Sandra K. Knight,

Deputy Associate Administrator for Mitigation, Department of Homeland Security, Federal Emergency Management Agency.

[FR Doc. 2011–25871 Filed 10–5–11; 8:45 am]

BILLING CODE 9110–12–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 61 and 64

[WC Docket No. 10–141; FCC 11–92]

Electronic Tariff Filing System (ETFS)

AGENCY: Federal Communications Commission.

ACTION: Final rule; announcement of effective date.

SUMMARY: In this document, the Commission announces that the Office of Management and Budget (OMB) has approved, for a period of three years, the information collection associated with the Commission's *Electronic Tariff Filing System (ETFS),* Report and Order (*Order*). This notice is consistent with the *Order,* which stated that the Commission would publish a document in the **Federal Register** announcing the effective date of those rules.

DATES: The rules published at 47 CFR in parts 61 and 64 published at 76 FR 43206, July 20, 2011, are effective November 17, 2011.

FOR FURTHER INFORMATION CONTACT: Pamela Arluk, Pricing Policy Division, Wireline Competition Bureau, at (202) 418–1520, or email: *pamela.arluk@fcc.gov.*

SUPPLEMENTARY INFORMATION: This document announces that, on July 20, 2011, OMB approved, for a period of three years, the information collection requirements contained in the Commission's *Order,* FCC 11–92, published at 76 FR 43206, July 20, 2011. The OMB Control Number is 3060–1142. The Commission publishes this notice as an announcement of the effective date of the rules. If you have any comments on the burden estimates listed below, or how the Commission can improve the collections and reduce any burdens caused thereby, please contact Cathy Williams, Federal Communications Commission, Room 1–C823, 445 12th Street, SW., Washington, DC 20554. Please include the OMB Control Number, 3060–1142, in your correspondence. The Commission will also accept your comments via e-mail at *PRA@fcc.gov.*

To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to *fcc504@fcc.gov* or call the Consumer and Governmental Affairs Bureau at (202) 418–0530 (voice), (202) 418–0432 (TTY).

Synopsis

As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507), the FCC is notifying the public that it received OMB approval on July 20, 2011, for the information collection requirements contained in the modifications to the Commission's rules in 47 CFR parts 61 and 64.

Under 5 CFR part 1320, an agency may not conduct or sponsor a collection of information unless it displays a current, valid OMB Control Number.

No person shall be subject to any penalty for failing to comply with a collection of information subject to the Paperwork Reduction Act that does not display a current, valid OMB Control Number. The OMB Control Number is 3060–1142.

The foregoing notice is required by the Paperwork Reduction Act of 1995, Public Law 104–13, October 1, 1995, and 44 U.S.C. 3507.

The total annual reporting burdens and costs for the respondents are as follows:

OMB Control Number: 3060–1142.

OMB Approval Date: July 20, 2011.

OMB Expiration Date: September 30, 2013.

Title: Electronic Tariff Filing System, WC Docket No. 10–141.

Form Number: N/A.

Respondents: Business or other for-profit entities.

Number of Respondents and Responses: 1,500 respondents; 1,500 responses.

Estimated Time per Response: 1 hour.

Frequency of Response: Annual and on-occasion reporting requirements.

Obligation to Respond: Required to obtain or retain benefits. The statutory authority for this information collection is found at sections 1, 2, 4(i), 201–205, and 226(h)(1)(A) of the Communications Act of 1934, as amended (Act), 47 U.S.C. 151, 152, 154(i), 201–205, and 226(h)(1)(A).

Total Annual Burden: 1,500 hours.

Total Annual Cost: $1,222,500.

Nature and Extent of Confidentiality: An assurance of confidentiality is not offered because this information collection does not require the collection of personally identifiable information (PII) from individuals.

Needs and Uses: In this document, the Federal Communications Commission (Commission) adopts rule revisions enabling all tariff filers to file tariffs electronically over the Internet, using the Electronic Tariff Filing System (ETFS). Additionally, the Commission clarifies and makes more consistent certain technical rules related to tariff filings. The Commission concludes that it is appropriate to apply the same electronic filing requirements to all tariff filers and expands the applicability of the Commission's rules to include all tariff filers. The Commission also concludes that the Commission's rules, which require specific formatting and composition of tariffs, will now apply to all tariff filers. The Chief of the Wireline Competition Bureau will be responsible for administering the adoption of electronic tariff filing requirements for all tariff filers.

Federal Communications Commission.

Marlene H. Dortch,

Secretary.

[FR Doc. 2011–25801 Filed 10–5–11; 8:45 am]

BILLING CODE 6712–01–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R3–ES–2009–0009; MO 92210–0–0008–B2]

RIN 1018–AV94

Endangered and Threatened Wildlife and Plants; Endangered Status for the Ozark Hellbender Salamander

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine endangered status under the Endangered Species Act of 1973 (Act), as amended, for the Ozark Hellbender (*Cryptobranchus alleganiensis bishopi*), a subspecies found in northern Arkansas and southern Missouri. This final rule implements the Federal protections provided by the Act for this species. We have also determined that the designation of critical habitat for the Ozark Hellbender is not prudent. The final rule for the CITES Appendix III listing for the Ozark and Eastern Hellbender is being published concurrently in today's **Federal Register**.

DATES: This final rule is effective November 7, 2011.

ADDRESSES: The final rule is available on the Internet at *http://www.regulations.gov* and at the

Columbia Missouri Ecological Services Field Office. Comments and materials received, as well as supporting documentation used in the preparation of this rule, will be available for public inspection, by appointment, during normal business hours at: U.S. Fish and Wildlife Service, Columbia Missouri Ecological Services Field Office, 101 Park De Ville Dr., Suite A, Columbia, MO 65203; telephone: 573–234–2132; facsimile: 573–234–2181.

FOR FURTHER INFORMATION CONTACT: Charles Scott, Field Supervisor, at the U.S. Fish and Wildlife Service, Columbia Missouri Ecological Services Field Office (see **ADDRESSES** section). If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Background

The Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*) is a law that was passed to prevent extinction of species by providing measures to help alleviate the loss of species and their habitats. Before a plant or animal species can receive the protection provided by the Act, it must first be added to the Federal Lists of Threatened and Endangered Wildlife and Plants; section 4 of the Act and its implementing regulations at 50 CFR part 424 set forth the procedures for adding species to these lists. We published a proposed rule (75 FR 54561) to list the Ozark Hellbender (*Cryptobranchus alleganiensis bishopi*) as endangered under the Endangered Species Act, as amended (Act; 16 U.S.C. 1531 *et seq.*) on September 8, 2010, with a 60-day public comment period.

Previous Federal Action

Federal actions for this species prior to September 8, 2010, are outlined in our proposed rule for this action (75 FR 54561). We implemented the Service's peer review process and opened a 60-day comment period to solicit scientific and commercial information on the species from all interested parties following publication of the proposed rule. Because collection for trade is considered a primary threat, we coordinated with our Division of Management Authority to develop, concurrent with that proposal, a proposal to list the Ozark Hellbender as well as the Eastern Hellbender in Appendix III of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (75 FR 54579). The final rule for the CITES Appendix III listing is being published concurrently in today's **Federal Register**.

Species Description

The Ozark Hellbender is a large, strictly aquatic salamander endemic to streams of the Ozark Plateau in southern Missouri and northern Arkansas. Its dorso-ventrally flattened body form enables movements in the fast-flowing streams it inhabits (Nickerson and Mays 1973a, p. 1). Ozark Hellbenders have a large, keeled tail and tiny eyes. An adult may attain a total length of 11.4 to 22.4 inches (in) (29 to 57 centimeters (cm)) (Dundee and Dundee 1965, pp. 369–370; Johnson 2000, p. 41). Numerous fleshy folds along the sides of the body provide surface area for respiration (Nickerson and Mays 1973a, pp. 26–28) and obscure their poorly developed costal grooves (grooves in the inner border of the ribs; Dundee 1971, p. 101.1). Ozark Hellbenders are distinguishable from Eastern Hellbenders (*Cryptobranchus alleganiensis alleganiensis*) by their smaller body size, dorsal blotches, increased skin mottling, heavily pigmented lower lip, smooth surfaced lateral line system, and reduced spiracular openings (openings where water is expelled out of the body) (Grobman 1943, p. 6; Dundee 1971, p. 101.3; Peterson *et al.* 1983, pp. 227–231; LaClaire 1993, pp. 1–2). Despite these distinguishing characteristics, the two subspecies are not easily or readily distinguishable absent the presence of both subspecies or when encountered outside of their subspecies' range.

Taxonomy

The Ozark Hellbender was originally described as *Cryptobranchus bishopi* by Grobman (1943, pp. 6–9) from a specimen collected from the Current River in Carter County, Missouri. Based on the slight morphological and ecological variation within the genus *Cryptobranchus,* Dundee and Dundee (1965, pp. 369–370) determined subspecific status for Ozark and Eastern hellbenders as within the hellbender, *C. alleganiensis* complex *sensu lato* (which means, ''in the broad sense'' and is used when two subspecies are derived from a single species within a broader context). Subsequent genetic analyses by Merkle *et al.* (1977, pp. 550–552) and Shaffer and Breden (1989, pp. 1017–1022) supported the classification of the Ozark and Eastern hellbender as subspecies. In 1991 Collins (1991, pp. 42–43) attempted to revive the designation of *C. bishopi,* due to the lack of intergradation between the Eastern and Ozark Hellbenders, primarily a result of the taxa occurring in separate, nonoverlapping geographic areas (Dundee 1971, p. 101.1). However, despite some phenotypic and genetic differences between Ozark and Eastern hellbenders (Grobman 1943, pp. 6–9; Dundee and Dundee 1965, p. 370; Dundee 1971, p. 101.1; Routman 1993, pp. 410–415; Kucuktas *et al.* 2001, p. 127), the suggestion to elevate Ozark and Eastern hellbenders to species status was never accepted by other taxonomists (Crother *et al.* 2008, p. 15). We will continue to use the nomenclature *C. a. bishopi* for the Ozark Hellbender, which is the taxonomy currently recognized by the Committee on Standard English and Scientific Names (Crother *et al.* 2008, p. 15). Although discussion continues over the taxonomic status of the Ozark Hellbender, the designation of the Ozark Hellbender as a species or subspecies does not affect its qualification for listing under the Act (16 U.S.C. 1531 *et seq.*).

Habitat and Life History

Eastern and Ozark hellbenders are similar in habitat selection, movement, and reproductive biology (Nickerson and Mays 1973a, pp. 44–55). Published works on the Eastern Hellbender provide insights into Ozark Hellbender ecology. Adult Ozark Hellbenders are frequently found beneath large rocks, typically limestone or dolomite, and in moderate to deep (less than 3 feet (ft) to 9.8 ft (less than 1 meter (m) to 3 m)), rocky, fast-flowing streams in the Ozark Plateau (Johnson 2000, p. 42; Fobes and Wilkinson 1995, pp. 5–7). In spring-fed streams, Ozark Hellbenders will often concentrate downstream of the spring, where there is little water temperature change throughout the year (Dundee and Dundee 1965, p. 370). Adults are nocturnal, remaining beneath cover during the day and emerging to forage at night, primarily on crayfish. They are diurnal during the breeding season (Nickerson and Mays 1973a, pp. 40–41; Noeske and Nickerson 1979, pp. 92, 94). Ozark Hellbenders are territorial and will defend occupied cover from other hellbenders (Nickerson and Mays 1973a, pp. 42–43). This species migrates little throughout its life. For example, one tagging study revealed that 70 percent of marked individuals moved less than 100 ft (30 m) from the site of original capture (Nickerson and Mays 1973b, p. 1165). Home ranges average 91.9 square (sq) ft (28 sq m) for females and 265.7 sq ft (81 sq m) for males (Peterson and Wilkinson 1996, p. 126).

Hellbenders are habitat specialists that depend on consistent levels of dissolved oxygen, temperature, and flow (Williams *et al.* 1981, p. 97). The lower

dissolved-oxygen levels found in warm or standing water do not provide for the hellbender's respiratory needs. In fact, hellbenders have been observed rocking or swaying in still, warm water (Williams *et al.* 1981, p. 97) to increase their exposure to oxygen. Hutchison and Hill (1976, p. 327) found that the hellbender exhibits a preferred mean water temperature of 52.9 °F (11.6 °C), 63.9 °F (17.7 °C), and 71.1 °F (21.7 °C) for individuals acclimatized to temperatures of 41 °F (5 °C), 59 °F (15 °C), and 77 °F (25 °C), respectively. Hutchison *et al.* (1973, p. 807) found the mean critical thermal maxima (the temperature at which animals lose their organized locomotory ability and are unable to escape from conditions that would promptly lead to their death) of Ozark Hellbenders was 90.9 °F (32.7 °C) at 41 °F (5 °C) acclimation, 91.2 °F (32.9 °C) at 59 °F (15 °C), and 97.7 °F (36.5 °C) at 77° F (25 °C).

Hellbenders are long-lived, capable of living 25 to 30 years in the wild (Peterson *et al.* 1983, p. 228). Hellbenders may live up to 29 years in captivity (Nigrelli 1954, p. 297). Individuals mature sexually at 5 to 8 years of age (Bishop 1941, pp. 49–50; Dundee and Dundee 1965, p. 370), and males normally mature at a smaller size and younger age than females. Female hellbenders are reported to be sexually mature at a total length of 14.6 to 15.4 in (37 to 39 cm), or at an age of approximately 6 to 8 years (Nickerson and Mayes 1973a, p. 54; Peterson *et al.* 1983, p. 229; Taber *et al.* 1975, p. 638). Male hellbenders have been reported to reach sexual maturity at a total length of 11.8 in (30 cm), or at an age of approximately 5 years (Taber *et al.* 1975, p. 638).

Breeding generally occurs between mid-September and early October (Johnson 2000, p. 42). Males prepare nests beneath large flat rocks or submerged logs. Ozark Hellbenders mate via external fertilization, and males will guard the fertilized eggs from predation by other hellbenders (Nickerson and Mays 1973a, pp. 42, 48). Clutch sizes vary from 138 to 450 eggs per nest (Dundee and Dundee 1965, p. 369), and eggs hatch after approximately 80 days (Bishop 1941, p. 47). Larvae and small individuals hide beneath small stones in gravel beds or under large rocks, similar to those occupied by adults (Nickerson and Mays 1973a, p. 12; LaClaire 1993, p. 2). Although there is little information on the diet of larval hellbenders, it is generally believed that aquatic insects comprise their primary food source. In one of the few studies on larval diet, Pitt and Nickerson (2006, p. 69) found that the stomach of a larval Eastern Hellbender from the Little River in Tennessee exclusively contained aquatic insects.

During or shortly after eggs are laid, males and females may prey upon their own and other individuals' clutches. Most hellbenders examined during the breeding season contain between 15 and 25 eggs in their stomachs (Smith 1907, p. 26). Males frequently regurgitate eggs (King 1939, p. 548; Pfingsten 1990, p. 49), and females sometimes eat their own eggs while ovipositing (laying) them (Nickerson and Mays 1973a, p. 46). Topping and Ingersol (1981, p. 875) found that up to 24 percent of the gravid (egg-bearing) females examined from the Niangua River in Missouri retained their eggs and eventually reabsorbed them.

Range

Ozark Hellbenders are endemic to the White River drainage in northern Arkansas and southern Missouri (Johnson 2000, pp. 40–41), historically occurring in portions of the Spring, White, Black, Eleven Point, and Current Rivers and their tributaries (North Fork White River, Bryant Creek, and Jacks Fork) (LaClaire 1993, p. 3). Currently, populations of Ozark Hellbenders are known to occur in the North Fork of the White River, the Eleven Point River, and the Current River.

The other subspecies of hellbender, the Eastern Hellbender, occurs in central and eastern Missouri (in portions of the Missouri drainage in south-central Missouri and the Meramec (Mississippi drainage)), but its range does not overlap with that of the Ozark Hellbender. The Eastern Hellbender's range extends eastward to New York, Georgia, and the States in between.

Population Estimates and Status

Evidence indicates Ozark Hellbenders are declining throughout their range (Wheeler *et al.* 2003, pp. 153, 155), and no populations appear to be stable.

At the request of the Saint Louis Zoo's Wildcare Institute, the Conservation Breeding Specialist Group (CBSG) facilitated a Population and Habitat Viability Analysis (PHVA) for Ozark and Eastern Hellbenders in August 2006. Thirty workshop participants explored threats to hellbender populations and developed management actions aimed at understanding and halting their decline. Using the software program Vortex (v9.61), the CBSG team prepared and presented a baseline model for hellbender populations and worked through the input parameters with the participants to optimize the model and determine current and projected mean population sizes for all current populations in 75 years (Briggler *et al.* 2007, pp. 8, 80–86). The results of the model are presented in the river-specific population accounts below.

A description of what we know about Ozark Hellbender populations follows, including current population estimates from the hellbender PHVA (Briggler *et al.* 2007, pp. 83–84).

White River—There are only two Ozark Hellbender records from the main stem of the White River. In 1997, an Ozark Hellbender was recorded in Baxter County, Arkansas (Irwin 2008a, pers. comm.). No hellbenders were found during a 2001 survey of the lower portion of the White River, but in 2003, an angler caught a specimen in Independence County, Arkansas (Irwin 2008a, pers. comm.). We do not know whether a viable population exists (or whether hellbenders are able to exist) in the main stem of the White River or if the individuals captured are members of a relic population that was separated from the North Fork White River population by Norfork Reservoir. Much of the potentially occupied hellbender habitat was destroyed by the series of dams constructed in the 1940s and 1950s on the upper White River, including Beaver, Table Rock, Bull Shoals, and Norfork Reservoirs.

North Fork White River—The North Fork White River (North Fork) historically contained a considerable Ozark Hellbender population. In 1973, results of a mark-recapture study indicated that there were approximately 1,150 hellbenders within a 1.7-mile (mi) (2.7-kilometer (km)) reach of the North Fork in Ozark County, Missouri, with an estimated density of one individual per 26.2 to 32.8 sq ft (8 to 10 sq m; Nickerson and Mays 1973b, p. 1165). Ten years later, hellbender density in a 2.9-mi (4.6-km) section of the North Fork in the same county remained high, with estimated densities between one per 19.7 sq ft (6 sq m) and one per 52.5 sq ft (16 sq m; Peterson *et al.* 1983, p. 230). Individuals caught in this study also represented a range of lengths from 6.8 to 21.7 in (172 to 551 millimeters (mm)), indicating that reproduction was occurring in this population, and most individuals measured between 9.8 and 17.7 in (250 and 449 mm). In a 1992 qualitative study in Ozark County, Missouri, 122 hellbenders were caught during 49 person-hours of searching the North Fork (Ziehmer and Johnson 1992, p. 2). Those individuals ranged in length from 10 to 18 in (254 to 457 mm), and no average length was included in that publication.

Until the 1992 study, the North Fork population appeared to be relatively healthy. However, in a 1998 study of the same reach of river that was censused in

1983 (Peterson *et al.* 1983, pp. 225–231) and that used the same collection methods, only 50 hellbenders were captured (Wheeler *et al.* 1999, p. 18). These individuals ranged in length from 7.9 to 20.0 in (200 to 507 mm), with most measuring between 15.7 and 19.7 in (400 and 500 mm), and the average length was significantly greater than the average length of those collected 20 years earlier (Wheeler 1999, p. 15). This shift in length distribution was not a result of an increase in maximum length of individuals; instead, there were fewer individuals collected in the smaller size classes.

As a way to compare relative abundance of hellbenders in the late 1990s to historic numbers, Wheeler *et al.* (2003, pp.152–153) obtained raw data used in the Peterson *et al.* (1983) study to calculate numbers of individuals caught per day. Other Ozark Hellbender population studies not included in that conversion are converted here for further comparison of relative abundance between historic and more recent studies (Ziehmer and Johnson 1992, pp. 1–5). For comparison purposes, one search day is defined as 8 hours of searching by 3 people (or 24 person-hours). However, converting person-hours to a search day metric may underestimate actual search effort and overestimate relative hellbender abundance as person-hours usually only include time spent in the water searching (as opposed to total number of hours spent on the river). It should also be noted that because search effort was not standardized among all studies, comparison of hellbender captures per search day is a general, rather than a quantitative, comparison. Using this metric for the North Fork, approximately 55 hellbenders were caught per search day in 1983 (Peterson *et al.* 1983, pp. 225–231). In 1992, 60 hellbenders per search day were caught (Ziehmer and Johnson 1992, p. 2), and in 1998, 17 hellbenders per search day were caught (Wheeler 2003, p. 153).

Another comparison of Ozark Hellbenders captures between historic and recent years provides further evidence of a decline. A 16.2-mi (25-km) section of stream in the North Fork (overlapping with some sites sampled in the previous studies) was surveyed during 1969–1979 and again during 2005–2006 (Nickerson and Briggler 2007, pp. 212–213). Between 1969 and 1979, researchers caught 8 to 12 hellbenders per hour (64 to 96 hellbenders per search day); whereas in 2005 and 2006 researchers averaged 0.5 hellbenders per hour (4 hellbenders per search day) (Nickerson and Briggler 2007, p. 213).

In 2006, hellbender experts estimated the current population in the North Fork to be 200 individuals (Briggler *et al.* 2007, p. 83). The North Fork had been considered the stronghold of the species in Missouri, and the populations inhabiting this river were considered stable by Ziehmer and Johnson (1992, p. 3) and LaClaire (1993, pp. 3–4). However, the studies cited above indicate that these populations now appear to be experiencing declines similar to those in other streams. The collection of young individuals has become rare, indicating that there is little recruitment. Although Briggler (2011c, pers. comm.) occasionally found some younger hellbenders in this river during surveys between 2005 and 2010, no larvae have been found despite extensive effort. In species such as the hellbender, which are long lived and mature at a relatively late age, detecting declines related to insufficient recruitment can take many years, as recruitment under healthy population conditions is typically low (Nickerson and Mays 1973a, p. 54). Based on the comparisons of relative abundance and lack of observed recruitment, it appears that a severe decline has occurred in the North Fork.

Bryant Creek— Bryant Creek is a tributary of the North Fork in Ozark County, Missouri, which flows into Norfork Reservoir. Ziehmer and Johnson (1992, p. 2) expected to find Ozark Hellbenders in this stream during an initial survey, but none were captured or observed after 22 person-hours (0.9 search days). This apparent absence of the species conflicted with previous reports from Missouri Department of Conservation (MDC) personnel and an angler who reported observations of fairly high numbers of hellbenders in Bryant Creek during the winter months (Ziehmer and Johnson 1992, p. 3). A subsequent survey of the creek resulted in the capture of six hellbenders (Wheeler *et al.* 1999, p. 7) and confirmed the existence of a population in this tributary, at least through 1998. This population, however, is isolated from the other North Fork White River populations by the Norfork Reservoir, which could contribute to this population's apparent small size due to fragmentation of habitat. During MDC surveys conducted in 2007, no individuals were found in areas where the six individuals were found in 1998. However, five individuals were found in areas of Bryant Creek that were not surveyed in 1998. This population has been historically low and is not considered to be viable (Briggler 2008b, pers. comm.).

Black River—There is one documented record of an Ozark Hellbender in the Black River above its confluence with the Strawberry River on the Independence-Jackson County line (Arkansas) in 1978 (Irwin 2008a, pers. comm.). Portions of the Black River in Missouri were surveyed in 1999 by researchers at Arkansas State University, but no hellbenders were observed (Wheeler *et al.* 1999, p. 18). Currently, the Black River does not appear to have conditions suitable for Ozark Hellbenders, although it may have been occupied before intensive agriculture was initiated in the area (Irwin 2008b, pers. comm.). The Black River is presumed to be part of the historical range of the subspecies, because Ozark Hellbenders have been documented in several of its tributaries, including the Spring, Current, and Eleven Point rivers (Firschein 1951, p. 456; Trauth *et al.* 1992, p. 83). In 2004, MDC surveyed areas in Missouri that had been searched in 1999 (Wheeler *et al.* 1999, p. 18), as well as areas not searched in 1999 that had anecdotal reports of hellbenders. No hellbenders were found during this 2-day survey. The habitat was considered less than ideal because it was predominantly composed of igneous rocks, which lack the cracks and crevices necessary for hellbender inhabitance. Parts of the Black River, with suitable dolomite rock, might have contained a small population at one time (Briggler 2008b, pers. comm.).

Spring River—The Spring River, a tributary of the Black River, flows from Oregon County, Missouri, south into Arkansas. Ozark Hellbender populations have been found in the Spring River near Mammoth Spring in Fulton County, Arkansas (LaClaire 1993, p. 3). In the early 1980s, 370 individuals were captured during a mark-recapture study along 4.4-mi (7-km) of stream south of Mammoth Spring (Peterson *et al.* 1988, p. 293). Hellbender density at each of the two surveyed sites was fairly high (approximately one per 75.5 square (sq) ft (23 sq m) and one per 364 sq ft (111 sq m), respectively). These individuals were considerably larger than hellbenders captured from other streams during the same time period, with 74 percent of Spring River hellbenders having a total length of more than 17.7 in (450 mm), with a maximum length of 23.6 in (600 mm) (Peterson *et al.* 1988, p. 294). Although other factors may be involved in the observed length differences, it has been hypothesized that Spring River populations are genetically distinct from other hellbender populations. This

speculation was upheld by the conclusions of a genetic study of the populations in the Spring, Current, and Eleven Point rivers (Kucuktas *et al.* 2001, pp. 131–135). In 1991, surveyors searched 10 sites for hellbenders along a 16.2-mi (26-km) stream reach but observed only 20 individuals during 41 person-hours (11.7 hellbenders per search day) over a 6-month period (Trauth *et al.* 1992, pp. 84–85). This 6-month survey included the two sites surveyed in the early to mid-1980s in which surveyors captured 370 hellbenders, along with eight additional sites upstream and downstream (Peterson *et al.* 1988, pp. 291–303; Trauth *et al.* 1992, p. 83). No size class information is available, although the large sizes of captures reported in Peterson *et al.* (1988, p. 294) may be indicative of a population experiencing little recruitment.

Researchers with Arkansas State University surveyed the Spring River from autumn 2003 through winter 2004, performing 74 hours of search effort and found only 12 Ozark Hellbenders (3.9 hellbenders per search day) (Hiler 2005, p. 186). Nine of these animals exhibited severe physical abnormalities and were removed from the river to be housed at the Mammoth Spring National Fish Hatchery but have since died. All nine have since died, however, possibly due to water quality issues at the hatchery or from health issues that were observed when they were captured (*i.e.,* lesions, raw limbs). Arkansas State University researchers found four and one individual during 2005 and 2006 surveys, respectively. Hellbenders have declined in this stream from unknown causes. Possible reasons for the decline include water quality degradation, aquatic vegetation encroachment, collection for scientific purposes, and illegal commercial collection (Irwin 2008b, pers. comm.). Experts estimated the population in the Spring River to be at most 10 individuals, considered the population in this river to be functionally extirpated, and considered there to be minimal possibility of this stream being reinhabited under present conditions because of the magnitude of habitat degradation (Briggler *et al.* 2007, p. 83; Irwin 2008b, pers. comm.).

Eleven Point River—The Eleven Point River, a tributary of the Black River that occurs in Missouri and Arkansas, has been surveyed several times since the 1970s. Wheeler (1999, p. 10) analyzed historical data and reported that in 1978, 87 Ozark Hellbenders were captured in Oregon County, Missouri, over a 3-day period, yielding an average of 29 hellbenders per search day. From 1980 to 1982, 314 hellbenders were captured in the same area in 9 collection days, yielding an average of 35 hellbenders per search day; hellbender body lengths over that period ranged from 4.7 to 17.8 in (119 to 451 mm) (Wheeler 1999, p. 10). In 1988, Peterson *et al.* (1988, p. 293) captured 211 hellbenders from the Eleven Point River and estimated hellbender density to be approximately one per 65.6 sq ft (20 sq m). Total lengths of these individuals ranged from 4.7 to 17.7 in (120 to 450 mm), with most between 9.8 and 13.8 in (250 and 350 mm). The average number of hellbenders captured per hour was 8.4 and 8.8 for the two sites sampled, or 67 and 70 hellbenders captured per search day (using the search day conversion method presented in the North Fork White River discussion). As noted previously, the abundance of hellbenders per search day is likely an overestimate, and may be better approximated as 35–40 hellbenders per search day since the reported capture rates do not appear to be relative to the number of surveyors.

In 1998, Wheeler (1999, p. 10) captured 36 Ozark Hellbenders over 4 days from the same localities as Peterson *et al.* (1988, p. 292), for an average of nine hellbenders per search day. These hellbenders were larger than those captured previously, with total lengths of 12.8 to 18.0 in (324 to 457 mm), and there were considerably fewer individuals in the smaller size classes. For comparison, a survey of localities in 2005 by Peterson *et al.* (1988, p. 293) resulted in a total of 31 hellbenders captured and yielded an average of 2.6 hellbenders captured per search day. Population declines and reduced recruitment in the Eleven Point River in Missouri are indicated by the results of survey data (Briggler 2011b, pers. comm.), although hellbenders are consistently reported during surveys in the Eleven Point River in Arkansas (Irwin 2011a, pers. comm.).

Recently in Arkansas (2005 and 2007), however, no more than two or three individuals were caught per search day. Specifically, the catch per person-hour in 2005 was 1.1 hellbenders and in 2007 the capture rate was 0.9 hellbenders per person-hour for surveys conducted on the Eleven Point River in Arkansas (Irwin 2008a, pers. comm.). In 2006, hellbender experts estimated the current Eleven Point River population to be 200 individuals in Arkansas and 100 individuals in Missouri (Briggler *et al.* 2007, p. 83).

Current River—The Current River was not surveyed extensively until the 1990s. Nickerson and Mays (1973a, p. 63) reported a large Ozark Hellbender population in this stream, but no numbers were recorded. In 1992, Ziehmer and Johnson (1992, p. 2) found 12 hellbenders in 60 person-hours in Shannon County, Missouri, or approximately 5 hellbenders per search day (using the same search day conversion as presented in the North Fork White River discussion). These individuals ranged in length from 4.5 in (115 mm) to more than 15.0 in (380 mm; maximum length was not reported), with most between 13.0 and 15.0 in (330 and 380 mm). In 1999, 14 hellbenders were collected over 3 collection days (approximately 5 hellbenders per search day), also in Shannon County, Missouri, and the individuals ranged from 14.8 to 20.3 in (375 to 515 mm) in length, with most between 17.7 to 19.7 in (450 to 499 mm) (Wheeler 1999, p. 12). The average size of individuals increased by nearly 4 in (100 mm), and the reported increase in length suggests that recruitment may be absent in this population. In 2005 and 2006, researchers found 22 hellbenders throughout the Current River in 100 hours of searching (equivalent to 5.2 hellbenders per search day). In 2006, hellbender experts estimated the current population in the Current River to be 80 individuals (Briggler *et al.* 2007, p. 83).

Jacks Fork—Jacks Fork, a tributary of the Current River, was initially surveyed for Ozark Hellbenders in 1992 (Ziehmer and Johnson 1992, p. 2). Four hellbenders were collected over 66 person-hours, equating to roughly 1.5 hellbenders per search day. The individuals were large, ranging from 13.0 to 16.9 in (330 to 430 mm) in length. No hellbenders were found during investigations of Jacks Fork in 2003 nor were any found in 2006 during 7 person-hours of searching (Phillips 2010, pers. comm.).

Summary of Comments and Recommendations

In the proposed rule published on September 8, 2010 (75 FR 54561), we requested that all interested parties submit written comments on the proposal by November 8, 2010. We also contacted appropriate Federal, State, and local agencies; scientific experts; and other interested parties and invited them to comment on the proposal. Newspaper notices inviting general comments were published in the West Plains Daily Quill (West Plains, Missouri), The Times Dispatch (Walnut Ridge, Arkansas), and The News-Leader (Springfield, Missouri). We did not receive any requests for a public hearing.

Between October 21, 2010, and October 28, 2010, the Service received five requests to extend the public

comment period for an additional 90 days. The reasons for requesting an extension centered on the Service's proposed determination that it was not prudent to designate critical habitat for the Ozark Hellbender. While the requests cited complexities of the issues involved and concerns regarding the water quality in the streams as the basis for an extension, no new information was provided that was not already outlined in the proposed rule. Therefore, we did not extend the public comment period and further delay the listing. We did, however, host a conference call with the requesters to provide information and answer questions regarding the Service's proposal.

We received 65 written comments, including comments from 3 peer reviewers. Fifty-seven comments supported the proposed listing; while six comments expressed neither support for, nor opposition to, the proposal. Eight comments supported a ''similarity of appearance'' listing for the Eastern Hellbender, with three commenters also supporting a separate listing for the Eastern Hellbender.

We reviewed all comments we received from the public and peer reviewers for substantive issues and new information regarding the listing of the Ozark Hellbender. All substantive information provided during the comment period has either been incorporated into this final determination or is addressed below.

Peer Review

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinions from three individuals with scientific expertise that included familiarity with the species and its habitat, the geographic region in which the species occurs, and conservation biology principles. We received responses from all three peer reviewers from whom we requested comments. The peer reviewers generally agreed that the description of the biology and habitat for the species was accurate and based on the best available information. Peer reviewer comments are addressed in the following summary and incorporated into the final rule as appropriate. New and additional information on the biology of the species and its threats was provided and incorporated into the rulemaking as appropriate. In some cases, it has been indicated in the citations by ''personal communication'' (pers. comm.); while in other cases, the research citation is provided.

Peer Reviewer Comments

(1) Comment: In the proposed listing, the Service states that Dundee and Dundee (1965) recommended changing the taxonomic status of the Ozark Hellbender from species to subspecies due to the small amount of genetic variation between Ozark and Eastern Hellbenders. Dundee and Dundee (1965) recommended changing the taxonomic status based on morphology and ecology, not genetic variation.

Our Response: We corrected this statement and clarified the remaining section on taxonomy to reflect that subsequent genetic analyses further supported the subspecies designation by Dundee and Dundee (1965).

(2) Comment: The pathogen *Batrachochytrium dendrobatidis* has now been confirmed in all continents, including Asia (Goka *et al.* 2009).

Our Response: We reviewed the reference provided by the peer reviewer and have made the correction in this final rule to reflect the entire range of this pathogen.

(3) Comment: Two peer reviewers provided comments regarding the reference in the proposed rule to Pfingsten's (1990) caution that the failure to detect larvae could be interpreted to mean that larvae could occur in areas not surveyed. One peer reviewer relayed that two Eastern Hellbender larvae had been captured in Ohio in habitat similar to that occupied by adults. The peer reviewer also commented that a ''retrospective'' analysis of the data collected by Pfingsten for Eastern Hellbender populations in Ohio provides strong evidence that the lack of detection of a younger size class (*i.e.* larvae) was due to the lack of recruitment in most Ohio populations rather than Pfingsten's failure to survey sites occupied by larvae (Lipps 2010, pers. comm.). The peer reviewer suggested that a similar situation or phenomenon was likely responsible for the lack of recruitment in Ozark Hellbender populations (Lipps 2010, pers. comm.). A second peer reviewer provided two arguments supporting the explanation that lack of larvae detection in surveys is due to an actual lack of recruitment and not survey technique. He noted that researchers have searched in several microhabitats (for example, gravel beds, smaller tributaries) in excess of 100 person-hours without detecting the presence of larvae, and that others have found larvae and juveniles of the Eastern Hellbender in the same microhabitats as adults.

Our Response: We concur that the inability to detect larval and juvenile hellbenders is not solely a function of survey technique but most likely reflects an actual reduction or lack of recruitment in the populations. Information provided by the peer reviewers and other supporting references have been incorporated into this final rule.

(4) Comment: The Service should consider listing pesticides as a potential direct threat to the Ozark Hellbender. The peer reviewer supports this recommendation with several references, including statements in the proposed rule indicating that hellbenders would be vulnerable to multiple chemicals. The peer reviewer also states that pesticide registration and usage is listed as a potential Federal agency action that may require conference or consultation under Available Conservation Measures.

Our Response: In testing water samples collected from the North Fork, White, and Eleven Point rivers from 2003–2004, Solis *et al.* (2007; pp. 430,432) detected only two pesticides: metolachlor and tebuthiuron. Median concentrations of both chemicals were lower than median concentrations detected from 1992–1995 at various sites throughout the Ozark Plateau (Petersen *et al.* 1998; p. 24). Metolachlor and tebuthiuron concentrations in 2003–2004 were also lower than the Environmental Protection Agency (EPA) aquatic life benchmarks for the protection of aquatic species (U.S. EPA 2011). Atrazine, which can interfere with normal gonadal development and adversely affect fertility (PARC 2007), was not detected in water samples collected during 2003 and 2004 (Solis *et al.* 2007; pp. 430, 432). While it is possible that atrazine may be present at concentrations below detectable limits and thus potentially affect hellbenders, available data do not support the recommendation that pesticides are a direct threat.

(5) Comment: The Service states in the proposed rule that predation by introduced trout cannot be ruled out as a factor affecting the Ozark Hellbender and that it possibly contributes to the observed population declines. However, nonnative fish stocking is not included in the actions that would be reviewable under section 7(a)(2) of the Act or under actions that may require consultation with the Service. The Service should clarify if they lack the authority to review fish stocking in Ozark Hellbender habitat or explain why this action is not included.

Our Response: Section 7(a)(2) of the Act requires that each Federal agency insure that any action they authorize, fund, or carry out is not likely to

jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. If an agency receives Federal funding for stocking nonnative fish (such as from the Service's Wildlife and Sport Fish Restoration Program), or if this action is authorized by a Federal agency, the Service would work closely with our partners during the section 7(a)(2) consultation process to assess impacts to Ozark Hellbenders and avoid or minimize these impacts. In the proposed rule we provided a limited list of agency actions that may require conference or consultation for the Ozark Hellbender (see Available Conservation Measures). We have modified the list to also include federally funded activities. Because federally funded or authorized activities can include numerous actions, we did not provide a comprehensive list of all actions that may require section 7 consultation.

(6) Comment: One reviewer interpreted the Service's ''not prudent'' finding to indicate that the Service has determined that sections 7(a)(1) and 7(a)(2) of the Act can sufficiently contribute to the conservation and recovery of the Ozark Hellbender without protecting areas outside the geographical area occupied at the time of listing (through designation of critical habitat). The reviewer requested that the Service explain how we will protect areas outside the currently occupied locations if those areas are considered essential to the recovery of the species and critical habitat is not designated.

Our Response: As detailed under *Benefits to the Species from Critical Habitat Designation,* the Service recognizes that in some instances the designation of critical habitat can provide additional protection beyond that which is already provided through the section 7(a)(2) consultation process (see response to *Comment 13a* for additional information). One of these benefits is the protection of unoccupied habitat considered essential to the recovery of the species. It is necessary, however, to weigh this benefit against the increased threat of illegal collection to the taxa by designating critical habitat. In doing so, the Service believes that the conservation and recovery of Ozark Hellbenders can best be achieved by preventing the illegal removal of animals from the populations, a threat directly resulting from the publication of critical habitat maps and disclosure of specific locations of occupied sites.

(7) Comment: The Service includes ''flipping large rocks within streams'' as an action likely to result in violation of section 9 of the Act. Moving shelter rocks used by hellbenders, even when returned to their original side down, may make the space beneath the rock unsuitable for hellbenders (personal observation by peer reviewer). Despite taking great effort to return rocks to their original positions, disturbing the ''seal'' of sedimentation around hellbender shelter rocks may result in the space being abandoned by hellbenders and becoming occupied by rock bass and other fish, thereby reducing the amount of suitable habitat available for hellbenders (Horchler 2010, p. 20). The Service should replace the word ''flipping'' with ''disturbing.'' Furthermore, under 50 CFR 17.21 and 17.31, it is illegal to pursue or attempt to pursue an endangered species and this language should be included in the list of likely violations of section 9.

Our Response: Manipulation of shelter rocks to locate or capture hellbenders would in most cases be in the form of flipping (overturning) rocks. However, within the context of unauthorized destruction or alteration of hellbender habitat (for reasons other than to locate hellbenders), the microhabitat under or around the rock may be altered by disturbances other than just flipping. Therefore, we have replaced the word ''flipping'' with ''disturbing.'' In response to the second part of the peer reviewer's comment, in this final rule, we have specifically identified ''pursuing, or attempting to pursue'' within those actions likely to result in a violation of section 9.

(8) Comment: One reviewer noted that many of the factors potentially contributing to hellbender declines may be operating synergistically to reduce survival. The reviewer provides the following examples: (1) Higher water temperatures due to siltation may lead to an environment favorable for pathogens; (2) poor water quality could contribute to lowered immune capabilities of hellbenders and make them more susceptible to infection from pathogens; and (3) reduced body condition due to water quality issues or pathogen infection could result in individuals becoming more vulnerable to predation (similar linkages with pesticides have been shown in other aquatic amphibians).

Our Response: Although we lack definitive data to support this assertion, it is likely that effects of some factors may enhance the effects of other impacts. Because this interaction could further contribute to the Ozark Hellbender's decline, we have referenced synergistic effects and cumulative effects under Factor E (Other Natural or Manmade Factors Affecting Its Continued Existence).

Public Comments

(9) Comment: Several commenters provided supporting data and information regarding the biology, ecology, life history, population estimates, threat factors affecting the Ozark Hellbender, and current conservation efforts.

Our Response: We thank all of the commenters for their interest in the conservation of this species and thank those commenters who provided information for our consideration in making this listing determination. Much of the information submitted was duplicative of information contained in the proposed rule; however, some comments contained information that provided additional clarity or support to, but did not substantially change, information already contained in the proposed rule. This information has been incorporated into this final rule, where appropriate.

(10) Comment: There was no mention in the proposed rule of other emerging bacterial and viral infections which may cause significant mortality and contribute rangewide to the decline of Ozark Hellbenders. To support this concern, the commenter noted that a flesh-eating bacterium (*Citrobacter* sp.) had been identified on an Ozark Hellbender in Missouri, and that symptoms present on the Missouri specimen are present on the majority of hellbenders captured in Arkansas. The commenter also stated that animals infected with *Batrachochytrium dendrobatidis* (the pathogen which causes amphibian chytrid fungus) may become immunosuppressed and thus more susceptible to these secondary infections.

Our Response: During the development of the proposed rule, factors causing the severe abnormalities observed in Ozark Hellbenders were unknown. Since that time, personnel from the Saint Louis Zoo and other hellbender experts have postulated that the abnormalities are likely caused by secondary bacterial and fungal infections (Briggler 2011a, pers. comm.). Therefore, we have incorporated this information into this final rule under Factor C (Disease or Predation). Although evidence is lacking to conclude that *Batrachochytrium dendrobatidis* (Bd) suppresses the immune response of animals (and thereby increases their vulnerability to secondary infections), we believe that Bd may be contributing to some of the abnormalities exhibited by hellbenders. Not all hellbenders with abnormalities, such as lesions and appendage loss, however, test positive for infection with

Bd (Briggler 2011a, pers. comm.). Therefore, we believe there are factors other than amphibian chytrid fungus that cause increased vulnerability of hellbenders to secondary infections and result in abnormalities.

(11) Comment: The Service needs to further investigate the threat of trout to larval hellbenders.

Our Response: Concern regarding the potential effect of nonnative trout was expressed by multiple commenters. Because nonnative trout are stocked in all rivers that historically and currently contain hellbenders, and because data from Gall (2008, pp. 48–49) indicate that larval Ozark Hellbenders do not recognize trout as predators, we agree that this topic warrants further investigation. Future conservation and recovery efforts for the Ozark Hellbender will include identifying and implementing research projects that will address the role of nonnative trout as a potential factor contributing to the decline of this subspecies. Should results from research studies indicate that nonnative trout are a threat to Ozark Hellbender populations, the Service will work with the States to avoid or minimize these effects.

(12) Comment: Several commenters concurred with the Service's decision not to designate critical habitat, citing the threat posed by illegal collection and the pet trade. However, 12 commenters expressed opposition to the Service's proposed determination not to designate critical habitat for the Ozark Hellbender. These comments generally centered on five main topics and are addressed individually below.

(12a) Comment: The Service cannot protect the Ozark Hellbender without designating critical habitat.

Our Response: Listed species and their habitat are protected by the Endangered Species Act whether or not they are in an area designated as critical habitat. To understand the additional protection that critical habitat may provide to an area, it is necessary to understand the protection afforded to any endangered or threatened species, even if critical habitat is not designated. Section 7(a)(2) of the Act requires Federal agencies to consult with the Service to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat (referred to as the consultation process). In consultations for species with critical habitat, Federal agencies are required to ensure that their activities do not destroy or adversely modify critical habitat. In most instances, particularly in occupied habitat, the species protection benefits provided by the designation of critical habitat largely duplicate those already provided to the species without the designation of critical habitat by the ''jeopardy standard.'' This is because when the Service evaluates the impacts of activities, we also look at impacts to the species habitat. Despite this overlap, the Service recognizes that, in some instances, designation of critical habitat could provide some benefits to the Ozark Hellbender (as described under *Benefits to the Species from Critical Habitat Designation*). These benefits, however, do not outweigh the increased illegal collection that will likely occur if critical habitat maps are published and the specific locations of currently occupied sites are disclosed (see discussion under Increased Threat to the Species Outweighs the Benefits of Critical Habitat Designation).

(12b) Comment: Multiple commenters questioned the degree of threat posed by illegal collection and believed that the publication of critical habitat maps would not increase the risk of unauthorized collection.

Our Response: Although the black market for smuggling and illegally selling protected reptiles and amphibians is widely recognized by herpetofauna experts and law enforcement officials, we realize that it may be necessary to provide additional information to support our concern. Therefore, we provided instances in this final rule under Factor B (Overutilization for Commercial, Recreational, Scientific, or Educational Purposes) to further evidence the threat of illegal collection, including: (1) A testimonial from an individual who collected more than 100 Ozark Hellbenders from the North Fork of the White River in the 1980s to sell for the pet trade; (2) the citation of two individuals in 1985 by Missouri Department of Conservation Agents for illegally collecting Ozark Hellbenders; (3) information referencing the unauthorized removal of more than 100 Ozark Hellbenders from the Spring River in the 1980s, and (4) recent information demonstrating that a demand for hellbenders still exists.

Because Ozark Hellbenders are not uniformly distributed throughout streams in which they occur, collecting is often focused on a known source or site, thereby threatening extirpation of subpopulations at the site. Publication of critical habitat maps would disclose these sites and facilitate removal by collectors.

(12c) Comment: Because only adult hellbenders are subject to illegal collection and larval hellbenders occupy separate habitats from adults, designating critical habitat for all life stages will not increase the threat of illegal collection.

Our Response: The Service is unaware of any reasons for which nonadult Ozark Hellbenders would not be subject to illegal collection or of any information supporting this assertion. The contention that hellbender larvae drift downstream with the current and occupy different habitats than adults was expressed by several commenters who opposed the Service's proposed determination that designating critical habitat for this species is not prudent. We are not aware of information indicating that larval hellbenders drift downstream or that they occupy separate habitats from adults. On the contrary, the best available information indicates that, while larval hellbenders may occupy different microhabitats than adults (interstices of gravel rather than large cover rocks), larvae occupy the same stream reach segments as adults (Bishop 1941, pp. 48, 52; Nickerson and Mays 1973a, p. 12; Nickerson *et al.* 2003, pp. 624–625, 627; Briggler 2010c, pers. comm.; Horchler 2010, pers. comm.; Lipps 2010, pers. comm.; Phillips 2010, pers. comm.). Therefore, designating critical habitat for all hellbender life stages would not prevent unauthorized collecting.

(12d) Comment: The locations of hellbender sites are already available to the public; therefore, publishing critical habitat maps would not increase the threat of illegal collection.

Our Response: Information currently available to the public is limited and reveals only a small proportion of the total number of sites occupied by Ozark Hellbenders. The designation of critical habitat would result in publishing in the **Federal Register** precise information about the species and its habitat requirements, where it is found, and maps with geographic coordinates for all occupied locations. The Service is already aware of instances in which the publication of locality information for occupied sites resulted in the removal of almost all individuals from the location. Thus, publishing locations of the remaining occupied sites would only further facilitate illegal collection.

(12e) Comment: The habitat of the Ozark Hellbender does not comprise discrete points along the streams, but rather its habitat comprises stream reaches. Therefore, the Service can avoid disclosing exact locations to the public by designating large segments as critical habitat in streams occupied by Ozark Hellbenders. One commenter further noted that the Service has

designated large stream reaches for the Niangua darter and the Topeka shiner.

Our Response: When designating critical habitat, the Service must determine—based on the best available scientific information—the physical and biological features that are essential to the conservation of a species and which may require special management considerations or protection. Essential physical and biological features are specific habitat components that enable a species to fulfill its life cycle needs. Appropriate cover rocks or other crevices are necessary features to fulfill the life cycle needs of the Ozark Hellbender because they provide protection and nesting habitat. However, unlike the habitat for Niangua darters and the Topeka shiner, stream reaches containing suitable habitat for the Ozark Hellbender are not continuous. Areas with suitable habitat typically range from 100 to 400 yards (91 to 366 meters (m)) in length, and subpopulations within each river system are often separated by miles (kilometers) of unsuitable habitat (data from mark-recapture studies indicate that hellbenders rarely move between sites (Irwin 2009, pers. comm., Briggler 2010b, pers. comm.)). Therefore, by mapping the critical habitat and describing the physical and biological features essential to the conservation of the species, the Service would disclose the specific location of occupied sites and subject the hellbenders to collection.

(13) Comment: It is our understanding that the Saint Louis Zoo is currently engaged in propagation efforts and that the Missouri Department of Conservation plans to release captive-reared hellbenders into the Eleven Point River. This effort only addresses the Eleven Point River and not the Current River or the North Fork of the White River. In addition, we are concerned that these augmentation efforts will not be successful.

Our Response: Results from genetic studies (Crowhurst *et al.* 2011; pp. 640–643; Sabatino and Routman 2009; pp. 1239–1240, 1244) indicate that mixing Ozark Hellbenders among rivers could cause an outbreeding depression, or the reduction in fitness of offspring because of the genetic differences between parents. For this reason, it is unlikely that captive-reared individuals will be released into rivers other than those from which the eggs were collected. To date, the Missouri Department of Conservation has collected Ozark Hellbender eggs from the North Fork White River and the Eleven Point River, but has been unable to locate eggs from the Current River. Therefore, releases of captive-reared individuals are planned only for those rivers from which eggs have been collected (North Fork White River and Eleven Point River). Specific areas where augmentation or reintroductions will occur, however, have yet to be identified. Such propagation efforts will be identified in the development of a future approved Federal recovery plan for the species that will be developed through cooperative partnerships with the Ozark Hellbender Work Group and other potentially affected Federal, State, and private entities.

Regarding the predicted success of propagation efforts, the Service believes that captive propagation efforts will likely be necessary to conserve and recover the Ozark Hellbender, until causes for the lack of recruitment in the wild can be definitively identified and addressed. When eggs are collected in the wild, larvae can be hatched and reared at significantly higher survivorship rates than those estimated from the wild. When individuals are reared to larger sizes and then released, substantially more hellbenders can survive to maturity and contribute to the population.

Summary of Changes From Proposed Rule

We fully considered comments from the public and peer reviewers on the proposed rule to develop this final listing of the Ozark Hellbender. This final rule incorporates changes to our proposed listing based on comments received that are discussed above and on newly available scientific and commercial information. Reviewers generally commented that the proposed rule was thorough and comprehensive. We made some technical corrections based on new, although limited, information. Based on comments we received during the public comment period, we also included additional information to provide further evidence of the threat of illegal collection. Information received supports the Service's decision to list the Ozark Hellbender as endangered.

Summary of Factors Affecting the Species

Section 4 of the Act and its implementing regulations (50 CFR part 424) set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination. Each of these factors is discussed below.

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

One of the most likely causes of the decline of the Ozark Hellbender in the White River system in Missouri and Arkansas is habitat degradation resulting from impoundments, ore and gravel mining, sedimentation, nutrient runoff, and nest site disturbance from recreational uses of the rivers (Williams *et al.* 1981, p. 99; LaClaire 1993, pp. 4–5). Both hellbender subspecies are habitat specialists that depend on consistent levels of dissolved oxygen, temperature, and flow (Williams *et al.* 1981, p. 97). Therefore, even minor alterations to stream habitat are likely to be detrimental to hellbender populations.

Impoundments

Impoundments impact stream habitat in many ways. When a dam is built on a free-flowing stream, riffle and run habitats are converted to lentic (still), deep-water habitat. As a result, surface water temperatures tend to increase, and dissolved oxygen levels tend to decrease (Allan and Castillo 2007, pp. 97–98, 323–324). Hellbenders depend upon highly vascularized lateral skin folds for respiration. Therefore, lakes and reservoirs are unsuitable habitat for Ozark Hellbenders, because these areas have lower oxygen levels and higher water temperatures (Williams *et al.* 1981, p. 97; LaClaire 1993, p. 5) than do fast-flowing, cool-water stream habitats. Impoundments also fragment hellbender habitat, blocking the flow of immigration and emigration between populations (Dodd 1997, p. 178). The resulting small, isolated populations are more susceptible to environmental perturbation and demographic stochasticity, both of which can lead to local extinction (Wyman 1990, p. 351).

In the upper White River, construction of Beaver, Table Rock, Bull Shoals, and Norfork dams in the 1940s and 1950s destroyed the potential hellbender habitat downstream of the impoundments and effectively isolated Ozark Hellbender populations. Norfork Dam was constructed on the North Fork in 1944 and has isolated Ozark

Hellbender populations in Bryant Creek from those in the North Fork. Furthermore, populations downstream of Beaver, Table Rock, Bull Shoals, and Norfork dams were likely extirpated due to hypolimnetic releases from the reservoir. Hypolimnetic releases are cooler than normal stream temperatures because they are from a layer of water that is below the thermocline, and the water from this layer typically has reduced oxygen levels because it is noncirculating or does not ''turn over'' to the surface. The tailwater zones below dams also experience extreme water level fluctuations and scouring for several miles downstream. This can impact hellbender populations by washing out the pebbles and cobbles used as cover by juveniles and by creating unpredictable habitat conditions outside the Ozark Hellbender's normal range of tolerance.

Impoundments can also affect hellbender habitat upstream by increasing sedimentation during periods of heavy rain because the flow of water is impeded by the presence of the reservoir. In 2008 and 2011, heavy rains and flooding resulted in an increase in water levels in excess of 10 to 15 feet (ft) (3 to 5 meters (m)) and significantly reduced flow velocity (Briggler 2011d, pers. comm.; Crabill 2011b, pers. obs.). Deposition of gravel from the 2008 flood event removed an estimated 30 percent of the available cover rocks and habitat at one of the most abundant Ozark Hellbender sites; while flooding in 2011 removed an additional 50 percent of the habitat at this site (Briggler 2011d, pers. comm.). During high water levels, Ozark Hellbenders at sites upstream of the reservoirs are also exposed to increased predation pressure by large predatory fishes. The increased water levels allow fish to expand upstream of the reservoir and have been observed in large numbers at upstream Ozark Hellbender sites (Roberts 2011, pers. comm.). The increased abundance of large predatory fish, such as brown trout and striped bass, at sites upstream of Norfork Reservoir has even been noted by private landowners near these sites (Anon. 2010, pers. comm.).

Mining

Gravel mining, which continues to occur in a number of streams within the range of the Ozark Hellbender, has directly contributed to Ozark Hellbender habitat alteration and loss. Gravel mining, also referred to as dredging, results in stream instability, both up and downstream of the dredged portion (Box and Mossa 1999, pp. 103–104). Head cutting, in which the increase in transport capacity of a dredged stream causes severe erosion and degradation upstream, results in extensive bank erosion and increased turbidity (Allan and Castillo 2007, p. 331). Reaches downstream of the dredged stream reach often experience aggradation (raised stream bed from sediment build up) as the sediment transport capacity of the stream is reduced (Box and Mossa 1999, p. 104). Gravel mining physically disturbs hellbender habitat in dredged areas, and associated silt plumes can impact various aspects of the hellbender's life requisites (nesting habitat, prey, dissolved oxygen for egg development). In addition, these effects reduce crayfish populations, which are the primary prey species for Ozark Hellbenders. Because noncommercial gravel mining is not regulated by the States or by the U.S. Army Corps of Engineers, it is difficult to determine the extent of gravel mining within southern Missouri and northern Arkansas. However, an aerial survey conducted in 2001 reported an estimated 12 and 41 active mining sites in the North Fork of the White River and Current River watersheds, respectively (no data were reported for watersheds of the Eleven Point or Spring rivers) (Noell 2003, p. 7).

Portions of the Ozark Plateau have a history of being major producers of lead and zinc, and some mining activity still occurs in the southeastern Ozarks, although at levels that are lower than those recorded historically. Results of a U.S. Geological Survey (USGS) water quality study conducted from 1992 to 1995 in the Ozark Plateau (Peterson *et al.* 1998, pp. 12–13) revealed that concentrations of lead and zinc in bed sediment and fish tissue were substantially higher at sites with historical or active mining activity. These concentrations were high enough to suggest adverse biological effects, such as reduced enzyme activity or death of aquatic organisms. Because hellbenders have highly permeable skin and obtain most of their oxygen through subcutaneous respiration, they are particularly susceptible to absorbing contaminants such as lead and zinc. Furthermore, because Ozark Hellbenders are long lived, they may be at higher risk of bioaccumulation of harmful chemicals (Peterson *et al.* 1998, pp. 12–13). Although mining for lead and zinc no longer occurs within the range of the Ozark Hellbender, Petersen *et al.* (1998, p. 12) determined that elevated concentrations of lead and zinc were still present in the streams where mining occurred historically. Although it is possible for these metals to be transported and diluted, they will not degrade over time; therefore, it is likely that lead and zinc concentrations found more than 10 years ago in these rivers would remain at similar concentrations today (Mosby 2008, pers. comm.). In addition, there are historical lead and zinc mining sites that are near Ozark Hellbender populations on the North Fork in Ozark County, Missouri (Mosby 2008, pers. comm.).

Increased lead and zinc contamination input to the Current River by way of the active Sweetwater Mine on Adair Creek in Reynolds County, Missouri, is a potential future risk. Adair Creek is a tributary of Logan Creek, a losing stream (loses water as it flows downhill) connected to Blue Spring, which discharges to the Current River. Although lead and zinc contaminants have been found in Logan Creek, there is no evidence that contaminants from Sweetwater Mine have migrated to Blue Spring. However, if the Sweetwater Mine's current tailings dam on Adair Creek were to fail, large concentrations of lead and zinc would be added to Blue Spring and the Current River (Mosby 2008, pers. comm.). Although not common, failures of tailings mines have occurred on six occasions in Missouri since 1940, with several releasing tailings into nearby drainages or creeks (USCOLD 1994, pp. 99–144).

Water Quality

Despite the claim by some that many Ozark streams outwardly appear pristine, Harvey (1980, pp. 53–60) clearly demonstrated that various sources of pollution exist in the ground water in the Springfield and Salem plateaus of southern Missouri. Water in the Ozark Plateaus is contaminated by nutrients from increased human waste (in part due to rapid urbanization and increased numbers of septic systems), fertilizers (including land application of chicken litter (poultry manure, bedding material, and wasted feed)), logging, and expanded industrial agricultural practices such as concentrated animal feeding operations (Petersen *et al.* 1998, p. 6). This contamination was evidenced when water samples from the North Fork White and Eleven Point rivers in 2003–2004 contained concentrations of total phosphorus and total nitrogen exceeding the U.S. Environmental Protection Agency (EPA) recommended criteria two-thirds of the time (Solis *et al.* 2007, pp. 430–431). Agricultural land and livestock production comprises a large percentage of the land use within the Ozark Hellbender range and is a continuing source of contamination (Wheeler *et al.* 2003, p. 155). Missouri is the second largest beef

cattle-producing State in the nation, with the majority of animal units produced in the Ozarks. Both Arkansas and Missouri are leading States in poultry production. The National Water-Quality Assessment data collected in the Ozarks in 1992–1995 from wells and springs indicated that nitrate concentrations were strongly associated with the percentage of mostly agricultural land near the wells or springs (Petersen *et al.* 1998, p. 8).

Although nitrogen and phosphorus are essential plant nutrients that are found naturally in streams, elevated concentrations of these nutrients can cause increased growth of algae and aquatic plants in many streams and are detrimental to aquatic biota (Petersen *et al.* 1998, p. 6). Increased levels of nitrates (nitrate is a compound of nitrogen and oxygen and usually the most abundant form of nitrogen in the water) can also affect amphibians by inhibiting growth, decreasing survivability, and impairing their immune systems (Marco *et al.* 1999, p. 2837; Rouse *et al.* 1999, p. 801; Ortiz *et al.* 2004, pp. 235–236; Earl and Whiteman 2009, 1334–1335).

Increased recreational use (such as from canoeing, kayaking, rafting, inner tube floating, and small horsepower motor boating) also impacts the water and habitat quality in rivers inhabited by the Ozark Hellbender. From 2003 to 2008, the Missouri Department of Natural Resources included an 8-mi (13-km) stretch of the Jacks Fork River in the U.S. EPA's 303(d) list of impaired waters not meeting water quality standards for organic wastes (fecal coliform). Likely sources of the contamination include runoff from a commercial horse trail ride outfitter, horse stream crossings, and effluent from campground pit-toilets (Davis and Richards 2002, pp. 1, 3, and 36).

The 303(d) list included additional rivers inhabited by Ozark Hellbenders. A 21-mi (34-km) stretch of the Eleven Point River was listed as impaired due to unacceptable levels of chlorine and atmospheric deposition of mercury. Increased mercury levels have been implicated as a potential cause in the decline of other aquatic amphibians, such as the northern dusky salamander (*Desmognathus fuscus fuscus;* Bank *et al.* 2006, pp. 234–236). Water quality monitoring on both the North Fork White and Eleven Point Rivers in Missouri detected estrogenic compounds that have been demonstrated to adversely impact aquatic organisms, although concentrations were lower than those shown to adversely affect aquatic organisms (Solis *et al.* 2007, p. 430). Nevertheless, this evidence indicates that hellbenders in the North Fork White and Eleven Point Rivers in Missouri are exposed to a variety of organic chemicals with potential estrogenic activity, and the total effect of these chemicals remains unknown. The Spring River has also suffered from many water quality perturbations over recent decades. In the late 1980s, the West Plains (Missouri) wastewater treatment plant failed, depositing all stored waste into the recharge area for the Spring River. In addition, the majority of the Ozarks region in Missouri and Arkansas is composed of karst topography (caves, springs, sinkholes, and losing streams), which can further facilitate the transport of potential contaminants.

Siltation

Sediment inputs from land use activities have contributed to, and continue to contribute to, habitat degradation. Hellbenders are intolerant of sedimentation and turbidity (Nickerson and Mays 1973a, pp. 55–56), which can impact them in several ways:

(1) Sediment deposition on cover rocks reduces or removes suitable habitat for adults and can cover and suffocate eggs.

(2) Sediment fills interstitial spaces in pebble or cobble beds, reducing suitable habitat for larvae and subadults (FISRWG 1998, chapter 3, pp. 19, 25).

(3) Suspended sediment loads can cause water temperatures to increase, and cause more particles to absorb heat, thereby reducing dissolved oxygen levels (Allan and Castillo 2007, pp. 323–324).

(4) Sedimentation can impede the movement of individuals and colonization of new habitat (Routman 1993, p. 412).

(5) The Ozark Hellbender's highly permeable skin causes them to be negatively affected by sedimentation. Various chemicals, such as pesticides, bind to silt particles and become suspended in the water column when flushed into a stream. The hellbender's permeable skin can allow direct exposure to these chemicals, which can be toxic (Wheeler *et al.* 1999, pp. 1–2).

(6) Sedimentation may result in a decline of prey abundance by embedding cover rocks.

Timber harvest and associated activities (construction and increased use of unpaved roads, skid trails, and fire breaks) are prominent in many areas within the range of the Ozark Hellbender and increase terrestrial erosion and sedimentation into streams. Peak stream flows often rise in watersheds with timber harvesting activities, due in part to compacted soils resulting from construction of roads and landings (where products are sorted and loaded for transportation) and vegetation removal (Allan and Castillo 2007, p. 332; Box and Mossa 1999, pp. 102–103). The cumulative effects of timber harvest on sedimentation rates may last for a couple of decades, even after harvest practices have ceased in the area (Frissell 1997, pp. 102–104).

In addition to those constructed for timber harvest, other roads which are improperly designed and maintained can cause marginally stable slopes to fail, and also capture surface runoff and channel it directly into streams (Allan and Castillo 2007, pp. 321–322, 340). Erosion from roads contributes more sediment than the land harvested for timber (Box and Mossa 1999, p. 102).

Unrestricted cattle access to streams increases erosion and subsequent sediment loads (Clary and Kinney 2002, p. 145). This is particularly a concern for the Eleven Point River in Arkansas (Irwin 2008b, pers. comm.).

Disturbance

Habitat disturbance affects hellbender survival in multiple rivers. Most rivers and streams inhabited by hellbenders are extremely popular with canoeists, kayakers, rafters, inner tube floaters, or operators of low-horsepower motorboats. Canoe, kayak, and motor and jet boat traffic continues to increase on the Jacks Fork, Current, Eleven Point, and North Fork Rivers. On the North Fork River, an average of five canoes per weekday were observed in 1998, and in 2004, that figure increased to 21 canoes per weekday (Pitt 2005, pers. comm.). Hellbenders encountered with gashes in their heads suggest that watercraft traffic likely impacts these animals. New roads, boat ramps, and other river access points have been constructed, which lead to increased river access and increased disturbance to hellbenders (Briggler *et al.* 2007, p. 64). Off-road vehicle (ORV) recreation is also widespread throughout the Ozarks region. ORVs frequently cross rivers inhabited by hellbenders and are driven in riverbeds where the water is shallow enough to enable this form of recreation. The force delivered by a boat or ORV hitting a rock could easily injure or kill a hellbender, in addition to displacing or disrupting cover rocks. ORV activity also increases erosion and sedimentation by exposing bare erodible soils in areas with frequent activity.

The practice of removing large rocks and boulders (by hand, machinery, or dynamite) to reduce damage to canoes is common on many hellbender streams (Nickerson and Mays 1973a, p. 56;

Wheeler *et al.* 1999, p. 4). It has been reported that rocks are possibly removed from streams for home landscaping projects (Briggler *et al.* 2007, p. 62), although data to support this assertion is lacking. Rock turning and flipping is also done by crayfish hunters, herpetofauna enthusiasts, and researchers (Briggler *et al.* 2007, pp. 61 and 66). The areas under these large rocks are important habitat for cover and nest sites; therefore, overturning or removing these rocks can diminish available cover and nest sites for hellbenders.

Summary of Habitat Destruction and Modification

The threats to the Ozark Hellbender from habitat destruction and modification are occurring throughout the entire range of the subspecies. These threats include impoundments, mining, water quality degradation, siltation, and disturbance from recreational activities.

The effects of impoundments on Ozark Hellbenders are significant because impoundments alter both upstream and downstream habitat directly, isolate populations, change water temperatures and flows below reservoirs, and increase exposure to predatory fish immediately upstream of the impoundments. Remaining Ozark Hellbender populations are small and isolated, in part due to increased impoundments over time, making hellbenders vulnerable to individual catastrophic events and reducing the likelihood of recolonization after localized extirpations.

Habitat destruction and modification from siltation and water quality degradation present a significant and immediate threat to the Ozark Hellbender. Siltation and water quality degradation are caused by human and livestock wastes, agricultural runoff, mine waste, and activities related to timber harvesting. Increased siltation may affect hellbenders in a variety of ways, such as suffocating eggs, eliminating suitable habitat for all life stages, reducing dissolved oxygen levels, increasing contaminants (that bind to sediments), and reducing prey populations. Increased nitrate levels, along with other contaminants from agricultural runoff and increased urbanization, have been detected in hellbender streams. These contaminants not only pose a threat directly to the Ozark Hellbender but also to the aquatic ecosystems upon which this species depends.

Pressure from recreational uses (for example, boat traffic, horseback riding, and ORV use) in streams inhabited by Ozark Hellbenders has increased substantially on an annual basis, directly disturbing the habitat. Most hellbender rivers are popular with canoeists, kayakers, rafters, inner tube floaters, and motorboat operators. Removing large rocks and boulders to reduce damage to canoes is a common practice. Gardeners remove rocks for use in landscaping. Crayfish hunters, herpetofauna enthusiasts, and independent researchers (without scientific permits) turn and flip rocks. This disturbance is significant because areas under large rocks are important habitat for cover and nest sites; therefore, overturning and removing these rocks reduces available cover and nest sites for hellbenders. The threats of rock removal and overturning are expected to continue or even increase as these recreational activities grow in popularity.

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

Anecdotal reports and other information indicate that Ozark Hellbenders have been collected for commercial and scientific purposes (Trauth *et al.* 1992, p. 85; Nickerson and Briggler 2007, pp. 208–209). Although commercial collecting of Ozark Hellbenders has never been permitted by the Arkansas Game and Fish Commission (Irwin 2011b, pers. comm.) nor by the Missouri Department of Conservation (Briggler 2011a, pers. comm.), Nickerson and Briggler (2007, pp. 207–212) determined that large numbers of Ozark Hellbenders have been sold for the pet trade. Because of their protected status in Missouri and Arkansas, any actions involving interstate or foreign commerce of Ozark Hellbenders collected from these States would also be prohibited by the Federal Lacey Act (16 U.S.C. 3371–3378).

In Arkansas, hellbenders may be collected with a scientific collecting permit from the AGFC; however, no permits are being issued currently or are anticipated to be issued in the future because the State acknowledges the severely imperiled status of the subspecies (Irwin 2008b, pers. comm.). Missouri imposed a moratorium on hellbender scientific collecting from 1991 to 1996 and has since issued only limited numbers of scientific collecting permits for research (Horner 2008, pers. comm.). Despite these restrictions, unauthorized collecting for the pet trade remains a threat throughout the range because of the willingness of individuals to collect hellbenders illegally (Briggler 2011a, pers. comm.).

The illegal and legal collection of hellbenders for research purposes, museum collections, zoological exhibits, and the pet trade has undoubtedly been a contributing factor to hellbender declines. Nickerson and Briggler (2007, pp. 208–211) documented the removal of 558 hellbenders (approximately 300 animals illegally) from the North Fork White River from 1969 to 1989. At least 100 of these were collected in the mid-1980s by individuals from Alabama (Figg 1992, pers. comm.). One of these collectors contacted the Missouri Department of Conservation in 1992 out of remorse and provided details about collecting the hellbenders (Figg 1992, pers. comm.). According to the individual, animals were exported to Japan and labeled as Eastern Hellbenders because Ozark Hellbenders were protected. The individual also relayed that he knew where to search for hellbenders by reading the published literature. In 1985, Missouri Department of Conservation agents apprehended two other individuals illegally collecting Ozark Hellbenders, among other protected species, from the North Fork White River (McNair 2011, pers. comm.). The two individuals were cited and fined for ''possession of a protected species.''

Anecdotal information suggests unauthorized collection of Ozark Hellbenders on the Spring River in Arkansas contributed to the recent population crash, as reaches of the Spring River that formerly contained 35 to 40 hellbenders have had no individuals present for more than 10 years (Irwin 2008b, pers. comm.). The decline is linked to unauthorized collecting because Ozark Hellbenders were located in one small, easily accessible area of the Spring River, and no other event (such as a storm or chemical spill) had occurred in that area that would explain such a rapid decline (Irwin 2008b, pers. comm.). At another Spring River site, personnel from a local canoe rental reported that commercial collectors took more than 100 Ozark Hellbenders in 2 days (Trauth *et al.* 1992, p. 85), which also likely impacted the population. Amphibians such as the hellbender, a relatively slow-moving, aquatic species, may be collected with little effort, making them even more susceptible to this threat.

While large collecting events appear to have occurred primarily in the 1980s, the unauthorized collection of hellbenders for the pet trade remains a major concern. In 2001, an advertisement in a Buffalo, New York, newspaper was selling hellbenders for $50 each (Mayasich *et al.* 2003, p. 20). In 2003, a pet dealer in Florida posted an Internet ad that offered ''top dollar'' for large numbers of hellbenders,

wanted in groups of at least 100 (Briggler 2007, pers. comm.). Also in 2003, a person in Pennsylvania had an Internet posting stating specifically that an Ozark Hellbender was wanted, no matter the price or regulatory consequence (Briggler 2007, pers. comm.); while in 2010 a person posted an Internet ad looking for wholesale lots of hellbenders (Briggler 2010a, pers. comm.). At the 2005 Hellbender Symposium, it was announced that U.S. hellbenders were found for sale in Japanese pet stores, which is likely the largest market for this species (Briggler 2005, pers. comm.). Further evidence of the current demand for hellbenders overseas includes an Eastern Hellbender declared for export to Europe in 2010 (Tabor 2010, pers. comm.) and a hellbender (subspecies not specified) declared in 2005 for export to Japan (LEMIS 2008). The Law Enforcement Management Information System (LEMIS) is the Service's law enforcement data system and includes information on imported and exported wildlife. Numbers provided by LEMIS declarations reports, however, can differ greatly from actual export numbers when animals are collected illegally and not declared. As Ozark Hellbenders become rarer, their market value is likely to increase. In fact, listing the subspecies as endangered may also enhance the subspecies potential commercial value as the rarity of the subspecies is made public.

Unlike many U.S. species listed under the Act, the Ozark Hellbender has commercial trade value. Due to the market demand and the apparent willingness of individuals to collect hellbenders illegally, we believe that any action that publicly discloses the location of hellbenders (such as publication of specific critical habitat maps or locations) puts the species in further peril. For example, due to the threat of unauthorized collection and trade, the Missouri Department of Conservation and Arkansas Game and Fish Commission have implemented extraordinary measures to control and restrict information on the locations of Ozark Hellbenders and thus no longer make location and survey information readily available to the public.

Recreational fishing may also negatively impact Ozark Hellbender populations due to animosity towards hellbenders, which some anglers believe to be poisonous and to interfere with fish production (Gates *et al.* 1985, p. 18). In addition, there are unpublished reports of hellbenders accidentally killed by frog or fish gigging (spearing), when a hellbender may get speared inadvertently (Nickerson and Briggler 2007, pp. 209, 212). The MDC reports that gigging popularity and pressure have increased, which increases the threat to hellbenders during the breeding season when they tend to move greater distances and congregate in small groups where they are an easy target for giggers (Nickerson and Briggler 2007, p. 212). The gigging season for various species of suckers spans the reproductive season of the Ozark Hellbender in the North Fork White River and also overlaps that of the hellbender in other river basins. The sucker gigging season opens September 15, during the peak breeding period when hellbenders are most active and, therefore, most exposed.

Gigging is popular in hellbender streams to such a degree that marks are often noticed on the bedrock and the river bottom from giggers' spears (Briggler 2007, pers. comm.). Although the chance of finding a gigged hellbender can be limited (due to presence of scavengers, the fast decomposition rate of amphibians, and the possibility of giggers removing the specimen), two gigged hellbenders were found along the stream bank on the North Fork White River in 2004 (Huang 2007, pers. comm.). In their studies of Missouri hellbenders, Nickerson and Mays (1973a, p. 56) found dead gigged specimens, and they reference data showing how susceptible the species is to this threat. Ozark Hellbenders are sometimes unintentionally caught by anglers. However, catching hellbenders while fishing is not a frequent occurrence and is not believed to be a significant threat to the species, especially if anglers follow instructions posted by the Missouri Department of Conservation to remove the hook or cut the fishing line and return the hellbender to the stream (Briggler 2009, pers. comm.).

Summary of Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The Ozark Hellbender is a rare and unique amphibian that has experienced extensive collection from the wild for various reasons. Due to the continued decline of the Ozark Hellbender and the history of its collection, State agencies in Missouri and Arkansas have implemented measures to reduce the threat of collection. These measures include moratoriums on issuance of scientific collecting permits; prohibiting the collection, possession, and sale of hellbenders under appropriate State wildlife statutes; and controlling information on the location of hellbenders. The unauthorized collection of Ozark Hellbenders for illegal commercial sale in the pet trade, however, continues to be a significant threat.

C. Disease or Predation

Disease (Chytridiomycosis)

Background—Chytridiomycosis is a highly infectious amphibian disease caused by the pathogen *Batrachochytrium dendrobatidis* (Bd, or amphibian chytrid fungus), and has been demonstrated to infect and kill all life stages of an increasing number of amphibian species worldwide (Berger *et al.* 1998, pp. 9031–9036). The Ozark Hellbender is now included on the ever-increasing global list of amphibian species potentially affected by this fatal pathogen (Speare and Berger 2011, pp. 1–9).

The chytrid fungus attacks the keratinized tissue of amphibians' skin, which can lead to clinical signs of disease presence, such as thickened epidermis, lesions, body swelling, lethargy, abnormal posture, loss of righting reflex, and death (Daszak *et al.* 1999, pp. 737–738; Bosch *et al.* 2001, p. 331; Carey *et al.* 2003, p. 130). It is believed that the fungus originated from Africa with the African clawed frog (*Xenopus laevis*), used throughout the United States in the 1930s and 1940s for pregnancy testing. This pathogen is now found on all continents including Asia, where it was recently documented (Weldon *et al.* 2004, pp. 2100–2105; Speare and Berger 2005, pp. 1–9; Goka *et al.* 2009, pp. 4765–4767).

Currently, there are two theories on the development of the Bd as a global amphibian pathogen. One theory is that the fungus is not a new pathogen, but has increased in virulence or in host susceptibility caused by other factors (Berger *et al.* 1998, p. 9036). The other, more widely supported theory is that Bd is an introduced species whose spread has been described as an epidemic 'wave-like' front (Lips *et al.* 2006, pp. 3166–3169; Morehouse *et al.* 2003, p. 400).

B. dendrobatidis lives in aquatic systems in which it 'swims' (using spores) through the water and reproduces asexually. The fungus develops most rapidly at 73.4 °F (23 °C) in culture, with slower growth rate at 82.4 °F (28 °C) and reversible stop of growth at 84.2 °F (29 °C; Daszak *et al.* 1999, p. 741). The temperatures in Ozark streams are ideal for the spread and persistence of this pathogen. Based on U.S. Geological Survey water data from 1996–2006, the maximum temperature of these hellbender streams is 77.0 to 80.6 °F (25 to 27 °C), although the average water temperature over one

year (for Eleven Point, Current, and North Fork White River) is approximately 59.0 to 60.8 °F (15 to 16 °C)(Barr 2007, pers. comm.).

Persistence of Bd may be further enhanced by saprophytic development (obtaining nourishment from dead or decaying material in water; Daszak *et al.* 1999, p. 740). Johnson and Speare (2003, pp. 923–924) concluded that the fungus can survive saprophytically outside the amphibian host for up to 7 weeks in lake water and up to 3 to 4 weeks in tap water. Further, Carey *et al.* (2003, p. 130) stated that amphibians can be infected when placed either in water containing zoospores that were placed specifically in the water, or in water from which infected animals have been recently removed. The possibility that Bd can develop for even a short period of time outside the amphibian host may greatly increase its impact and accelerate host population declines (Carey *et al.* 2003, p. 130). Also, the possibility of long-term survival of the pathogen as a saprophyte may explain the lack of recolonization of streams from which amphibians, such as the Ozark Hellbender, have been extirpated (Daszak *et al.* 1999, p. 740). Moreover, hellbenders that are not already infected with Bd are continually at risk because temperatures are ideal for the persistence of the fungus in the water (without a host) for a long period.

Habitat specializations and a variety of underlying predisposing environmental factors may make an animal more vulnerable to exposure to the pathogen, especially for species such as the Ozark Hellbender that carry out their life cycle in aquatic rather than terrestrial habitats (Carey *et al.* 2003, p. 131). Since the Ozark Hellbender lives in an aquatic system throughout its entire life, there is no possibility for relief from this fungus. Climate change is one of the environmental factors that has been indicated as a key promoter in the spread of the Bd pathogen (Pounds *et al.* 2006, pp. 161–167). Rachowicz *et al.* (2006, pp. 1676–1682) found that chytridiomycosis was implicated in the local extirpations of two species of frog, and they conclude with high confidence that large-scale warming was the key factor in the disappearances of these two species. Although environmental factors (for example, increased UV–B, chemical pollution, climate change) may predispose amphibian populations to pathogens, evidence suggests that cofactors are not required for chytridiomycosis to cause mass amphibian deaths (Daszak *et al.* 1999, p. 741).

Overall, chytridiomycosis has been implicated in local population extirpations, sustained population declines, and possibly species extinctions for many amphibian species (Berger *et al.* 1998, pp. 9031–9036; Bosch *et al.* 2001, pp. 331–337). Chytrid fungi are the best supported pathogens related to amphibian declines, with more than 93 species worldwide affected as of 2005 (Collins and Storfer 2003, pp. 89–98; Daszak *et al.* 2003, pp. 141–150; Speare and Berger 2005, p. 1). For example, in surveys conducted by Lips *et al.* (2006, pp. 3165–3166) in Costa Rica and Panama, during only a few months of surveying, frog and salamander species richness and amphibian density declined by more than 60 percent and 90 percent, respectively. The declines were attributed to the prevalence of chytrid fungus in amphibian habitats (Lips *et al.* 2006, pp. 3165–3166).

Disease in captive hellbenders—The St. Louis Zoo maintains a captive population of Ozark and Eastern Hellbenders. In March 2006, there was a power outage in the Zoo's herpetarium, including the area where the hellbenders are held. Soon after the power outage, which may have stressed the hellbenders, possibly reducing their immunity, several hellbenders were observed ''with substrate (rocks) sticking to the skin and many were floating'' (Duncan 2007, pers. comm.). More than 75 percent of the captive population whose death occurred from March 2006 through April 2007 (59 individuals) likely resulted either directly or indirectly from Bd (Duncan 2007, pers. comm.).

Disease in wild hellbenders—As a result of the mortalities in the St. Louis Zoo hellbender population, in 2006 the Missouri Department of Conservation began testing wild hellbenders in Missouri for infection by the pathogen. All Ozark Hellbender streams surveyed had individual hellbenders that tested positive for the pathogen (Briggler 2008b, pers. comm.). Data from 2006 and 2007 show that, for the presence of *B. dendrobatidis* within the Current River, 20 percent of the population was positive (heavily positive in a few locations, indicating higher concentrations of the fungus); within the Eleven Point River (Missouri and Arkansas), 16 percent was positive (positives spread throughout river); and within the North Fork of the White River, 15 percent was positive (positives spread throughout river) (Briggler 2008b, pers. comm.). These results indicate the minimum number of infected individuals because polymerase chain reaction (PCR) tests for *B. dendrobatidis* may produce false negative results if the infection is localized in different tissues than were analyzed (Beard and O'Neill 2005, p. 594). The only Ozark Hellbender river not surveyed for the pathogen was the Spring River, where the subspecies is considered functionally extirpated (Irwin 2008a, pers. comm.). During future surveys, all animals encountered (new and recaptures) will be tested for the presence of *B. dendrobatidis.*

The immediacy of the threat from chytridiomycosis has been significantly heightened since the Bd pathogen has been found to occur in all known extant populations of the Ozark Hellbender. Exact effects of the fungus on Ozark Hellbender populations remains unknown, but infected individuals of other amphibian species have experienced decreased growth rates (Davidson *et al.* 2007, p. 1773) and reduced survivability (Pilliod *et al.* 2010, pp. 1264–1265). Hellbenders may be particularly sensitive to thickening of the epidermis caused by Bd (Daszak *et al.* 1999, pp. 737–738) as more than 90 percent of their oxygen is obtained through cutaneous respiration (Guimond and Hutchison, p. 1263).

Abnormalities

Wheeler *et al.* (2002, pp. 250–251) investigated morphological aberrations in the Ozark Hellbender over a 10-year period. They obtained deformity data from salamanders that were examined during population and distributional surveys in the Eleven Point River, North Fork of the White River, and Spring River dating back to 1990. They reported a variety of abnormal limb structures, including missing toes, feet, and limbs. Additional abnormalities encountered include epidermal lesions, blindness, missing eyes, and bifurcated limbs. Three hellbenders were documented with tumors on their bodies in the Spring River in Arkansas. Briggler (2011b, pers. comm.) is evaluating and compiling additional information on these abnormalities and lesions, including the frequency of occurrence. Several hellbenders with these abnormalities were x-rayed and are being analyzed by Jeff Briggler, Missouri Department of Conservation. One hellbender with extreme abnormalities (all limbs missing) was euthanized and sent to the USGS National Wildlife Health Center for necropsy, where the conclusive cause for the individual's missing limbs and digits could not be determined.

In 2004, 72 percent of Ozark Hellbenders captured had abnormalities present. For reference, 49 percent of Eastern Hellbenders captured in Missouri had abnormalities (Briggler 2007, pers. comm.). In 2006, 90 percent

of Ozark Hellbenders surveyed from the Eleven Point River (Missouri), 73 percent from the Current River, and 67 percent from the North Fork of the White River had abnormalities (Briggler 2007, pers. comm.). In general, abnormalities in Ozark Hellbenders are becoming increasingly common and severe, often to a level that the animals are near death (for example, missing digits on all or most limbs, missing all or most limbs; Briggler 2007, pers. comm.). Most, if not all, hellbenders collected in the past decade from the Spring River have had some type of major malformity or lesions (Davidson 2008, pers. comm.). In fact, a hellbender found in the Spring River in 2004 was missing all four feet and was covered in lesions and a fungal growth externally and inside its mouth; this animal died within 15 minutes of capture (Davidson 2008, pers. comm.).

The current belief is that secondary bacterial and fungal infections are causing the observed abnormalities on Ozark Hellbenders (Briggler 2011a, pers. comm.). While these pathogens likely naturally occur on the animals, it appears that some unknown factor is increasing the hellbenders' susceptibility to these infections. In hellbenders infected with Bd, there may be a connection between the chytrid fungus and presence of abnormalities such as lesions, digit and appendage loss, and epidermal sloughing. Although evidence is lacking to conclude that infection by Bd causes immunosuppression, it has been hypothesized that the pathogen increases the vulnerability of hellbenders to secondary bacterial and fungal infections and thus is associated with the abnormalities (Irwin 2010, pers. comm.). However, not all hellbenders exhibiting the abnormalities described above test positive for infection by the fungus. Therefore, while the Bd pathogen may cause some hellbenders to be more susceptible to other infections, including those responsible for lesions and appendage loss, it appears that additional unknown factors are underlying the increased vulnerability.

While the cause of the observed abnormalities is uncertain, the presence of these physical impairments (and the frequency with which they occur) is likely contributing to Ozark Hellbender declines by reducing survivorship and reproduction. Lesions on the feet and absence of appendages altogether seemingly would reduce motility and foraging ability, and possibly increase vulnerability of hellbenders to predators. Blindness or missing eyes may also decrease survivability; while the overall stress imposed on affected individuals has the potential to reduce breeding activities and thus decrease recruitment.

Predation

Trout stocking has increased in recent years both in Missouri and Arkansas. While no trout are native to Missouri, both nonnative brown trout (*Salmo trutta*) and nonnative rainbow trout (*Oncorhynchus mykiss*) have been sporadically introduced into Ozark area waters for recreational fishing purposes since the 1800s. The 2003 MDC Trout Management Plan calls for increased levels of stocking as well as increasing the length of cold-water-stream stretches that will be stocked with brown and rainbow trout (Missouri Department of Conservation 2003, pp. 31–32). Nonnative trout are stocked in all rivers that historically and currently contain Ozark Hellbenders ((MDC 2003, pp. 24–26, AGFC 2004, p. 4). In Arkansas, the Arkansas Game and Fish Commission is currently working with the U.S. Army Corps of Engineers to improve cold water releases from mainstem dams along the White River, to improve conditions for trout below the reservoirs (U.S. Army Corps of Engineers 2008, pp. 1–40). In addition, highly predacious tiger muskies (hybrids between Northern pike and muskellunge (*Esox masquinogy* x *E.lucius*) were introduced into the Spring River in Arkansas in 1989.

Introduced fishes have had dramatic negative effects on populations of amphibians throughout North America (Bradford 1989, pp. 776–778; Funk and Dunlap 1999, pp. 1760–1766; Gillespie 2001, pp. 192–196; Pilliod and Peterson 2001, pp. 326–331; Vredenburg 2004, pp. 7648–7649). Rainbow trout and brown trout are considered opportunists in diet, varying their diet with what is available, including larval amphibians (Smith 1985, p. 231; Pflieger 1997, pp. 224–225). Brown trout grow bigger and tolerate a wider range of habitats than do rainbow trout and, therefore, may be a more serious threat to hellbenders, particularly at the larval stage. Dunham *et al.* (2004, pp. 19–24) assessed the impacts of nonnative trout in headwater ecosystems in western North America. The authors documented at least eight amphibian species that exhibited negative associations with nonnative trout in mountain lakes, specifically regarding the occurrence or abundance of larval life stages of native amphibians. Also, salamander species, such as the long-toed salamander (*Ambystoma macrodactylum*), have been extirpated from waterbodies in high-elevation lakes in western North America due to stocked nonnative trout (Pilliod and Peterson 2001, p. 330).

Preliminary data suggest that larval hellbenders from declining populations in Missouri do not recognize brown trout as dangerous predators. In contrast, larvae from more stable southeastern (U.S.) populations that co-occur with native trout show ''fright'' responses to brown trout (Mathis 2008a, pers. comm.). The failure of hellbender larvae to recognize trout as a threat is likely a nonadaptive response the makes this amphibian more susceptible to predation. A recent study conducted by Gall (2008, pp. 1–86) confirmed results found with this preliminary data on Missouri hellbender populations.

Gall (2008, p. 3) examined hellbender (Ozark and eastern) predator-prey interactions by (1) studying the foraging behavior of predatory fish species (native and nonnative (trout)) in response to the presence of hellbender secretion (a potentially noxious chemical cue produced by stressed hellbenders), (2) comparing the number of secretion-soaked food pellets consumed by rainbow and brown trout, and (3) comparing the response of larval hellbenders to chemical stimuli between native predatory fishes and nonnative trout. Gall (2008, pp. 23, 30–31) determined that brown trout were attracted to the secretion emitted by hellbenders, and hellbender secretions were more palatable to brown trout than to rainbow trout. Also, although hellbenders in Missouri exhibited only weak fright responses when exposed to trout stimuli, they responded with strong fright responses to other native predatory fish.

Gall (2008, p. 63) suggested that the limited evolutionary history between salmonids (brown and rainbow trout) and hellbenders in Missouri is likely responsible for the weak fright behavior exhibited by hellbenders in response to trout stimuli. Although brown and rainbow trout are a threat to hellbenders, results from this study indicate that rainbow trout are less of an immediate concern than brown trout (Gall 2008, pp. 63–64). This may be due to the difference in diet of the two species; rainbow trout maintain a predominately invertebrate diet throughout their lives and brown trout switch from predominately invertebrate prey to predominately vertebrate prey (including salamanders) at about 8.7 in (22 cm) in length (Gall 2008, p. 60). Gall (2008, p. 63) provided evidence that predation by introduced trout cannot be ruled out as a factor affecting the Ozark Hellbender and possibly contributes to their decline.

In addition to brown trout and four other native predatory fish, walleye (*Stizostedion vitreum*) have been stimulated to approach prey more often and faster in the presence of hellbender secretions (Gall 2008, pp. 23–24). Although walleye are native, stocking the species at greater densities than those occurring naturally may increase predation pressures on hellbender larvae stocked in hellbender streams, because walleye share similar activity periods with hellbenders (Mathis 2008b, pers. comm.).

Summary of Disease or Predation

The discovery of the presence of *Batrachochytrium dendrobatidis* (Bd, or amphibian chytrid fungus) in 2006 within all remaining populations of the Ozark Hellbender has made increased protection even more important to the persistence of this subspecies (Utrup 2007, pers. comm.). The threat from chytridiomycosis is significant and immediate because: (1) It is proven to be a fatal pathogen to Ozark Hellbenders in captivity, and (2) in the wild, all streams with extant Ozark Hellbender populations have individuals that tested positive for the pathogen (Briggler 2008b, pers. comm.). In addition, although it is unclear if there is a connection to chytridiomycosis, abnormalities found on Ozark Hellbenders are increasingly severe, often to a level short of mortality (Briggler 2008a, pers. comm.).

Nonnative trout are stocked in all rivers that historically and currently contain hellbenders in Missouri. Predation of larval hellbenders by nonnative trout and other piscivorous fish possibly contributes to the decline of Ozark Hellbender populations in Missouri and may be a growing concern if predatory fish continue to be stocked (or are stocked in larger numbers) in hellbender streams.

D. The Inadequacy of Existing Regulatory Mechanisms

In Arkansas, hellbenders may be collected with a scientific collecting permit from the AGFC; however, no permits are anticipated to be issued now or in the future because the State acknowledges the severely imperiled status of the subspecies (Irwin 2008b, pers. comm.). Although Arkansas does not have a State endangered and threatened species list, the State considers the Ozark Hellbender a nongame species and prohibits collection without a permit. The Ozark Hellbender is a State-endangered species in Missouri, which prohibits importation, exportation, transportation, sale, purchase, taking, and possession of the species without a permit. MDC placed a moratorium on hellbender scientific collecting from 1991 to 1996 and has since allowed only limited numbers of scientific collecting permits, and only for those projects contributing to conservation and recovery efforts (Briggler 2011d, pers. comm.). Despite receiving maximum protection by both States, continued unauthorized collecting for the pet trade has been documented and remains a threat throughout the range.

State regulations for gigging and for trout stocking do not protect the Ozark Hellbender. The gigging season for various species of suckers spans the reproductive season of the Ozark Hellbender in the North Fork White River and overlaps that of the hellbender in other river basins as well. The sucker gigging season opens annually on September 15, during the peak breeding period when hellbenders are most active and, therefore, most exposed. The 2003 MDC Trout Management Plan calls for increased levels of stocking as well as increasing the length of cold water streams that will be stocked with brown and rainbow trout (MDC 2003, pp. 31–32). In Arkansas, the Arkansas Game and Fish Commission is currently working with the U.S. Army Corps of Engineers to improve cold water releases from mainstem dams along the White River to improve conditions for trout below the reservoirs (U.S. Army Corps of Engineers 2008, pp. 1–40).

Clean Water Act

Although the Clean Water Act of 1972 (CWA (Pub. L. 92–500)) resulted in an overall gain in water quality in streams, degraded water quality still is a significant factor affecting highly sensitive aquatic organisms such as the Ozark Hellbender because a number of activities responsible for habitat degradation are outside of regulatory oversight. There are no regulatory requirements to implement Best Management Practices (BMPs) to protect water quality from timber management actions. Existing BMPs by the Arkansas Forestry Commission and Missouri Department of Conservation lack mandatory requirements for implementing methods to reduce aquatic resource impacts associated with timber management. Timber harvest activities (for example, logging decks, increased use of unpaved roads, improperly designed and maintained roads, skid trails, fire breaks) may result in erosion and sedimentation. Additionally, there are no laws or regulations that preclude livestock from grazing in riparian corridors and wading in streams and rivers. Nonpoint pollution sources (for example, animal and human waste, agricultural practices, increased road construction) may be causing much of the degraded water quality throughout the Ozark Hellbender's range. The degradation is more apparent in stretches of rivers that are not within federally or State protected lands, such as in the Eleven Point River in Arkansas (Irwin 2008b, pers. comm.). While portions of the Eleven Point River watershed in Missouri are owned by the Federal Government and managed to protect stream and riparian areas from erosion, the entire watershed in Arkansas is privately owned with increased threat from stream bank clearing and unrestricted livestock access, which have an increased effect on remaining Ozark Hellbender populations (Irwin 2008b, pers. comm.).

The court's decision in *American Mining Congress* v. *U.S. Army Corps of Engineers* (D.D.C. 1997) resulted in the U.S. Army Corps of Engineers deregulating gravel removal activities under section 404 of the CWA. The court found that ''de-minimus'' or incidental fallback of sand and gravel into the stream from which it was being excavated did not constitute the placement of fill by the mining operation. Hence, the court ruled that the Army Corps of Engineers had exceeded their authority in requiring a permit for this activity. Although these activities no longer require a Clean Water Act 404 permit, commercial operations in Missouri must apply for a State permit through the Missouri Department of Natural Resources Land Reclamation Program. Modifications of stream channels associated with gravel mining, as well as the removal of pebbles and cobble that are important microhabitat for larvae and subadults, possibly contribute to the decline of Ozark Hellbenders in these systems.

Lacey Act

Under section 3372(a)(1) of the Lacey Act Amendments of 1981 (16 U.S.C. 3371–3378), it is unlawful to import, export, transport, sell, receive, acquire, or purchase any wildlife taken, possessed, transported, or sold in violation of any law, treaty, or regulation of the United States. This prohibition of the Lacey Act would apply in instances where a person engages in a prohibited act with an Ozark Hellbender unlawfully collected from Federal lands, such as those Federal lands within the range of the Ozark Hellbender that are owned and managed by the U.S. Forest Service or the National Park Service. It is unlawful

under section 3372(a)(2)(A) of the Lacey Act Amendments of 1981 to import, export, transport, sell, receive, acquire, or purchase in interstate or foreign commerce any wildlife taken, possessed, transported, or sold in violation of any law or regulation of any State.

Because it is a violation of Missouri and Arkansas wildlife codes and regulations to sell, purchase, or engage in any actions relating to the commercial trade of Ozark Hellbenders (for example, import, export, ship, or transport), any interstate or foreign commerce of the Ozark Hellbender would result in a violation of the Lacey Act Amendments of 1981. However, if an illegally obtained hellbender is not identified to the Ozark subspecies, it would be difficult for a wildlife inspector to identify it as the prohibited taxon. Although the prohibitions and penalties of the Lacey Act Amendments of 1981 provide some protection for the Ozark Hellbender, this law, by itself, does not adequately prevent or reduce the illegal commercial trade of hellbenders.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The unauthorized collection and trade of Ozark Hellbenders within the United States and internationally is of growing concern, particularly as the subspecies' rarity increases and, consequently, commercial value increases. Therefore, concurrent with the proposal to list the Ozark Hellbender as endangered, the Service proposed on September 8, 2010, to include both hellbender subspecies in Appendix III of CITES. CITES is an international agreement between governments with the purpose of ensuring that international trade in wild animals and plants does not threaten their survival. CITES listing of the Ozark Hellbender would aid in curbing unauthorized international trade of hellbenders.

CITES can list species in one of three appendices. Appendix I includes species threatened with extinction that are or may be affected by international trade. Appendix II includes species that, although not necessarily threatened with extinction now, may become so unless the trade is strictly controlled. Appendix II also includes species that CITES must regulate so that trade in other listed species may be brought under effective control (for example, because of similarity of appearance between listed species and other species). Appendix III includes native species identified by any Party country that needs to be regulated to prevent or restrict exploitation; under Appendix III, that Party country requests the help of other Parties to monitor and control the trade of that species. Based on the criteria described in 50 CFR 23.90, the Eastern and the Ozark hellbenders qualify for listing in CITES Appendix III. Listing all hellbenders in Appendix III is necessary to allow us to adequately monitor international trade in the taxa; to determine whether exports are occurring legally, with respect to State law; and to determine whether further measures under CITES or other laws are required to conserve this species and its subspecies. Appendix III listings will lend additional support to State wildlife agencies in their efforts to regulate and manage hellbenders, improve data gathering to increase our knowledge of trade in hellbenders, and strengthen State and Federal wildlife enforcement activities to prevent poaching and illegal trade. The final rule for the CITES Appendix III listing is being published concurrently in today's **Federal Register**.

Summary of the Inadequacy of Existing Regulatory Mechanisms

Some existing regulatory mechanisms provide protection for the Ozark Hellbender and its habitat. Existing Federal and State water quality laws can be applied to protect water quality in streams occupied by the hellbender, but several factors contributing to degradation of water quality remain outside government regulatory authority. The requirement for a U.S. Army Corps of Engineers dredge and fill permit under section 404 of the Clean Water Act has resulted in an overall gain in water quality. However, ongoing gravel mining in hellbender streams is no longer regulated by the Corps of Engineers under section 404 of the Clean Water Act. Although the Lacey Act provides some protection, the current regulatory mechanisms are not adequate to protect Ozark Hellbenders from unauthorized collection for commercial sale in the pet trade. The Service also finalized listing the Eastern and Ozark hellbender in Appendix III of CITES concurrently in today's **Federal Register**. Nonetheless, the CITES listing applies only to the export of hellbenders from the United States. Current regulations also do not protect Ozark Hellbenders from gigging by anglers or potential predation by introduced nonnative trout.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Small, Isolated Populations—The small size and isolation of remaining populations of the Ozark Hellbender make it vulnerable to extinction due to genetic drift, inbreeding depression, and random or chance events (Smith 1990, pp. 311–321). Inbreeding depression can result in death, decreased fertility, smaller body size, loss of vigor, reduced fitness, and various chromosome abnormalities (Smith 1990, pp. 311–321). Despite any evolutionary adaptations for rarity, habitat loss and degradation increase a species' vulnerability to extinction (Noss and Cooperrider 1994, pp. 58–62). Numerous authors (such as Noss and Cooperrider 1994, pp. 58–62; Thomas 1994, p. 374) have indicated that the probability of extinction increases with decreasing habitat availability. Although changes in the environment may cause populations to fluctuate naturally, small and low-density populations are more likely to fluctuate below a minimum viable population (the minimum or threshold number of individuals needed in a population to persist in a viable state for a given interval) (Gilpin and Soule 1986, pp. 25–33; Shaffer 1981, p. 131; Shaffer and Samson 1985, pp. 148–150).

The loss of genetic diversity in Ozark Hellbenders is illustrated by Routman's (1993, pp. 410–415) study, in which hellbender populations from different rivers demonstrated very little within-population variability, and relatively high between-population variability. Due to this population fragmentation, local extirpations cannot be naturally repopulated. Current factors negatively affecting the habitat of the Ozark Hellbender may exacerbate potential problems associated with its low population numbers and the isolation of those small populations from each other, which increases the chances of this subspecies going extinct or making it less able to recover or adapt to catastrophic events.

Genetic studies have repeatedly demonstrated very low genetic diversity in hellbender populations, which could contribute to the decline of the species through inbreeding depression (Kucuktas *et al.* 2001, p. 135). The current combination of population fragmentation, disease, and habitat degradation will prohibit this species from recovering without the intervention of conservation measures designed to facilitate hellbender recovery.

Recruitment and Reproductive Capability—The hellbender's late sexual maturity leads to a higher risk of death prior to reproduction and to lengthened generation times (Congdon *et al.* 1993, pp. 831–832). Hellbender specimens less than 5 years of age are uncommon (Taber *et al.* 1975, pp. 636–637;

Pfingsten 1990, p. 49), and recent research has indicated that the age structure has shifted, resulting in the prevalence of older individuals (Pfingsten 1990, p. 49; Wheeler *et al.* 2003, pp. 153, 155).

Because hellbenders are long-lived, a population may seemingly not be highly dependent on recruitment to remain extant (Mayasich *et al.* 2003, p. 22). Empirical and theoretical evidence suggests, however, that overlapping generations within a population (high survivorship among juveniles) is necessary to maintain stable populations (Congdon *et al.* 1993, pp. 830–832) and maintain genetic diversity by facilitating gene flow among older and younger individuals (Ellner and Hairston 1994, pp. 413–415). Wheeler *et al.* (2003, p. 155) postulated that the lack of sufficient recruitment may have impeded the population stability of Ozark Hellbenders and the ability of the populations to maintain genetic diversity.

Pfingsten (1990, p. 49) cautioned that lack of larvae detection could mean that larvae occupy a microhabitat that has yet to be surveyed. However recent information indicates that the lack of larvae and juveniles in populations is not a function of survey technique, but instead reflects a true reduction in recruitment (Lipps 2010, pers. comm.; Phillips 2010, pers. comm.).

Unger (2003, pp. 30–36) compared several measures of sperm production between male Ozark and Eastern hellbenders in Missouri and Eastern Hellbender males from more stable populations in North Carolina and Georgia. Sperm counts were significantly lower for males from both tested Missouri populations than for males from southeastern populations. Populations were not significantly different with respect to sperm viability and motility. The sperm of Missouri males had proportionally smaller heads for their tail lengths; this difference was relatively small, but was statistically significant. Because motility and viability appeared unaffected, artificial fertilization might be a viable conservation technique, however, limited efforts to date have been successful (Unger 2003, pp. 65–66).

The extremely low number or lack of juveniles in most Ozark Hellbender populations is a significant sign that little reproduction has occurred in these populations for several years. Late age of reproductive maturity, when paired with a long lifespan, can disguise population declines resulting from activities that occurred years earlier until the adults begin dying and numbers begin declining from lack of recruitment. The present distribution and status of Ozark Hellbender populations in the White River system in Arkansas and Missouri are exhibiting such a decline (Wheeler *et al.* 2003, p. 155).

Climate Change—Because the Ozark Hellbender is an aquatic salamander totally dependent upon an adequate water supply and has specific habitat requirements (*i.e.,* dissolved oxygen and low water temperatures); we expect that climate change could significantly alter the quantity and quality of hellbender habitat and thus impact the species in the future. Potential adverse effects from climate change include increased frequency and duration of droughts (Rind *et al.* 1990, p. 9983; Seager *et al.* 2007, pp. 1181–1184; Rahel and Olden 2008, p. 526) and an increased virulence of nonnative parasites and pathogens to native species from warming temperatures (Rahel and Olden 2008, p. 525). If the health of hellbenders is already compromised by other environmental stressors, elevated water temperatures could increase susceptibility to bacterial and fungal infections, especially for those hellbenders infected with Bd (Wanner 2011, pers. comm.).

Climate warming may also decrease groundwater levels (Schindler 2001, p. 22) or significantly reduce annual stream flows (Moore *et al.* 1997, p. 925; Hu *et al.* 2005, p. 9); while the increased drought conditions and prolonged low flows associated with climate change may favor the establishment and spread of nonnative species (Rahel and Olden 2008, pp. 526, 529–530). Low or interrupted stream flows could have devastating effects on Ozark Hellbenders populations by causing direct mortality from desiccation (during periods of interrupted flows) and reduced fitness and reproduction due to stress, decreased prey availability, and lower dissolved oxygen. Additionally, it is projected that stream basin discharges may be further impacted by synergistic effects of changes in land cover and climate change in the Missouri Ozarks (Hu *et al.* 2005, p. 9).

Summary of Other Natural or Manmade Factors Affecting Its Continued Existence

The small size and isolation of Ozark Hellbender populations, loss of genetic diversity, lack of recruitment, and potential effects from climate change could exacerbate other factors negatively affecting the subspecies and increase the risk of extinction. These additional factors are particularly detrimental when combined with other threats affecting the hellbender, such as of habitat loss, water quality degradation, chytridiomycosis, and unauthorized collection and trade. In addition, effects from some threats likely interact synergistically to enhance effects from other factors (for example, compromised health from water quality or pathogen issues may increase predation risks).

Determination for the Ozark Hellbender

Although no clear estimates exist for how many Ozark Hellbenders historically inhabited Missouri and Arkansas, surveys over recent years have documented a severe decline in all populations. To illustrate this decline, consider the current total range-wide population estimate of 590 (Briggler *et al.* 2007, p. 83) compared to the results of one 1973 study indicating approximately 1,150 hellbenders within less than 1.2 mi (2 km) of one occupied river (Nickerson and Mays 1973b, p. 1165).

In addition to the severe population declines, the known factors negatively affecting and subsequent threats to the Ozark Hellbender have continued to increase since we elevated the species to candidate status in 2001 (66 FR 54808; October 30, 2001). In particular, the discovery of the presence of *Batrachochytrium dendrobatidis* (chytridiomycosis) in 2006 within all remaining populations of the Ozark Hellbender has made increased protection even more important to persistence of this subspecies (Utrup 2007, pers. comm.).

The decrease in Ozark Hellbender population size and the shift in age structure are likely caused in part by a variety of historical and ongoing activities. It is believed that one of the primary causes of these trends is habitat destruction and modification from siltation and water quality degradation. The sources include industrialization, agricultural runoff from livestock production and pasture land, mine waste, and activities related to timber harvesting. Increased siltation affects hellbenders in a variety of ways, such as suffocating eggs, eliminating suitable habitat for all life stages, reducing dissolved oxygen levels, increasing contaminants (that bind to sediments), and reducing prey populations. Trout stocking continues to occur on hellbender streams both in Missouri and Arkansas. The reduced numbers of larval and subadult hellbenders observed may be attributed to predation by nonnative trout. Increased nitrate levels, along with a variety of other contaminants from agricultural runoff and increased urbanization, have been

detected in hellbender streams, which not only negatively affects hellbenders directly but also the Ozark aquatic ecosystems in general. Impoundments alter habitat directly, isolate populations, change water temperatures and flows below reservoirs, and increase predation at sites immediately above reservoirs. Remaining Ozark Hellbender populations are small and isolated, in part due to reservoir construction that makes hellbenders vulnerable to individual catastrophic events and reduces the likelihood of recolonization after localized extirpations.

Recreational pressure (for example, boat traffic, horseback riding, and ORV use) in streams inhabited by Ozark Hellbenders has increased substantially on an annual basis, directly disturbing the habitat. Fish and frog gigging popularity and pressure continue to increase, presenting a threat to hellbenders during the breeding season (Nickerson and Briggler 2007, pp. 209–211). The increase in number or size of recreational boats and inner tubes, commercial horse trail ride outfitters, and ORV use has increased disturbance and contamination (for example, fecal coliform).

The unauthorized collection of hellbenders, especially for the pet trade, remains a major concern, particularly with market values continually increasing. Existing regulations targeting this significant threat, including State laws, have not been completely successful in preventing the unauthorized collection and trade of Ozark Hellbenders.

The combined impact of degraded environmental conditions, along with the possible increased susceptibility to chytridiomycosis due to these threats, has created a situation in which the Ozark Hellbender is currently in danger of extinction throughout all of its range. Researchers and managers agree that, while a solution will hopefully be reached to directly address the presence of the chytrid fungus within Ozark Hellbender populations, all other factors significantly affecting the hellbender must be ameliorated to prevent the imminent extinction of this subspecies.

Based on an August 2006 PHVA model, hellbender experts concluded that the Ozark Hellbender metapopulations are expected to decline by more than 50 percent in 12 to 16 years, the viability of all individual populations will be significantly reduced within 20 to 25 years with estimates of fewer than 100 individuals, and a reduction in genetic diversity by as much as 90 percent will occur. These projections may be optimistic because they are based on best-case density estimates and assume that hellbender populations within each river system are continuous, and the prevalence of chytrid fungus and its possible effects on hellbenders was not taken into consideration. Hellbenders do not travel great distances, however, and subpopulations within each river system are often separated by miles (kilometers) of unsuitable habitat resulting in fragmented populations. These models projected the Ozark Hellbender subspecies to be functionally extinct within 20 years (Briggler *et al.* 2007, pp. 88–90 and 97).

We determine foreseeable future on a case-by-case basis, taking into consideration a variety of species-specific factors such as lifespan, genetics, breeding behavior, demography, threat-projection timeframes, and environmental variability. Based on the observed population decline in the subspecies and the threats as discussed, we find that the Ozark Hellbender is currently in danger of extinction throughout all of its range.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Ozark Hellbender. Section 3 of the Endangered Species Act defines an endangered species as ''* * * any species which is in danger of extinction throughout all or a significant portion of its range'' and a threatened species as ''* * * any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' Due to multiple threats to the Ozark Hellbender and the ongoing population decline, this subspecies is increasingly threatened with extinction. Based on the immediate and ongoing significant threats to the subspecies throughout its entire range, we find the subspecies to be in danger of extinction throughout all of its range. Therefore, the Ozark Hellbender meets the definition of an endangered species under the Act, rather than a threatened species because the threats are occurring now, making the subspecies in danger of extinction at the present time. Because threats extend throughout the entire range, it is unnecessary to determine if the Ozark Hellbender is in danger of extinction throughout a significant portion of its range. Therefore, on the basis of the best scientific and commercial information available, we are listing the Ozark Hellbender as an endangered species throughout its entire range.

Critical Habitat

Prudency Determination

Background

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, we designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations (50 CFR 424.12(a)(1)) state that the designation of critical habitat is not prudent when one or both of the following circumstances exist: (1) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species. We have determined that both circumstances apply to the Ozark Hellbender. This determination involves a weighing of the expected increase in threats associated with a critical habitat designation against the benefits gained by a critical habitat designation. An explanation of this ''balancing'' evaluation follows.

Increased Threat to the Taxon by Designating Critical Habitat

The unauthorized collection of Ozark Hellbenders for the pet trade is a factor contributing to hellbender declines (Nickerson and Briggler 2007, p. 214) and remains a significant threat today, particularly with increasing international market values. For a detailed discussion on the threat of commercial collection, see factor B (Overutilization for commercial, recreational, scientific, or educational purposes).

The process of designating critical habitat would increase human threats to the Ozark Hellbender by increasing the vulnerability of this species to unauthorized collection and trade through public disclosure of its locations. Designation of critical habitat requires the publication of maps, and a very specific narrative description of critical habitat areas in the **Federal Register**. The degree of detail in those maps and boundary descriptions is far greater than the general location descriptions provided in this final rule to list the species as endangered. Furthermore, a critical habitat designation normally results in the news media publishing articles in local newspapers and special interest Web sites, usually with maps outlining critical habitat. We believe that the publication of maps and descriptions

outlining the locations of this critically imperiled taxon will further facilitate unauthorized collection and trade, as collectors will know the exact locations where Ozark Hellbenders occur. Supporting our concern is an instance of illegal collection of a federally listed North Carolina mountain plant immediately following the publication of critical habitat maps (USFWS 2001; pp. 51448–51449). With critical habitat maps in hand, collectors visited local Forest Service district offices and asked directions to the sites. Because the plant was not previously known to be desired by rare plant collectors and had never been offered for sale in commercial trade, there was no likely cause for concern. However, following the visit by collectors, several plants were discovered missing. The actual removal of the plants could be documented because each individual plant had previously been mapped, and the carefully covered excavations where plants had been removed could be discerned.

Given that the current population estimate for Ozark Hellbenders is very small, the removal of even a few individuals from a particular habitat patch could cause local extirpations in those patches. If individual patches are lost, populations within each river become more fragmented, and the likelihood of gene flow is reduced.

Ozark Hellbenders are easily collected because they are slow moving and have extremely small home ranges. Therefore, publishing specific location information would provide a high level of assurance that any person going to a specific location would be able to successfully locate and collect specimens. In addition, the majority of past collecting events have involved individuals travelling from other States to collect Ozark Hellbenders. Publication of critical habitat maps would allow these individuals to more efficiently and effectively target collecting sites by delineating all the occupied areas within the Ozark Hellbender range. It is commonly known that hellbenders are found by surveying specific habitats and over-turning rocks of certain dimensions. In designating critical habitat, those specific habitat features would be described in detail, and maps would disclose the specific sections of streams where collectors could look to capture hellbenders. Furthermore, the detailed information in a critical habitat designation would provide collectors with more information than is currently available to them through previously published reports. Those previously published reports no longer contain current information on the location of Ozark Hellbenders, and those reports only disclose locations for a small portion of the total number of hellbender sites.

Due to the threat of unauthorized collection and trade, the Missouri Department of Conservation and the Arkansas Game and Fish Commission have implemented extraordinary measures to control and restrict information on the locations of Ozark Hellbenders. These agencies have expressed to the Service serious concerns with publishing maps and boundary descriptions of Ozark Hellbender areas associated with critical habitat designation (Briggler and Irwin 2008, pers. comm.; Ziehmer 2010, pers. comm.). State hellbender experts believe that designating critical habitat could negate their efforts to restrict access to locality data that could significantly affect future efforts to control the threat of unauthorized collection and trade of Ozark Hellbenders.

Benefits to the Species From Critical Habitat Designation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to destroy or adversely modify critical habitat. Decisions by the 5th and 9th Circuit Court of Appeals have invalidated our definition of ''destruction or adverse modification'' (50 CFR 402.02) (see *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service,* 378 F. 3d 1059 (9th Cir. 2004) and *Sierra Club* v. *U.S. Fish and Wildlife Service et al.,* 245 F.3d 434, 442F (5th Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional (or retain those physical and biological features that relate to the ability of the area to periodically support the species) to serve its intended conservation role for the species.

Critical habitat only provides protections where there is a Federal nexus, that is, those actions that come under the purview of section 7 of the Act. Critical habitat designation has no application to actions that do not have a Federal nexus. Section 7(a)(2) of the Act mandates that Federal agencies, in consultation with the Service, evaluate the effects of their proposed action on any designated critical habitat. Similar to the Act's requirement that a Federal agency action not jeopardize the continued existence of listed species, Federal agencies have the responsibility not to implement actions that would destroy or adversely modify designated critical habitat. Critical habitat designation alone, however, does not require that a Federal action agency implement specific steps toward species recovery.

The species occurs exclusively on private lands in Arkansas. In Missouri, Ozark Hellbenders occur primarily on lands managed by the National Park Service (Ozark National Scenic Riverways) and U.S. Forest Service (Mark Twain National Forest). We anticipate that some actions on non-Federal lands will have a Federal nexus (for example, requirement for a permit to discharge dredge and fill material from the U.S. Army Corps of Engineers) for an action that may adversely affect the hellbender. There is also the potential that some proposed actions by the National Park Service and U.S. Forest Service may adversely affect the hellbender. However, both of these Federal agencies are implementing measures to ensure the conservation and recovery of the hellbender on lands they manage, including active involvement in the Ozark Hellbender Working Group.

In those circumstances where it has been determined that a Federal action (including actions involving non-Federal lands) may affect the hellbender, the action would be reviewed under section 7(a)(2) of the Act. We anticipate that the following Federal actions are some of the actions that could adversely impact the Ozark Hellbender: Instream dredging, channelizing, impounding water, streambank clearing, moving large rocks within or from streams, discharging fill material into the stream, or discharging or dumping toxic chemicals or other pollutants into a hellbender stream system. Under section 7(a)(2) of the Act, project impacts would be analyzed, and the Service would determine if the Federal action would jeopardize the continued existence of the hellbender. The designation of critical habitat would require a Federal agency to determine if their proposed action would likely result in the destruction or adverse modification of critical habitat. Consultation with respect to critical habitat will provide additional protection to a species only if the agency action would result in the destruction or adverse modification of the critical habitat but would not jeopardize the continued existence of the species. In the absence of critical habitat, areas that support the Ozark

Hellbender will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act and to the regulatory protections afforded by the section 7(a)(2) jeopardy standard, as appropriate. Federal actions affecting the hellbender even in the absence of designated critical habitat areas will still benefit from consultation pursuant to section 7(a)(2) of the Act and may still result in jeopardy findings.

Another potential benefit to the Ozark Hellbender from designating critical habitat is that such a designation serves to provide technical assistance and information to landowners, State and local governments, and the public regarding the potential conservation value of an area. Generally, providing this information helps focus and promote conservation efforts by other parties by clearly delineating areas of high conservation value for the affected species. Simply publicizing the proposed listing of the species also serves to notify and provide technical assistance and information to landowners, State and local governments, and the public regarding important conservation values. However, the Ozark Hellbender Working Group has developed a comprehensive outreach and education program that targets a diverse audience, including public and private landowners, organizations, and the media (OHWG 2010, pp. 11–12).

The Ozark Hellbender Working Group, formed in 2001, is composed of personnel from Federal and State agencies, academia, zoos, nonprofit organizations, and private individuals. The Ozark Hellbender outreach actions implemented to date include producing and distributing stickers, posters, and videos; publishing magazine articles; working with media outlets (newspaper and television) on hellbender stories; giving presentations to local County Commissioners and other community groups; providing a profile of the Ozark Hellbender in the Missouri Department of Conservation's Fishing Regulations Pamphlet; and providing annual technical assistance to volunteers like the Missouri Department of Conservation's Stream Teams working in hellbender streams. In view of the extensive, ongoing efforts to outreach and promote Ozark Hellbender conservation, we believe that the designation of critical habitat would provide limited additional outreach value.

Increased Threat to the Species Outweighs the Benefits of Critical Habitat Designation

Upon reviewing the available information, we have determined that the designation of critical habitat would increase the threat to Ozark Hellbenders from unauthorized collection and trade. We believe that the risk of increasing this significant threat by publishing location information in a critical habitat designation outweighs the benefits of designating critical habitat.

A limited number of U.S. species listed under the Act have commercial value in trade. The Ozark Hellbender would be one of them. Due to the market demand and willingness of individuals to collect hellbenders without authorization, we believe that any action that publicly discloses the location of hellbenders (such as critical habitat) puts the species in further peril. Because Ozark Hellbenders are in danger of extinction, a focused and comprehensive approach to reducing threats is required. Several measures are currently being implemented to address the threat of unauthorized collection and trade of hellbenders, and additional measures will be implemented once this listing determination is in effect. One of the basic measures to protect hellbenders from unauthorized collection and trade is restricting access to information pertaining to the location of Ozark Hellbenders. Publishing maps and narrative descriptions of Ozark Hellbender critical habitat would significantly affect our ability to reduce the threat of unauthorized collection and trade.

Therefore, based on our determination that critical habitat designation would facilitate an increased threat of illegal take and collection of the Ozark Hellbender, we find that the potential negative impacts associated with the designation of critical habitat outweigh any benefit of designation.

Summary of Prudency Determination

We have determined that the designation of critical habitat could facilitate unauthorized collection and subsequent illegal trade of the Ozark Hellbender. The Ozark Hellbender is valued in the pet trade, and that value is likely to increase as the species becomes rarer. Although critical habitat designation may provide some benefits to the conservation of the Ozark Hellbender by highlighting areas important for conservation, such benefits would be minimal. We have concluded that, even though some benefit from designation may exist, the increased threat to the Ozark Hellbender from unauthorized collection and illegal trade outweighs any benefit to the taxon. A determination not to designate critical habitat also supports the measures taken by the States to control and restrict information on Ozark Hellbender and no longer to make locality data and survey information readily available to the public. We have, therefore, determined that it is not prudent to designate critical habitat for the Ozark Hellbender, because the species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition of the species and its status by the public, landowners, and other agencies; recovery actions; requirements for Federal protection; and prohibitions against certain practices. Recognition through listing results in public awareness of the conservation status of the species and encourages conservation actions by Federal and State governments, private agencies and groups, and individuals. The Act provides for possible land acquisition and cooperation with the States and calls for recovery actions to be carried out. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is listed as endangered or threatened and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. If a species is listed subsequently, section 7(a)(2) requires Federal agencies, including the Service, to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or to destroy or adversely modify its critical habitat if any has been designated. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with us.

Federal agency actions that may require conference or consultation for the Ozark Hellbender as described in the preceding paragraph include, but are not limited to: stream alterations, development of new waste water facilities that may impact water quality, stream bank clearing, timber harvesting,

construction of recreational trails and facilities adjacent to streams, water withdrawal projects, pesticide registration and usage, agricultural assistance programs, mining, road and bridge construction, Federal loan programs, and any federally funded activities. Activities will trigger consultation under section 7 of the Act if they may affect the Ozark Hellbender as addressed in this rule. Under Section 7(a)(1) and during formal consultation procedures under Section 7(a)(2), the Service, in cooperation with Federal agencies, may outline conservation measures that can provide benefits to the Ozark Hellbender.

The listing of the Ozark Hellbender initiates the development and implementation of a rangewide recovery plan for this species. A recovery plan establishes a framework for interested parties to coordinate activities and to cooperate with each other in conservation efforts. The plan will set recovery priorities, outline future research needs, identify possible partners, and estimate the costs of the tasks necessary to accomplish the priorities. It will also describe site-specific management actions necessary to conserve the Ozark Hellbender. Additionally, under section 6 of the Act, we will be able to grant funds to the States of Missouri and Arkansas for management actions, research studies, or propagation needs that may be necessary for the conservation of the Ozark Hellbender. During State environmental review processes in Missouri and Arkansas, BMPs can be provided to reduce any potential impacts to Ozark Hellbenders and Ozark Hellbender habitat. Finalizing the rule to add Ozark and Eastern Hellbenders to Appendix III of CITES will contribute to the conservation of Ozark Hellbender by discouraging the unauthorized collection and illegal trade of hellbenders.

The Act and its implementing regulations found at 50 CFR 17.21 and 17.31 set forth a series of general prohibitions and exceptions that apply to all endangered and threatened wildlife. As such, these prohibitions will be applicable to the Ozark Hellbender. The prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these), import or export, deliver, receive, carry transport, or ship in interstate or foreign commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Further, it is illegal for any person to attempt to commit, to solicit another person to commit, or to cause to be committed, any of these acts. Certain exceptions apply to our agents and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving threatened and endangered wildlife under certain circumstances. We codified the regulations governing permits for endangered and threatened species at 50 CFR 17.22 and 17.32. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in the course of otherwise lawful activities.

It is our policy, published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify, to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act and associated regulations at 50 CFR 17.31. The intent of this policy is to increase public awareness of the effect of this listing on proposed and ongoing activities within a species' range. We believe that the following activities are unlikely to result in a violation of section 9 of the Act:

(1) Activities authorized, funded, or carried out by Federal agencies, when such activities are conducted in accordance with an incidental take statement issued by us under section 7 of the Act;

(2) Any action carried out for scientific research or to enhance the propagation or survival of Ozark Hellbenders that is conducted in accordance with the conditions of a 50 CFR 17.22 permit;

(3) Any incidental take of Ozark Hellbenders resulting from an otherwise lawful activity conducted in accordance with the conditions of an incidental take permit issued under 50 CFR 17.22. Non-Federal applicants may design a habitat conservation plan (HCP) for the species and apply for an incidental take permit. HCPs may be developed for listed species and are designed to minimize and mitigate impacts to the species to the maximum extent practicable.

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

(1) Unauthorized pursuing, or attempting to pursue, killing, collecting, handling, or harassing of individual Ozark Hellbenders at any life stage;

(2) Sale or offer for sale of any Ozark Hellbender as well as delivering, receiving, carrying, transporting, or shipping any Ozark Hellbender in interstate or foreign commerce and in the course of a commercial activity;

(3) Unauthorized destruction or alteration of the species habitat (for example, instream dredging, channelizing, impounding of water, streambank clearing, removing large rocks from or disturbing large rocks within streams, or discharging fill material) that actually kills or injures individual Ozark Hellbenders by significantly impairing their essential behavioral patterns, including breeding, feeding, or sheltering;

(4) Violation of any discharge or water withdrawal permit within the species' occupied range that results in the death or injury of individual Ozark Hellbenders by significantly impairing their essential behavioral patterns, including breeding, feeding, or sheltering; and

(5) Discharge or dumping of toxic chemicals or other pollutants into waters supporting the species that actually kills or injures individual Ozark Hellbenders by significantly impairing their essential behavioral patterns, including breeding, feeding, or sheltering.

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

You should direct questions regarding whether specific activities may constitute a future violation of section 9 of the Act to the Field Supervisor of the Service's Columbia Field office (see **ADDRESSES**). You may request copies of the regulations regarding listed wildlife from and address questions about prohibitions and permits to the U.S. Fish and Wildlife Service, Ecological Services, 5600 American Blvd. West, Suite 990, Bloomington, MN 55437; Phone 612–713–5350; Fax 612–713–5292.

Required Determinations

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by the Office of Management and Budget (OMB) under the Paperwork Reduction Act. This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of

information unless it displays a currently valid OMB control number.

National Environmental Policy Act (NEPA)

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), need not be prepared in connection with regulations adopted under section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

A complete list of all references cited in this rule is available on the Internet at *http://www.regulations.gov* or upon request from the Field Supervisor, Columbia, Missouri Ecological Services Field Office (see **ADDRESSES**).

Authors

The primary author of this final rule is staff of the Columbia (Missouri) Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as follows:

PART 17—[AMENDED]

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

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

■ 2. Amend § 17.11(h) by adding an entry for ''Hellbender, Ozark'' in alphabetical order under AMPHIBIANS to the List of Endangered and Threatened Wildlife as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
* * * * *							
AMPHIBIANS							
* * * * *							
Hellbender, Ozark	*Cryptobranchus alleganiensis bishopi*	AR, MO ..	Entire	E	795	NA	NA
* * * * *							

Dated: September 26, 2011.

Rowan W. Gould,

Acting Director, U.S. Fish and Wildlife Service.

[FR Doc. 2011–25690 Filed 10–5–11; 8:45 am]

BILLING CODE 4310–55–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 23

[Docket No. FWS–R9–IA–2009–0033; 96300–1671–0000–R4]

RIN 1018–AW93

Inclusion of the Hellbender, Including the Eastern Hellbender and the Ozark Hellbender, in Appendix III of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), are listing the hellbender (*Cryptobranchus alleganiensis*), a large aquatic salamander, including its two subspecies, the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*) and the Ozark hellbender (*Cryptobranchus alleganiensis bishopi*), in Appendix III of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES or Convention). This listing includes live and dead whole specimens, and all readily recognizable parts, products, and derivatives of this species and its subspecies. Listing hellbenders in Appendix III of CITES is necessary to allow us to adequately monitor international trade in the taxon; to determine whether exports are occurring legally, with respect to State law; and to determine whether further measures under CITES or other laws are required to conserve this species and its subspecies.

DATES: This listing will become effective April 3, 2012.

ADDRESSES: You may obtain information about permits for international trade in this species and its subspecies by contacting the U.S. Fish and Wildlife Service, Division of Management Authority, Branch of Permits, 4401 N. Fairfax Drive, Room 212, Arlington, VA 22203; telephone: 703–358–2104 or 800–358–2104; facsimile: 703–358–2281; e-mail: *managementauthority@fws.gov;* Web site: *http://www.fws.gov/international/index.html.*

FOR FURTHER INFORMATION CONTACT: Robert R. Gabel, Chief, Division of Management Authority, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 212, Arlington, VA 22203; telephone 703–358–2104; facsimile 703–358–2280. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Background

On September 8, 2010, we published in the **Federal Register** (75 FR 54579) a document proposing the listing of the hellbender (*Cryptobranchus alleganiensis*), including its two subspecies, the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*) and the Ozark hellbender (*Cryptobranchus alleganiensis bishopi*), in Appendix III of CITES. We accepted public comments on that proposal for 60 days, ending November 8, 2010. We have reviewed and considered all public comments we received on the proposed