival and recovery of the Bruneau Hot Springsnail.

*Issue 8:* A few comments indicated that funding has been provided for Bruneau Hot Springsnail conservation and that an accounting of that funding should be provided. The Bruneau Valley Coalition questioned what the Service has done specifically to protect the Bruneau Hot Springsnail.

*Service Response:* The U.S. Congress appropriated money to the Service to fund studies starting in 1987. Information gained from the studies was to be used to develop a cooperative conservation (management) plan to aid in the long-term conservation and protection of the Bruneau Hot Springsnail. To date a conservation plan has not been finalized. The three entities involved in the studies for the cooperative conservation planning efforts included the IDWR, USGS, and ISU. The IDWR was to accomplish three primary tasks through the studies: (1)

prepare a Geographic Information System (GIS) for the study area; (2) prepare geological maps to define the bedrock geology and record the location, elevation, flow and temperature of area springflows; and (3) evaluate and analyze Federal and State laws applicable to development of a conservation plan for the Bruneau Hot Springsnail and assess management alternatives open to IDWR to protect the species habitats. The Service also provided funds for the USGS to develop and implement a three-phase ground water study of the Bruneau River valley and basin. The study focused on the hydrology of the regional geothermal system and surrounding hot springs, with an overall goal to determine the cause of declining springflows affecting the Bruneau Hot Springsnail. Finally, the Service provided funds to the Stream Ecology Center, ISU, to study the biological, ecological, and physiological needs of the Bruneau Hot Springsnail. The Service also entered into a short-term conservation agreement with Owen Ranches, Inc., owners of much of the snail's habitat in Hot Creek and the Indian Bathtub springs. Terms of the agreement included fencing to regulate livestock use. Expiration of this agreement coincided with the completion of the hydrologic studies by USGS.

In 1990 through 1996, subsequent to the funding provided by the Congressional appropriation, the Service has provided funding to USGS, ISU, and IWRRI to continue various monitoring efforts. From September 1994 through September 1996, the Service provided funds to the USGS to conduct the following action items on an annual basis: (1) monthly water-level measurement for 11 wells in the Bruneau area; (2) semi-annual water-level measurement for one well; (3) operation of continuous water-level recorders in 6 wells; (4) monthly discharge measurements for 8 springs; (5) annual ground water pumpage in Sugar, Bruneau, and Little Valleys; and (6) flume construction for spring discharge measurement (first year only). Due to Service-wide funding shortfalls, these funds were unavailable after September 1996.

The Service also provided: funding to IWRRI to develop preliminary information regarding well-leakage (see issue #4 for more detailed information); funding to ISU in 1993 and 1996 to re-survey Bruneau Hot Springsnail habitats along the Bruneau River; and additional funding to ISU in 1994 to conduct a thermal spring invertebrate survey along the Bruneau River.

In addition to the Congressional appropriation and Service funding, the BLM has provided challenge cost-share funding from 1994 through 1997 to ISU to continue biological/ecological studies on the Bruneau Hot Springsnail at three monitoring sites. The BLM also funded the installation of additional fencing around Hot Creek drainage on the west side of the Bruneau River and cadastral surveys (elevational measurements) of selected springs in the Bruneau River. Maintenance of the fencing along the west side of the Bruneau River is being provided by the permittees in the affected allotments. An Environmental Assessment for fencing on the east side of the Bruneau River has been written, but is currently under protest by the Idaho Watershed Project. Until the concerns by this group are resolved, the BLM has provided upland watering for livestock as well as requiring permittees to provide weekly riding in the Bruneau River canyon and removal of any livestock that may stray into the river corridor.

*Issue 9:* Many respondents were concerned with the effect of the Conservation Reserve Program (CRP) reductions and asked whether the Service has consulted on proposed requirement and eligibility changes in the program. It was also asserted that the Service should encourage more participation in the CRP.

*Service Response:* As discussed under Factor A, "Summary of Factors Affecting the Species", the loss of participation in the CRP could have a serious effect on the continued withdrawal of water from the geothermal aquifer. As further discussed in issues #2, 4, 5 and Factors A and D in "Summary of Factors Affecting the Species" of this rule, water withdrawals have an effect on the continuing decline of the geothermal aquifer, and consequently the loss of thermal springs along the Bruneau River. In spite of the enrollment of nearly 6,880 acres of Bruneau area croplands in the CRP since 1981, water levels in the geothermal aquifer continued to decline. The Service believes that total well discharge has declined from a maximum of 61,526.7 dam<sup>3</sup> (49,900 ac-ft) in 1981 to 42,785 dam<sup>3</sup> (34,700 ac-ft) in 1991, in large part due to area farmer participation in the CRP. The Service continues to support the CRP and the Natural Resources Conservation Service (NRCS) in its efforts to promote participation in the program. However, landowner participation in the program is voluntary. If present water management practices continue, or the CRP lands are returned to production, or when drier spring and summer climatic

conditions return, all affecting pumping rates and duration, water levels in the aquifer will either continue to decline or eventually stabilize at a lower level resulting in the further loss of Bruneau Hot Springsnail habitat.

In regards to the question of whether or not NRCS has consulted with the Service on the CRP, under section 7 of the Act, NRCS must make the determination whether the agency action is a "major construction activity" (50 CFR 402.12 (b)), and if so, the Federal agency must prepare a biological assessment of the action for listed species that occur in the action area (50 CFR 402.12 (j)). If the Federal agency determines that the action will likely adversely affect any listed species, the Federal agency must request formal consultation with the Service (50 CFR 402.12 (k)(1)).

The CRP is administered by the Farm Services Agency (FSA) on the local level. The process for participation in the CRP is as follows: (1) an FSA representative completes an environmental benefits evaluation for the proposed CRP agreement, which includes an evaluation of the potential benefits to listed species; (2) if the proposal is accepted, an FSA representative develops a contract with the landowner; and (3) the FSA representative completes an environmental evaluation checklist, including an evaluation of any potential impacts to listed species. The determination for listed species is reviewed by NRCS for technical assistance and, at the option of NRCS, is sent to the Service for informal consultation. To the Service's knowledge, there has been no request for consultation from NRCS on the new CRP.

*Issue 10:* A representative of the Southwestern Idaho Desert Racing Association stated that the use of off-road vehicles is not a threat to any sites occupied by the Bruneau Hot Springsnail. Therefore, no restrictions on off-road vehicle use should result from listing.

*Service Response:* The Service agrees that off-road vehicle use may not currently pose a threat to habitat occupied by the Bruneau Hot Springsnail. Under section 7 of the Act, it is the responsibility of the BLM to determine whether these activities pose a threat to the Bruneau Hot Springsnail or its habitat (see also issue #9). The consultation process would be completed if the Service and the BLM agreed that there was no effect on the listed species.

*Issue 11:* Some respondents believed that grazing does not currently

adversely impact the survival of the Bruneau Hot Springsnail or its habitat. In fact, grazing may actually improve habitat conditions by reducing overgrown vegetation that would otherwise render habitat unsuitable for the Bruneau Hot Springsnail.

**Service Response:** The Service agrees that the maintenance of adequate fencing has served to reduce the direct impacts from livestock grazing on this species and its habitat in the Hot Creek drainage and along the west side of the Bruneau River. Livestock grazing on Federal lands within or adjacent to Bruneau Hot Springsnail habitats is authorized by the BLM and would be evaluated by the Service at the request of, and in consultation with, the BLM. The Service does believe, however, that the continued failure by Bruneau Hot Springsnails to return into the upper Hot Creek drainage is not limited by increased vegetative cover as a result of removal of livestock in the Hot Creek drainage. As already noted in the Background section of this notice, recruitment appears to be limited by the continued lack of adequate springflows, preferred substrate surfaces, weak migration abilities, and lack of an upstream colonization source.

**Issue 12:** One comment expressed the concern that the Service did not provide the materials cited in the **Federal Register** notices of public comment periods outside of Boise.

**Service Response:** The Service provided copies of all materials cited in the public comment period **Federal Register** notices upon request. The Service has opened three separate comment periods, with the first comment period beginning on September 12, 1995 and the fourth comment period ending on June 9, 1997, for a total of 218 days. Due to requests from several individuals, the Service sent copies of materials to 15 individuals or groups including, but not limited to: the Idaho Farm Bureau Federation; Scott Campbell, representing the Bruneau Valley Coalition; Fred Grant, representing Owyhee County; John Uriquidi; Ted Hoffman; and Frank Sherman, representing IDWR.

**Issue 13:** Many respondents believe that the rights of private property owners will be violated as a result of restrictions associated with the listing of the Bruneau Hot Springsnail. The comments suggested that the Service should purchase private property considered essential to the Bruneau Hot Springsnail's survival, or should compensate landowners for not being able to fully utilize their property (e.g., through the loss of water rights or

grazing leases). Additionally, a takings assessment should be prepared prior to any listing decision.

**Service Response:** Issuance of this rule will not constitute a taking of private property. This rule does not make a determination about activities that may occur on private property.

**Issue 14:** Some respondents indicated that the elevations of several springs (greater than 883.9 m (2,900 ft)) are higher than the Indian Bathtub spring elevation. They questioned the connection between these springs, the geothermal aquifer and water loss associated with the Indian Bathtub spring.

**Service Response:** All thermal springs containing Bruneau Hot Springsnails along the Bruneau River, including the Indian Bathtub spring, arise from a single, regional geothermal aquifer. Spring discharges in the Bruneau Valley are related to the potentiometric levels (the imaginary surface representing a total head of ground water and defined by the level to which water will rise in a well) in the geothermal aquifer. As discussed by Berenbrock (1993), Pence Hot springs has a lower elevation (787.9 m (2,585 ft)) than the Indian Bathtub spring (814.7 m (2,672.9 ft)). Prior to 1966, discharge from the Indian Bathtub spring ranged from about 6,587.5 to 9,687.5 L/min (1,700 to 2,500 gal/min). After 1966, discharge from the Indian Bathtub spring began to decline to the point of its current flow, which essentially ceases seasonally. However, some springs with lower elevations (e.g., Pence Hot Spring), continued to flow at "normal" rates through September 1996. The reduction or loss of flow for springs at higher elevations reflects the lower potentiometric surface within the aquifer. Berenbrock (1993) found four cones of depression in the potentiometric surfaces for both the sedimentary and volcanic-rock aquifers, the largest of which occurs in the sedimentary aquifer and reflects a long-term water-level decline due to withdrawals. As the potentiometric surface continues to decline, springs with lower elevations will be affected in the same manner as Indian Bathtub spring. The continued lowering of the potentiometric surface may have resulted in the disappearance of additional springs since 1991. (see issue #1 and Factor A, "Summary of Factors Affecting the Species" for further discussion of the loss of springs.)

The Service believes that the confusion regarding spring elevations stems from the spring surveys conducted by the BLM (Brunner, *in litt.* 1994). The Service's understanding of the measurements in the BLM

document, is that all the springs measured (12 in total) were between 803.7 and 815.7 m (2636.09 and 2676.61 ft) with the Indian Bathtub spring at an elevation of 814.7 m (2672.89 ft). The measurements that are greater than these 12 springs were not actual springs but refer to reference and control sites used by the BLM for establishing the elevations of the springs (Brunner, *in litt.* 1994). Most of these higher "elevation" sites are located at the Bruneau River canyon rim (referred to as "tie-in" locations), or these sites represent a bench mark that was established as a control point to the tie-in locations. The elevation of the actual springs is within 1.2 m (4 ft) of Indian Bathtub spring. These springs are downstream of the Hot Creek confluence on the west side of the Bruneau River. Spring elevational measurements were taken at the initial point of spring discharge. Bruneau Hot Springsnails do not necessarily occur at that initial point but are usually found slightly lower on the rockface. This is due to tendency of the outflow to spread over the rockface, providing the wetted area necessary to create suitable habitat for Bruneau Hot Springsnail (see Background section for further details on habitat requirements).

In summary, although recent information indicates a slight increase in water levels at 5 of 16 wells between 1994 and 1996, the total number of thermal springs and Bruneau Hot Springsnail occupied habitats has declined since 1991 along the Bruneau River. The most significant threat, ground water withdrawals, has not been addressed for the species. Opposing comments were based primarily upon concerns that listing of the Bruneau Hot Springsnail would affect the allocation of water and impact agricultural development in the Bruneau Valley. Some opposing comments questioned the adequacy of the Service's data. The Service has continued to gather information regarding the status of the species since publication of the listing rule in 1993. As discussed in the "Summary of Factors Affecting the Species" section, the Service concludes that all of the remaining populations of the Bruneau Hot Springsnail continue to be at risk.

**Issue 15:** Commenters suggested that a National Environmental Policy Act (NEPA) analysis should be prepared prior to listing.

**Service Response:** For the reasons cited in the NEPA section of this rule, the Service has determined that rules issued pursuant to section 4(a) of the Act do not require the preparation of an

Environmental Assessment or Environmental Impact Statement.

### Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the Bruneau Hot Springsnail should continue to be classified as an endangered species. Procedures found at section 4 of the Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. Under the Act, species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). This determination is based on the "Summary of Factors Affecting the Species" and on comments received on the rule. These factors and their application to the Bruneau Hot Springsnail (*Pyrgulopsis bruneauensis*) are as follows:

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

Agricultural-related ground water withdrawals threaten the continued existence of the Bruneau Hot Springsnail.

Ground water withdrawal and pumping threaten the Bruneau Hot Springsnail through a reduction or loss of thermal spring habitats resulting from the decline of the geothermal aquifer that underlies Bruneau, Little, and Sugar Valleys in north-central Owyhee County, Idaho. Within the past 25 years, discharge from many of the thermal springs along Hot Creek and the Bruneau River has decreased or has been lost, thus further restricting the Bruneau Hot Springsnail habitats (Young et al. 1979; Berenbrock 1993; Mladenka and Minshall 1996).

The Indian Bathtub area and Hot Creek represent the type locality of the Bruneau Hot Springsnail. By 1982, Taylor (1982) found that the Bruneau Hot Springsnail population in the Hot Creek/Indian Bathtub site had been significantly reduced by the reduction in spring discharge. Taylor (1982) noted that the core of the population occurred on vertical rock cliffs (rockface sites) protected from flash flood events. Varricchione and Minshall (1997) also found that "The rockface sites are probably more suitable for Bruneau Hot Springsnail success . . ." (page 50). Spring discharge in 1964 was approximately 9,300 L/min (2,400 gal/min), had dropped to between 503.8 to 627.8 L/min (130 to 162 gal/min) (Young et al. 1979), and by the summer

of 1990 discharge was zero during the summer and early fall water withdrawal season (Berenbrock 1993). Taylor (1982) speculated that this reduction in rockface seep flows would leave the species vulnerable to the occasional flash-flood events known to occur in the Hot Creek drainage. Today, water from the Indian Bathtub spring is below the ground surface and reemerges about 300 m (984.3 ft) below the bathtub area (Varricchione and Minshall 1997). Visible spring discharge at the Indian Bathtub continues to be seasonal and low, ranging from 0 to 11 liters per second (0 to .39 cubic feet per second) and is intermittent in most years (Varricchione and Minshall 1997; Cowing, *in litt.* 1996). This loss of discharge translates into a 10 m (35 ft) decline in water levels in the aquifer feeding the Indian Bathtub spring (Berenbrock 1993).

Beginning in the late 1890's, when ground water development for domestic and agricultural purposes began in the area of the geothermal aquifer, an estimated 339,075 dam<sup>3</sup> (275,000 ac-ft) of thermal water discharged from Indian Bathtub spring (Berenbrock 1993). Between 1982 and 1991, only 1,726 dam<sup>3</sup> (1,400 ac-ft) discharged from the spring (Berenbrock 1993). This decline in discharge from the Indian Bathtub spring was noted beginning in the mid-1960's and coincided with the accelerated increase in ground water withdrawal associated with a rapid increase in the amount of lands irrigated with ground water throughout the area. From the late 1890's through 1991, nearly 1,726,200 dam<sup>3</sup> (1,400,000 ac-ft) of water was discharged from flowing and pumped wells completed in the geothermal system (Berenbrock 1993).

According to Berenbrock (1993) the two most apparent effects of pumping stress are declines in hydraulic head and declines in spring discharge. Discharge fluctuations correspond with the pumping season; lower flows in the late spring to early fall and high flows during late fall to spring. Changes in discharge from thermal springs corresponds with changes in hydraulic head, which fluctuate seasonally and are substantially less during late summer than in the spring (Berenbrock 1993).

It should be noted that ground water withdrawals have generally declined over the past 15 to 20 years, primarily due to cropland retired from production through participation in the CRP (Berenbrock 1993). In the last 2 years, the time periods of ground water use during the irrigation seasons have been shorter and occurred later in the spring due to increased precipitation in

Bruneau area (Cowing, *in litt.* 1996). However, water levels in the geothermal aquifer have continued to decline, with a possible slight increase in 5 of 16 wells at the completion of the 1995–1996 water withdrawal season (Cowing, *in litt.* 1996), again, due primarily to increased precipitation in 1995–1996 in the Bruneau area and thus less need for ground water withdrawals. The Service is concerned that the number of withdrawals may again increase in the next few years as croplands will again enter production when the current 10-year CRP expires. As of June 9, 1997, there were 24 active CRPs (acreage total is 6,880) in the Bruneau area, 13 of which are due to expire in October 1997 (acreage total is 5,500), 8 will expire in October 1998 (acreage total is approximately 1,000 acres) and the remaining CRPs will expire in October 1999 (Ron Abbott, Farm Service Agency (FSA), *in litt.* 1997). There are approximately 15,822 acres in CRP for all of Owyhee County. (See Factor D for further discussion of the CRP.) If present water management practices continue, or if the CRP lands are returned to production, or when drier spring and summer climatic conditions return, all of which affect pumping rates and duration, water levels in the aquifer will either continue to decline or will eventually stabilize at a lower level, resulting in the further loss of Bruneau Hot Springsnail habitat.

While the decline/loss in springflows at Indian Bathtub spring and several other springs has been documented, springflow data has not been collected in all the remaining 116 springs containing Bruneau Hot Springsnails. Mladenka (1992) believes that prior to the recent decline in water levels in the aquifer and resultant fragmentation of remaining populations, all of the springs and seeps supporting Bruneau Hot Springsnails were connected to allow the natural dispersal and transfer of individuals. The studies conducted by Mladenka (1992) and Mladenka and Minshall (1993, 1996) indicate a general decline in the total number of thermal springs along the Bruneau River, the number of springs occupied by Bruneau Hot Springsnails, and a general decline in densities of Bruneau Hot Springsnails (see Background section for further discussion). In 1993, Mladenka and Minshall found dead Bruneau Hot Springsnails at one previously occupied spring site where flows had recently diminished and nine spring sites showed noticeable reductions in discharge (Mladenka and Minshall 1993). The majority of Bruneau Hot Springsnail occupied thermal springs

are located upstream of the confluence of Hot Creek to the Bruneau River (Mladenka and Minshall 1996). Since 1991, the total number of thermal springs in the referenced section of the Bruneau River has decreased by approximately 5 percent, the number of springs occupied by Bruneau Hot Springsnails has decreased by 10 percent, and the total area occupied by Bruneau Hot Springsnails has decreased by 13 percent (Mladenka and Minshall 1996). Total site area (including all springs and seeps, occupied and unoccupied by Bruneau Hot Springsnails) increased by 4.3 percent from 1991 to 1996 (Mladenka and Minshall 1996). Most of this increase occurred due to lower flows resulting in more surface exposure of a single thermal spring outflow area below Buckaroo Dam, which is downstream of the majority of occupied springs (Mladenka and Minshall 1996). Further analysis of the total spring surface area shows a 32 percent decrease in upper (above the confluence with Hot Creek) occupied springs versus a 41 percent increase in lower occupied springs (Mladenka and Minshall 1996). This corresponds to a 20 percent decrease in the number of occupied sites upstream of the confluence of Hot Creek to the Bruneau River, a 17 percent decrease in the number of occupied sites at the confluence, and a 45 percent increase in the number of occupied sites downstream of the confluence (see Background section for further information). At this time there is no information available indicating how much lower water levels can continue to decline before all thermal springs along the Bruneau River are lost. As potentiometric surfaces in the geothermal aquifer continue to decline, additional spring discharges will be reduced or lost, resulting in the continued loss of Bruneau Hot Springsnail habitat.

In the original 1993 listing it was indicated that impacts had occurred as a result of cattle grazing in Bruneau Hot Springsnail habitats, especially along Hot Creek. These impacts included trampled instream substrates and habitats causing direct Bruneau Hot Springsnail mortality and displacement. Cattle also browsed and removed riparian vegetation, allowing temperatures to reach levels affecting reproduction or to ultimately be lethal to the Bruneau Hot Springsnail. Additionally, livestock grazing in the adjacent watershed, combined with ongoing drought conditions, contributed to an increase in sedimentation in Hot Creek, which eliminated Bruneau Hot

Springsnail seep/spring habitats for almost 150 m (492 ft) in the Indian Bathtub/Hot Creek drainage.

The BLM has controlled livestock grazing by installing fencing on the north end of Hot Creek drainage and the west side of the Bruneau River. The BLM also plans to install additional fencing along the east side of the Bruneau River. Both fencing projects, if properly maintained, will protect Bruneau Hot Springsnail habitat from the effects of livestock.

The original 1993 listing stated that recreational access also impacts habitats of the Bruneau Hot Springsnail along the Bruneau River. For example, small dams are sometimes constructed to form thermal pools and improve conditions for bathing. Construction of these pools could impact Bruneau Hot Springsnails through habitat modification as rock substrates are moved, flow is altered and sediments are trapped. These pools can also alter and possibly destroy the madicolous habitats preferred by the Bruneau Hot Springsnail as pool water levels are raised. Most of the springs along the Bruneau River are inaccessible to bathers due to an abundance of poison ivy (*Rhus radicans*). One or two pools downstream of the confluence of Hot Creek are used by recreational bathers but Bruneau Hot Springsnails have not been verified in those locations. Therefore, recreational use of the thermal springs and outflows is not considered a significant threat.

In summary, the cumulative effects of water withdrawal continue to threaten the increasingly fragmented populations of the Bruneau Hot Springsnail and their thermal habitats.

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

There are no commercial uses for this species. In other listing actions, certain mollusc species have become vulnerable to illegal collection for scientific purposes. Because the distribution of the Bruneau Hot Springsnail is restricted and generally well known, collection could become a threat to Bruneau Hot Springsnails.

#### *C. Disease or Predation*

There are no known diseases that affect Bruneau Hot Springsnails. Juvenile Bruneau Hot Springsnails (less than 0.7 mm) are vulnerable to a variety of predators (Mladenka 1992). Damselflies (*Zygoptera*) and dragonflies (*Anisoptera*) were observed feeding upon Bruneau Hot Springsnails in the wild. The presence of a large wild population of guppies in Hot Creek and several of the other small thermal

springs downstream along the west bank of the Bruneau River is a potential threat to the Bruneau Hot Springsnail.

Mladenka (1992) observed guppies feeding upon the species in the laboratory. In addition to guppies, a species of *Tilapia* has ascended into and reproduced in Hot Creek (Bowler 1992). The presence of this new potential "exotic" predator may constitute a threat to the Bruneau Hot Springsnail by restricting repopulation of the species into Hot Creek (Varricchio and Minshall 1997) and at other thermal spring sites that may be available to the Bruneau Hot Springsnail and the exotic fish species. Both of these exotic fish species can migrate into the Bruneau River corridor, both upstream and downstream of Hot Creek, and to other spring outflows when temperatures in the Bruneau River are suitable (usually during the summer months). Movement of these exotic fish species into other thermal springs occupied by the Bruneau Hot Springsnail might affect their continued survival within individual spring sites.

It should be noted that madicolous habitats support neither of these two exotic fishes or dragonflies, but do harbor numerous damselflies. During his study, Mladenka (1992) observed no birds preying on the Bruneau Hot Springsnails.

In summary, the Service considers the presence of predatory exotic fish species in Hot Creek and the Bruneau River drainage a possible threat to the Bruneau Hot Springsnail, which should be studied further.

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

At least three State agencies could potentially assist in the protection of the Bruneau Hot Springsnail. The IDPR has authority under I. C. Section 18-3913, 1967, to protect only plants, with animals not given special protection on Idaho lands. The IDFG, under I. C. Section 36-103, is mandated to preserve, protect, perpetuate, and manage all wildlife. However, these mandates do not extend protection to invertebrate species.

The IDWR regulates water development in the Bruneau area. It is the policy of IDWR to regulate and conserve ground water resources from depletion or "mining". In *Baker v. Ore-Ida Foods, Inc* 95 Idaho 575, 513 P.2d 627, 635 (1973), the Idaho Supreme Court held that "Idaho's Ground Water Act clearly prohibits the withdrawal of ground water beyond the average rate of recharge." However, any conservation measures imposed by IDWR to manage ground water "mining" are only for the

purpose of fulfilling senior water rights and not for the protection of fish and wildlife. At present, there is no specific allocation of either surface or ground water in the Bruneau area for the protection and conservation of fish and wildlife. In 1982, the IDWR established the Bruneau-Grandview GWMA pursuant to provisions of I. C. Section 42-233a “\* \* \* to identify the area as approaching the conditions of a critical ground water area” (IDWR 1992). This GWMA designation has allowed the IDWR to continue to receive and hold without action applications for water permits until it can be demonstrated that the proposed withdrawal will not adversely impact other water rights in the GWMA. Due to the continued decline in water levels in the geothermal aquifer, no applications for agriculture withdrawal within the GWMA have been approved since 1982. Without recovery of water levels, IDWR does not anticipate modification of the GWMA designation any time soon. In any event, GWMA designations are intended only to maintain sufficient ground water to fulfill existing water rights and supply the needs of irrigation, and not for the protection and conservation of fish and wildlife.

The Bruneau area is also located entirely within the area of an ongoing water rights adjudication (Snake River Basin Adjudication). A Director's Report, due to the court in 1994, was to clarify existing water rights and water uses and permit IDWR to eliminate water rights that are of record but are no longer utilized. The IDWR also believes the adjudication process will need to be completed prior to the development and implementation of ground water conservation measures on behalf of the Bruneau Hot Springsnail that may affect existing water rights and uses since “without completing this adjudication process there is no effective way to determine the existence or validity of water rights to serve as the basis for delivery” (IDWR 1992). As of June 9, 1997, the Director's report, filed with the court, has not included agricultural reports from the Bruneau area.

In 1995, the State of Idaho authorized the creation and supervision of Water Management Districts (WMD) by IDWR (Idaho Code (I.C.) 42-705 *et. seq.*). Among the activities to be performed by a qualified district hydrographer in a WMD is—the monitoring of ground water levels at ground water diversions before the pumping period begins and during the pumping period; and immediate reporting to the Director of the diversion of any water appearing to be diverted without a water right or in violation of a water right. To date, the

Bruneau/Grandview area has not been designated as a WMD. The Service is aware of only one WMD that is to be developed for the State of Idaho—for the Eastern Snake River Plain.

Under the Idaho Ground Water Act, IDWR also regulates the construction and maintenance of geothermal (I. C. Section 42-238(4)) and artesian (I. C. Sections 42-1601 and 42-1603) wells so that they operate to conserve ground water resources and prevent unnecessary flow and waste. The IDWR in 1990 identified several artesian wells in the Bruneau area “\* \* \* leaking water at land surface or potentially wasting water in the subsurface due to inappropriate well construction techniques” (IDWR 1992). To date no action has been taken to have these leaking wells rehabilitated so that the aquifer pressures can be preserved or increased. In 1995, the Service had provided funding to IWRRI to research the problem of well leakage in the Bruneau Valley. As of June, 1997, only one landowner had volunteered to participate in the research. The results of the research by IWRRI have not yet been submitted to the Service.

In summary, the IDWR has authority to control ground water and can limit the development of new wells in a critical ground water area, impose water conservation measures, and also require meters on existing wells. To date, no action has been taken by IDWR to regulate implementation of water conservation actions or metering and repair of wells. IDWR has stated that “\* \* \* the Director has no authority under State law to shut down prior vested water rights in order to protect an endangered species” (IDWR 1992). Therefore, measures taken by IDWR have been inadequate for the protection and recovery of habitats for the Bruneau Hot Springsnail.

The BLM manages the public lands containing Bruneau Hot Springsnails and their habitats along Hot Creek and the Bruneau River. The BLM issues permits for livestock grazing on these lands and grants authorizations that could lead to the drilling of new wells or increased ground water use on BLM lands. In the past, the BLM has shown an interest in conserving the species and has solicited input from the Service regarding impacts that may result from any proposed activities. As discussed in Factor A, the BLM has implemented fencing to protect Bruneau Hot Springsnail habitats from grazing impacts.

The CRP is authorized under the Food Security Act of 1985, as amended, to implement a voluntary program that offers annual rental payments, incentive

payments for certain activities, and cost-share assistance to establish approved cover on eligible cropland (U.S. Department of Agriculture (USDA) 1997). This program encourages farmers to plant long-term resource-conserving covers to improve soil, water, and wildlife resources. The duration of the contracts are between 10 and 15 years (USDA 1997). As discussed in Factor A, all of the current lands in CRP will expire by 1999. It is unlikely that all those eligible for the new CRP agreements will participate due to a dramatic drop in the rental rates (from about \$50 per acre to about \$20 per acre) currently offered through the CRP (Abbott, *in litt.* 1997). Area landowners have indicated that this drop in rental fees will not provide the necessary incentive to continue participating with the CRP.

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

Sedimentation of Bruneau Hot Springsnail habitats is a threat to this species. Summer floods and mudflows during 1991 and 1992 delivered significant amounts of sand, silt and gravel to upper Hot Creek, and as of July 1992, completely filling the Indian Bathtub with at least 1 m (3 ft) of sediment (Robinson, et al., 1992). Following sediment delivery from a flash flood in October 1992, additional springflows have been completely covered over and Bruneau Hot Springsnail habitat eliminated from approximately 150 m (492 ft) in upper Hot Creek below the Indian Bathtub. While flash floods probably occurred historically, the decreased flushing effects of declining springflows have resulted in the filling in of Bruneau Hot Springsnail habitats at the Indian Bathtub and upper Hot Creek. Sediment deposited by periodic flash floods cannot be flushed by the remaining weak and declining springflows. Measures which could protect Bruneau Hot Springsnail spring/seep habitats in the Indian Bathtub and Hot Creek from the effects of flash flooding have not been implemented. These measures include the construction of small retention dams in the Hot Creek watershed to trap runoff sediment while maintaining thermal seep habitats. Therefore, sedimentation and flooding continue to threaten Bruneau Hot Springsnail habitat.

#### **Determination**

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the Bruneau Hot Springsnail. Based on this



evaluation, the preferred action is to retain the Bruneau Hot Springsnail as an endangered species. The species persists in only a few isolated thermal springs and seeps in Hot Creek and along an 8 km (5 mi) reach of the Bruneau River characterized by temperatures ranging from 15.7 to 35° C (60.3 to 95°). The free-flowing thermal spring and seep environments required by the Bruneau Hot Springsnail have been impacted by and are vulnerable to continued reduction from agricultural-related ground water withdrawal/pumping. The species and its habitat are also vulnerable to habitat modification from the effects of flash floods. The remaining complex of thermally related springs and their immediate outflows are not protected from the threats previously discussed. Existing regulations do not provide adequate protection to prevent further direct or indirect habitat losses. The Bruneau Hot Springsnail is in danger of extinction throughout all or a significant portion of its range, and therefore, fits the definition of endangered as defined in the Act.

#### 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).

#### Author

The primary author of this rule is Jeri Wood, Snake River Basin Office, U.S. Fish and Wildlife Service, 1387 S. Vinnell Way, Room 386, Boise, Idaho (208/378-5243).

#### Authority

The authority for this action is the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*).

Dated: June 5, 1998.

**Jamie Rappaport Clark,**

*Director, Fish and Wildlife Service.*

[FR Doc. 98-16099 Filed 6-16-98; 8:45 am]

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## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 17

RIN 1018-AE97

#### Endangered and Threatened Wildlife and Plants; Listing of Several Evolutionarily Significant Units of West Coast Steelhead

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Final rule.

**SUMMARY:** The Fish and Wildlife Service (Service) is adding several Evolutionarily Significant Units (ESUs) of west coast steelhead (*Oncorhynchus mykiss*) to the List of Endangered and Threatened Wildlife (List) in accordance with the Endangered Species Act of 1973, as amended (Act). The Southern California and Upper Columbia River Basin ESUs are added as endangered, and the Central California Coast, South-Central California Coast, Snake River Basin, Lower Columbia River, and Central Valley California ESUs are added as threatened. This amendment is based on determinations by the National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration, Department of Commerce, which has jurisdiction for this species.

**DATES:** The effective date for listing of the Southern California and Upper Columbia River Basin ESUs as endangered and the Central California Coast, South-Central California Coast, and Snake River Basin ESUs as threatened is October 17, 1997. The effective date for listing of the Lower Columbia River and Central Valley California ESUs as threatened is May 18, 1998.

**ADDRESSES:** Division of Endangered Species, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Mail Stop 452, Arlington, Virginia 22203.

**FOR FURTHER INFORMATION CONTACT:** E. LaVerne Smith, Chief, Division of Endangered Species, at the above address or telephone 703/358-2171.

#### SUPPLEMENTARY INFORMATION:

##### Background

In accordance with the Act and Reorganization Plan No. 4 of 1970, NMFS has jurisdiction over west coast steelhead. Under section 4(a)(2) of the Act, NMFS must decide whether a species under its jurisdiction should be classified as endangered or threatened. The Service is responsible for the actual amendment of the List in 50 CFR 17.11(h).

On August 9, 1996, NMFS published a proposed rule to list as endangered or threatened 10 ESUs of west coast steelhead in Washington, Oregon, Idaho, and California (61 FR 41541). On August 18, 1997, NMFS published a final rule listing five of these ESUs: the Southern California and Upper Columbia River Basin ESUs were listed as endangered, and the Central California Coast, South-Central California Coast, and Snake River Basin ESUs were listed as threatened (62 FR 43937).

Also on August 18, 1997, NMFS published a notice announcing that substantial scientific disagreement remained for the remaining five ESUs proposed for listing on August 9, 1996. The notice extended the deadline for a final listing determination for these five ESUs for 6 months to solicit, collect, and analyze additional information from NMFS scientists, co-management scientists, and scientific experts to enable NMFS to make a final listing determination based on the best available data. On March 19, 1998, NMFS published a final rule listing two of these five ESUs, the Lower Columbia River and the Central Valley California ESUs, as threatened (63 FR 13347).

The proposed rules identified above solicited comments from peer reviewers, the public, and all other interested parties. The final rules addressed the comments received in response to the proposed rules. Because NMFS provided public comment periods on the proposed rules, and because this action of the Service to amend the List in accordance with the determinations by NMFS is nondiscretionary, the Service has omitted the notice and public comment procedures of 5 U.S.C. 553(b) for this action.

#### National Environmental Policy Act

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

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

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

#### Regulation Promulgation

Accordingly, the Service amends part 17, subchapter B of chapter I, title 50 of