and Budget under 44 U.S.C. chapter 35, *et seq.*

List of Subjects in 48 CFR Part 53

Government procurement.

Dated: August 27, 2010.

Edward Loeb,

Director, Acquisition Policy Division.

Therefore, DoD, GSA, and NASA propose amending 48 CFR part 53 as set forth below:

PART 53—FORMS

1. The authority citation for 48 CFR part 53 continues to read as follows:

Authority: 40 U.S.C. 121(c); 10 U.S.C. chapter 137; and 42 U.S.C. 2473(c).

§ 53.214 [Amended]

2. Amend section 53.214 in paragraph (a) by removing "SF 26 (APR 2008)" and adding "SF 26 (Date)" in its place.

§ 53.215–1 [Amended]

3. Amend section 53.215–1 in paragraph (a) by removing "SF 26 (APR 2008)" and adding "SF 26 (Date)" in its place.

[FR Doc. 2010–22346 Filed 9–7–10; 8:45 am]

BILLING CODE 6820–EP–S

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; Proposed Rule To List the Ozark Hellbender Salamander as Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose endangered status under the Endangered Species Act of 1973, as amended (Act), for the Ozark hellbender (*Cryptobranchus alleganiensis bishopi*) throughout its entire range. The species is found in southern Missouri and northern Arkansas. If we finalize this proposed rule, it would extend the Act's protection to the Ozark hellbender. However, we find that designation of critical habitat is not prudent for the Ozark hellbender at this time, because the increased threat to the species from illegal collection and trade outweighs the benefits of designating critical habitat. We seek data and comments from the public on this proposed listing rule and prudency determination.

DATES: We will accept comments received on or before November 8, 2010. We must receive requests for public hearings, in writing, at the address shown in the **FOR FURTHER INFORMATION CONTACT** section by October 25, 2010.

ADDRESSES: You may submit comments by one of the following methods:

- Federal eRulemaking Portal: *http://www.regulations.gov*. Follow the instructions for submitting comments to Docket No. FWS-R3-ES-2009-0009.
- U.S. mail or hand-delivery: Public Comments Processing, Attn: Docket No. FWS-R3-ES-2009-0009; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, Suite 222; Arlington, VA 22203.

We will not accept e-mail or faxes. We will post all comments on *http://www.regulations.gov*. This generally means that we will post any personal information you provide us (see the Public Comments section below for more information).

FOR FURTHER INFORMATION CONTACT: Charles Scott, Field Supervisor, at the 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). If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Public Comments

We intend that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, we request comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule to list the Ozark hellbender as endangered. We particularly seek comments concerning:

(1) Population survey results for the Ozark hellbender, as well as any studies that may show distribution, status, population size, or population trends, including indications of recruitment.

(2) Pertinent aspects of life history, ecology, and habitat use of the Ozark hellbender.

(3) Current and foreseeable threats faced by the Ozark hellbender in relation to the five factors (as defined in section 4(a)(1) of the Act (16 U.S.C. 1531 *et seq.*)):

(a) The present or threatened destruction, modification, or curtailment of the species' 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 and threats to the species or its habitat.

(4) Our determination of "not prudent" for critical habitat.

(5) Whether there is a need for us to consider developing a "similarity of appearance" listing for the eastern hellbender. Section 4(e) of the Act (similarity of appearance cases) allows the Secretary to treat any species as an endangered or threatened species under the Act if he finds that: (A) It (in this case, the eastern hellbender) closely resembles a listed species (in this case, the Ozark hellbender) and enforcement personnel would have substantial difficulty differentiating between the listed and unlisted species; (B) the effect of this difficulty is an additional threat to the listed species: and (C) such treatment of the unlisted species would substantially facilitate enforcement of the Act for Ozark hellbender.

You may submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. We will not accept comments sent by e-mail or fax or to an address not listed in the **ADDRESSES** section.

We will post your entire comment—including your personal identifying information—on *http://www.regulations.gov*. If you provide personal identifying information in addition to the required items specified in the previous paragraph, such as your street address, phone number, or e-mail address, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *http://www.regulations.gov*, or by appointment, during normal business hours at the Columbia Missouri Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT** section).

Background

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. Due to the small amount of genetic variation in the genus *Cryptobranchus* (Merkle *et al.* 1977, pp. 550-552; Shaffer and Breden 1989, pp. 1017-1022), Dundee and Dundee (1965, p. 370) referred to the Ozark hellbender as a subspecies of the eastern hellbender, *C. alleganiensis.* This designation persisted until Collins (1991, pp. 42-43) revived *C. bishopi*, due to the lack of intergradation between the eastern and Ozark hellbenders because of the allopatry (occurring in separate, nonoverlapping geographic areas) of the populations (Dundee 1971, p. 101.1). Although Ozark hellbenders have been shown to be phenotypically and genetically distinct from 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), we will continue to use *C. a. bishopi*, which is the name 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.*). Careful review of the Ozark hellbender's taxonomic information confirms it is a valid subspecies.

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 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, p. 92 and p. 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 11.6 °C (52.9 °F), 17.7 °C (63.9 °F), and 21.7 °C (71.1 °F) for individuals acclimatized to temperatures of 5 °C (41 °F), 15 °C (59 °F), and 25 °C (77 °F), 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 32.7 °C (90.9 °F) at 5 °C (41 °F) acclimation, 32.9 °C (91.2 °F) at 15 °C (59 °F), and 36.5 °C (97.7 °F) at 25 °C (77° F).

Typically, Ozark hellbender populations are dominated by older, large adults (Nickerson and Mays 1973a, p. 1; Peterson *et al.* 1983, pp. 227-231; LaClaire 1993, p. 2). 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 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 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, p. 42 and p. 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). Hatchlings and larvae are rarely collected during surveys due to low detectability. Larvae and small individuals hide beneath small stones in gravel beds (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, Pfingsten 1990 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, hellbenders are considered extirpated in the mainstem White, Black, and Spring Rivers and Jacks Fork, and their range has been considerably reduced in the remaining rivers and tributaries.

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 and 155), and no populations appear to be stable. Declines have been evident throughout the range of the eastern hellbender as well, which receives protective status in many eastern States.

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 the Ozark and eastern hellbender in August 2006. Thirty workshop participants explored threats to hellbender populations and develop 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, p. 8 and pp. 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 hellbender records from the main stem of the White River. In 1997, a hellbender was recorded in Baxter County, Arkansas (Irwin 2008, 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 2008, 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 potential hellbender habitat (we do not know whether this habitat was historically occupied) 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 hellbender population. In 1973, results of a mark-recapture study indicated approximately 1,150 hellbenders within a 1.7-mile (mi) (2.7-kilometer (km)) reach of the North Fork in Ozark County, Missouri, with a 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 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 were sized 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 size 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 censused in 1983 (Peterson *et al.* 1983, pp. 225-231) and using 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 between 15.7 and 19.7 in (400 and 500 mm), and were on average significantly longer than 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. To compare results between these qualitative and quantitative studies, Wheeler *et al.* (1999, p. 4) converted historical hellbender collections (Peterson *et al.* 1983, pp. 225-231) to numbers of individuals caught per day. In addition, the other studies that were not included in that conversion (Peterson *et al.* 1988, pp. 291-303; Ziehmer and Johnson 1992, pp. 1-5) have been converted here. For comparison purposes, one search day is defined as 8 hours of searching by 3 people (24 person-hours). The use of "search day" may be an underestimate of actual effort, and this conservative estimate of effort will likely result in a modest estimate of hellbender population declines. Therefore, in 1983, approximately 51 hellbenders were caught per search day (Peterson *et al.* 1983, pp. 225-231). In 1992, 60 hellbenders per day were caught (Ziehmer and Johnson 1992, p. 2), and, in 1998, 16 hellbenders per day were caught (Wheeler 1999, p. 12).

The North Fork had been considered the stronghold of the species in Missouri, and the populations inhabiting this river had been deemed stable (Ziehmer and Johnson 1992, p. 3; LaClaire 1993, pp. 3-4). However, these populations now appear to be experiencing declines similar to those in other streams. The collection of young individuals has become rare, indicating little recruitment. Although Briggler (2008a, pers. comm.) did find some younger hellbenders in this river during his 2005 surveys, he has not found any larvae despite extensive effort. In species such as the hellbender, which are long lived and mature at a relatively late age, detecting declines related to recruitment can take many years, as recruitment under healthy population conditions is typically low (Nickerson and Mays 1973a, p. 54). In 2006, hellbender experts (researchers and State herpetologists) estimated the current population in the North Fork to be 200 individuals (Briggler *et al.* 2007, p. 83). In surveys conducted between 1969 and 1979, researchers caught from 8 to 12 hellbenders per hour (Nickerson and Briggler 2007, p. 213). For comparison, surveys of the same 15.5-mi (25-km) section of the North Fork in 2005 and 2006 averaged 0.5 hellbenders per hour (Nickerson and Briggler 2007, p. 213). Therefore, a dramatic decline is apparent 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 hellbenders in this stream during an initial survey, but none were captured or observed after 22 person-hours. This apparent lack of the species conflicted with 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), confirming the existence of a population in this tributary. This population, however, is isolated from the other North Fork White River populations by Norfork Reservoir, which could contribute to this population's apparent small size. 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 not surveyed in 1998. This population has been historically low and is not considered viable (Briggler 2008b, pers. comm.).

Black River – There is one documented record of a hellbender in the Black River above its confluence with the Strawberry River on the Independence–Jackson County line (Arkansas) in 1978 (Irwin 2008, 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 hellbenders, although it may have been occupied before intensive agricultural practices were begun in the area (Irwin 2008, pers. comm.). The Black River is presumed to be part of the historical range of the subspecies, because 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. 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)). 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). This may indicate that Spring River populations are genetically distinct from other hellbender populations. This speculation was upheld by the conclusions of a genetic study of the Spring, Current, and Eleven Point River populations (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 search-hours over a 6–month period (Trauth *et al.* 1992, p. 83). 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 spring 2004, performing 50 hours of search effort and finding only four Ozark hellbenders. These animals were removed from the river and were housed at the Mammoth Spring National Fish Hatchery but have since died, most likely due to water quality issues at the hatchery. Arkansas State University researchers found four and one individual during 2005 and 2006 surveys, respectively. Hellbenders have declined in this stream and have likely succumbed to the threats of water quality degradation, aquatic vegetation encroachment, and illegal commercial and scientific collection (Irwin 2008, pers. comm.). Although experts estimated the population in the Spring River to be at most 10 individuals, the population in this river is considered extirpated and the possibility of this stream being re-inhabited under present conditions is minimal because of the magnitude of habitat degradation (Briggler *et al.* 2007, p. 83; Irwin 2008, 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. In 1978, 87 hellbenders were captured in Oregon County, Missouri, over a 3–day period, yielding an average of 29 hellbenders per day. From 1980 to 1982, 314 hellbenders were captured in the same area in 9 collection days, yielding an average of 35 hellbenders per day; hellbender body lengths over that period ranged from 4.7 to 17.8 in (119 to 451 mm). 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). Although the data were not analyzed for captures per day, it can be estimated that approximately 40 hellbenders were caught per day during this study.

In 1998, Wheeler (1999, p. 10) captured 36 hellbenders over 4 days from the same localities as Peterson *et al.* (1988, p. 292), for an average of nine hellbenders per 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 Peterson *et al.* (1988, p. 293) localities in 2005 resulted in a total of 31 hellbenders captured, yielding an average of 2.6 hellbenders captured per day (using the search day conversion method presented in the North Fork White River discussion). Population declines and reduced recruitment in the Eleven Point River in Missouri are indicated (through past survey data), although hellbenders are consistently reported during surveys in the Eleven Point River in Arkansas (Irwin 2008, pers. comm.).

Recently in Arkansas (2005 and 2007), however, no more than two or three individuals were caught per day. Specifically, the catch per person-hour in 2005 was 1.1 hellbenders and in 2007 was 0.9 hellbenders for surveys conducted on the Eleven Point River in Arkansas (Irwin 2008, pers. comm.). 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. However, the watershed in

Arkansas is all privately owned with increased threat from stream bank clearing and unrestricted cattle access, which have an increased effect (through increased siltation and water quality degradation) on remaining populations (Irwin 2008, pers. comm.). In 2006, hellbender experts (researchers and State herpetologists) 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 had not been surveyed extensively until the 1990s. Nickerson and Mays (1973a, p. 63) reported a large hellbender population in this stream, but no numbers were presented. In 1992, Ziehmer and Johnson (1992, p. 2) found 12 hellbenders in 60 person-hours in Shannon County, Missouri, or approximately 5 hellbenders per day using the same search day conversion as presently used. 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 day), also in Shannon County, Missouri, and the individuals ranged from 14.8 to 20.3 in (375 to 515 mm), 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), indicating this population must have a lack of recruitment. In 2005 and 2006, researchers found a total of 22 hellbenders throughout the Current River in a total of 100 hours spent searching (equivalent to 1.8 hellbenders per 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 surveyed for hellbenders for the first time in 1992 (Ziehmer and Johnson 1992, p. 2). Four hellbenders were collected over 66 person-hours, equating to roughly 2 hellbenders per day. The individuals were large, ranging from 13.0 to 16.9 in (330 to 430 mm). No hellbenders were found during investigations of Jacks Fork in 2003 and 2006.

Previous Federal Action

We first identified the Ozark hellbender as a candidate species in a notice of review published in the **Federal Register** on October 30, 2001 (66 FR 54808). The Ozark hellbender was given a listing priority number of 6 due to non-imminent threats of a high magnitude.

On May 11, 2004, we received a petition dated May 4, 2004, from The Center for Biological Diversity to list 225 candidate species, including the Ozark hellbender. We received another petition on September 1, 2004 (dated August 24, 2004), from Missouri Coalition for the Environment and Webster Groves Nature Study Society requesting emergency listing of the Ozark hellbender. Based on information presented in that petition, we determined that emergency listing was not warranted at the time. We notified the petitioners by letter of this determination in November 2004. Our finding on that petition was included in a May 11, 2005, notice of review published in the **Federal Register** (70 FR 24870).

In the May 11, 2005, notice of review we changed the listing priority number (LPN) for the Ozark hellbender from 6 to 3, the highest priority category for a subspecies, because of the increased immediacy of threats since the Ozark hellbender was elevated to candidate status in 2001. The threat of particular concern was the annual increases in recreational pressures on Ozark hellbender rivers. Because collection for trade is considered a primary threat, we coordinated with our Division of Management Authority to develop, concurrent with this proposal, a proposal to list the hellbender (both subspecies) in Appendix III of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Elsewhere in today's **Federal Register**, the Service proposes to list the hellbender, including both subspecies, in Appendix III of CITES.

Summary of Factors Affecting the Species

Section 4 of the Endangered Species Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. 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) as follows: (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.

In the context of the Act, the term "threatened species" means any species or subspecies or, for vertebrates, Distinct Population Segment (DPS) that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The term "endangered species" means any species, subspecies, or for vertebrates, DPS, that is in danger of extinction throughout all or a significant portion of its range. The Act does not define the term "foreseeable future."

The application of the five factors to the Ozark hellbender (*Cryptobranchus alleganiensis bishopi)* is as follows:

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). Hellbenders 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 thought 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. 323-324 and pp. 97-98). 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 upstream of Batesville, Arkansas, and effectively isolated hellbender populations. Norfork Dam was constructed on the North Fork in 1944 and has isolated

Ozark hellbender populations in Bryant Creek and the White River from populations in the North Fork. 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 is typically reduced of oxygen because it is noncirculating or does not "turn over" to the surface. Additionally, the tailwater zones below dams experience extreme water level fluctuations and scouring for many miles downstream. This impacts hellbender populations by washing out the pebbles and cobbles used as cover by juveniles and creating unpredictable habitat conditions outside the Ozark hellbender's normal range of tolerance.

Mining

Gravel mining, which has occurred in a number of streams within the historical range of the Ozark hellbender, has directly contributed to Ozark hellbender habitat alteration and loss. 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 levels (Allan and Castillo 2007, p. 331). Reaches downstream of the dredged stream reach often experience aggradation (raised stream bed from build-up of sediment) 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, eggs, prey). In addition, these effects reduce crayfish populations, which are the primary prey species for Ozark hellbenders. Gravel dredging is widespread in the White River systems in southern Missouri and northern Arkansas (LaClaire 1993, p. 4).

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, though at less than historical levels. 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.* showed elevated concentrations were still present in the streams where mining occurred historically (1998, p. 12). 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 over 10 years ago in these rivers would remain similar 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 (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 made it to Blue Spring. However, if the current tailings dam on Adair Creek fails, which could be "a real possibility," large concentrations of lead and zinc would be added to Blue Spring and the Current River (Mosby 2008, pers. comm.).

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–Salem Plateaus of southern Missouri. In comparing ground-water quality of sites within the Ozark Plateaus (including Arkansas and Missouri) with other National Water-Quality Assessment Program (NAWQA) sites, Petersen *et al.* (1998, pp. 9-10) documented that nitrate concentrations in parts of the Springfield Plateau aquifer were higher than in most other NAWQA drinking-water aquifers, and could possibly affect hellbenders by inhibiting their growth, impairing their immune systems, and overall causing increased stress. Those study areas were within the current distribution of Ozark hellbenders in Arkansas and Missouri.

Nitrogen and phosphorus are essential plant nutrients found naturally in streams. Elevated concentrations of these nutrients, however, cause increased growth of algae and aquatic plants in many streams and are detrimental to aquatic biota (Petersen *et al.* 1998, p. 6). In the Ozark plateau, water 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. A continuing source of sedimentation and contamination is agriculture, which comprises a large percentage of the land use within the range of the Ozark hellbender (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 NAWQA data collected in the Ozarks in 1993-1995 from wells and springs indicated that nitrate concentrations were strongly associated with the percentage of agricultural land near the wells or springs. Livestock wading in streams, poor agricultural practices that degrade vegetated riparian areas, and faulty septic and sewage treatment systems have resulted in elevated nitrate levels (Petersen *et al.* 1998, pp. 6-8 and 15).

Increased recreational use (such as from canoeing, kayaking, rafting, inner tube floating, and small horsepower motorboating) also impacts the water and habitat quality in rivers inhabited by the Ozark hellbender. In 2003, the Missouri Department of Natural Resources added an 8-mi (13-km) stretch of the Jacks Fork River to the U.S. Environmental Protection Agency Consolidated 2002 Missouri (303(d)) list of impaired waters 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 21 chemicals and elevated levels of estrogen in male hellbenders collected during 2002 and 2003, respectively (Huang 2004, pers. comm.). 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 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 further complicates transport of potential contaminants.

Siltation

Sediment inputs from land use activities have, and continue to, significantly contribute to habitat degradation. Nickerson and Mays (1973a, pp. 55-56) cite a personal communication from S. Minton in which sediment accumulation is suspected of destroying eggs and juvenile hellbenders. Hellbenders are intolerant of sedimentation and turbidity (Nickerson and Mays 1973a, pp. 55-56), which can impact them in several ways:

(1) Sediment deposition of 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, p. 19 and p. 25).

(3) Suspended sediment loads can cause water temperatures to increase, as there are 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 provides little barrier 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).

Improperly designed and maintained roads cause marginally stable slopes to fail, and they also capture surface runoff and channel it directly into streams (Allan and Castillo 2007, pp. 321-322 and 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 2008, pers. comm.). Riparian pasture "retirement" or exclusion of grazing has proven to be an effective means of reducing surface runoff pollutant loads to waterways. Runoff levels of sediment, in addition to phosphorus, particulate- and nitrate-nitrogen concentrations, have been found to be lower at retired riparian pasture than at currently grazed riparian pasture sites (Hoorman and McCutcheon 2005, p. 9).

Disturbance

Habitat disturbance affects hellbender survival in several rivers. Most rivers and streams inhabited by hellbenders are extremely popular with canoeists, kayakers, rafters, inner tube floaters, or low-horsepower motorboat operators. In fact, 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.). Due to the increasing popularity of these float streams, the National Park Service is evaluating options that will reduce the number of boats that can be launched daily by concessionaires (Poe 2004, pers. comm.). Hellbenders encountered with gashes in their heads suggest that watercraft traffic likely impact 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 destroying hellbender habitat. 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). Rocks are also removed by gardeners for landscaping. Rock turning and flipping is also done by crayfish hunters and hobbyists and independent researchers (Briggler *et al.* 2007, p. 61 and p. 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.

Best Management Practices (BMPs)

Currently, a number of activities that can and do result in habitat degradation are outside of regulatory oversight. There are no regulatory requirements to implement 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) result in erosion and sedimentation. Additionally, there are no laws or regulations that preclude livestock from grazing in riparian corridors and loafing in streams and rivers.

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 habitat directly, isolate populations, and change water temperatures and flows below reservoirs. 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. We believe these are the primary causes of the population decline. Siltation and water quality degradation are caused by industrialization, agricultural runoff, 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. Increased nitrate levels and fecal coliform, along with a variety of other contaminants from agricultural runoff and increased urbanization, have been detected in hellbender streams, which not only pose a threat directly to hellbenders but also to Ozark aquatic ecosystems in general.

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. 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, hobbyists, and independent researchers 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 indicate that Ozark hellbenders have been collected for commercial and scientific purposes (Trauth *et al.* 1992, p. 85). Although commercial collections are currently illegal in both Missouri and Arkansas, information provided by Nickerson and Briggler (2007, pp. 207-212) indicates that Ozark hellbenders are 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 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 2008, pers. comm.). Missouri imposed a moratorium on hellbender collecting from 1991 to 1996 and has since issued only limited numbers of scientific collecting permits (Horner 2008, pers. comm.). Despite these restrictions, illegal collecting for the pet trade has been documented (Nickerson and Briggler 2007, pp. 208-209) and remains a threat throughout the range Briggler (2008b, 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. Anecdotal information suggests unauthorized collection of animals on the Spring River in Arkansas contributed to the recent population crash, as reaches of the Spring River that formerly contained 35 to 40 have had no individuals present for more than 10 years (Irwin 2008, 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 2008, pers. comm.). Such amphibians as the hellbender (a relatively slow-moving, aquatic species) may be collected with little effort, making them even more susceptible to this threat.

The unauthorized collection of hellbenders, primarily 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.). 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, pers. comm. with Okada, 2005). In Japan, the majority of hellbenders are sought for pets rather than for food (Briggler, pers. comm. with Okada, 2005). 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.

Few U.S. species listed under the Act have commercial value in trade; however, the Ozark hellbender does. 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 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 and 212). The MDC reports that gigging popularity and pressure have increased, which

increases a potentially significant 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 suckers (fish mainly in the Catostomidae family) 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 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 and the fast decomposition rate of amphibians), 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 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 hellbender under appropriate State wildlife statutes; and controlling information on the location of hellbenders. The unauthorized collection of Ozark hellbenders for commercial sale in the pet trade, however, continues to be a significant threat.

C. Disease or predation

Disease (Chytridiomycosis)

Background — Chytridiomycosis (also known as chytrid fungus), a highly infectious amphibian disease caused by the pathogen *Batrachochytrium dendrobatidis*, is recently recognized to have a significant negative effect on the Ozark hellbender. *B. dendrobatidis* 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 2005, 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 amphibian chytrid 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 except Asia, where species are currently being tested (Weldon *et al.* 2004, pp. 2100-2105; Speare and Berger 2005, pp. 1-9).

Currently, there are two theories on the development of the chytrid fungus as a global amphibian pathogen. One theory is that the chytrid 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 *B. dendrobatidis* 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. *B. dendrobatidis* 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 1 year (for Eleven Point, Current, and North Fork White River) is approximately 59.0 to 60.8 °F (15 to 16 °C; Barr 2008, pers. comm.) .

Persistence of the chytrid fungus 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) found that *B. dendrobatidis* can survive saprophytically outside the amphibian host for up to 7 weeks in lake water and 3 to 4 weeks in tap water. Further, Carey *et al.* (2003, p. 130) found 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 *B. dendrobatidis* 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 *B. dendrobatidis* 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 the pathogen are continually at risk because temperatures are ideal for the persistence of the chytrid 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 pathogen. Climate change is one of the environmental factors that has been indicated as a key promoter in the spread of the *B. dendrobatidis* 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 pathogen related to amphibian declines, with over 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, over only a few months of surveying, frog and salamander species richness and amphibian density declined by more than 60 percent and 90 percent, respectively.

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 and reduced 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 directly from *B. dendrobatidis.* As Randall Junge, Doctor of Veterinary Medicine, Director of Animal Health and Nutrition at the St. Louis Zoo (2007, pers. comm.) stated, "* * * in our captive [hellbender] population, it [chytridiomycosis] is the leading cause of mortality. In my opinion, if this disease becomes established throughout the hellbender range, it will have a significant [further] impact on the population." Deaths relating to chytridiomycosis continue as the zoo staff searches for an effective way to treat infected animals (Utrup 2007, pers. comm.).

Disease in wild hellbenders — As a result of the incident of *B. dendrobatidis* 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 is positive (heavily positive in a few locations); within the Eleven Point River (Missouri and Arkansas), 16 percent is positive (positives spread throughout river); and within the North Fork of the White River, 15 percent is positive (positives spread throughout river) (Briggler 2008b, pers. comm.). These results indicate the minimum number of infected individuals since 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 believed to be extirpated (Irwin 2008, pers. comm.). During future surveys, all animals encountered (new and re-captures) will be tested for the presence of *B. dendrobatidis*. Researchers view the presence of *B. dendrobatidis* as one of the most, if not the most, challenging factors affecting the survival of this subspecies (Briggler *et al.* 2007, p. 83).

Since there is clear evidence that chytridiomycosis, a fatal disease in captive Ozark hellbenders, also has been documented in the wild Ozark hellbender population, it is crucial that we not only research techniques to combat this disease, but also address all other threats that may be linked to susceptibility (degraded environmental conditions). The immediacy of this threat has been significantly heightened since this pathogen has been found to occur in all remaining populations of the Ozark hellbender. Researchers are in agreement that this subspecies will have little chance of survival if factors significantly affecting the hellbender are not ameliorated to some degree, especially in light of the additional severe threat of chytridiomycosis (Utrup 2008, pers. comm.).

Abnormalities

Wheeler *et al.* (2003, pp. 250-251) investigated morphological aberrations in the 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 found 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. Currently, we are unable to evaluate the importance of these abnormalities in light of the recent precipitous decline in hellbenders observed in these rivers. Briggler (2007, 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 sacrificed and sent to U.S. Geological Survey's (USGS) Wildlife Disease Lab in Madison, Wisconsin, 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.). Although these abnormalities have not been linked conclusively with the presence of *B. dendrobatidis*, considering the types of abnormalities documented (for example, lesions, digit and appendage loss, epidermal sloughing), there may be a connection (Briggler 2007, pers. comm.).

Predation

Trout stocking has increased in recent years both in Missouri and Arkansas. In 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 streams 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 hellbenders (rainbow trout: Niangua, Gasconade, Big Piney, Current, North Fork White, Eleven Point, and Spring rivers; brown trout: Niangua, Gasconade, North Fork White, and Current Rivers) in Missouri (Missouri Department of Conservation 2003, pp. 24-26). 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).

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 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.). 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 from native and nonnative predatory fishes. Gall (2008, p. 23, pp. 30-31) found 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 exhibited only weak fright responses when exposed to trout stimuli, they responded with strong fright responses to native predatory fish.

Gall (2008, p. 63) suggests 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, 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). Overall, this study found evidence that predation by introduced trout cannot be ruled out as a factor affecting the Ozark hellbender and possibly contributes to the decline of both Ozark and eastern hellbender populations in Missouri (Gall 2008, p. 63).

In addition to brown trout, walleye (*Stizostedion vitreum*), although a native species, have been stimulated to approach prey more often and faster in the presence of hellbender secretions (Gall 2008, pp. 23-24). This may be a concern if walleye are further 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* (chytridiomycosis) 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.). This pathogen occurs throughout the entire range of the Ozark hellbender and is determined to be a significant threat to the subspecies. 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 that the animal is approaching death (Briggler 2008a, pers. comm.). Researchers view chytridiomycosis as one of the most serious threats to the survival of this subspecies (Briggler *et al.* 2007, p. 83).

Nonnative trout are stocked in all rivers that historically and currently contain hellbenders in Missouri. Predation of larval hellbenders by nonnative trout 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 2008, 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 collecting from 1991 to 1996 and has since allowed only limited numbers of collecting permits (Horner 2008, 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.

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 such highly sensitive aquatic organisms as the Ozark hellbender. Non-point 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. This is more apparent in stretches of rivers that are not within federally or State protected lands (Irwin 2008, 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, contribute to the decline of Ozark hellbenders in these systems.

Lacey Act

State regulations for gigging and for trout stocking do not protect the Ozark hellbender. The gigging season for suckers (fish mainly in the Catostomidae family) 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 (Missouri Department of Conservation 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).

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 laws 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 Ozark hellbender is not declared as the subspecies but rather as hellbender or eastern hellbender, then it would be difficult for the wildlife inspector to identify it as the prohibited subspecies. 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 rarity increases and, consequently, commercial value increases. The Ozark hellbender is not listed on the appendices 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.

Elsewhere in today's **Federal Register**, the Service is proposing to include the hellbender (both the eastern and Ozark subspecies) in Appendix III of CITES. 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.

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. 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 has also proposed, but not finalized, listing the eastern and Ozark hellbender in Appendix III of CITES. Nonetheless, even if the CITES listing is finalized, it would only apply to the export of hellbenders from the United States.

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 changes to the environment (Smith 1990, pp. 311-321) that can significantly impact hellbender habitat. 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. 373) 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, p. 410-415) study, in which hellbender populations from different rivers showed 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 species going extinct.

Recruitment and Reproductive Capability - The hellbender's late sexual maturity leads to a higher risk of death prior to reproduction and 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, p. 153 and p. 155).

Because hellbenders are long-lived, a population may not be highly dependent on recruitment to remain extant (Mayasich *et al.* 2003, p. 22). Empirical and theoretical evidence suggests, however, that the amount of generation overlap within a population (high survivorship among juveniles) is necessary to maintain stable populations (Congdon *et al.* 1993, pp. 830-832; Ellner and Hairston 1994, pp. 413-415). Lack of sufficient recruitment may be limiting the population stability and the ability of hellbender populations to maintain genetic diversity as their habitat is altered (Wheeler *et al.* 2003, p. 155). Pfingsten (1990, p. 49) also cautions, however, that lack of larvae detection could mean that the larvae occupy a microhabitat that has yet to be surveyed.

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. There is a clear need to direct resources toward determining the cause of the apparent reduction in sperm counts for males from declining populations in Missouri. Because motility and viability appeared unaffected, artificial insemination might be a viable conservation technique, although 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). Genetic studies have repeatedly demonstrated very low genetic diversity in hellbender populations, which may be a factor in the decline of the species (Routman 1993, Kucuktas *et al.* 2001). 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.

Summary of Other Natural or Manmade Factors Affecting Its Continued Existence

The small size and isolation of Ozark hellbender populations and loss of genetic diversity could exacerbate other factors negatively affecting the subspecies and accelerate possible extinction. These factors are particularly detrimental when combined with the factors affecting the hellbender, such as of habitat loss, water quality degradation, chytridiomycosis, and unauthorized collection and trade.

Proposed Determination

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.). Researchers view chytridiomycosis as one of the most serious threats to the survival of this subspecies, which has a total estimated population size of 590 individuals (Briggler *et al.* 2007, p. 83).

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, 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. Increased nitrate levels and fecal coliform, 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, and change water temperatures and flows below reservoirs. 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.

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 significant threat to hellbenders during the breeding season (Nickerson and Briggler 2007, pp. 209-211). Trout stocking continues to occur on hellbender streams both in Missouri and Arkansas. The lack of larval and sub-adult hellbenders present may be attributed to predation by nonnative stocked trout. The increase in number or size of recreational boats and 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 increased susceptibility to chytridiomycosis due to these threats, has created a situation in which the Ozark hellbender is likely to become functionally extinct (populations no longer viable) within the next couple decades. Researchers and managers agree that, while a solution is being 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.

Projections from the August 2006 PHVA model concluded that the Ozark hellbender metapopulations are expected to decline by more than 50 percent in 12 to 16 years, viability of all individual populations will be low after 20 to 25 years (total individuals equaled fewer than 100 and genetic diversity was less than 90 percent), and risk of metapopulation extinction is high within 40 to 50 years. 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 did not account for the prevalence of chytrid fungus and its possible effects on hellbenders. 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 in danger of extinction throughout all of its range. One information source (Briggler *et al.* 2007, pp. 88-90 and p. 97) estimates that the subspecies may be functionally extinct by 2026 (less than 20 years) if we do not take actions to slow or reverse the downward trajectory.

We have carefully assessed the best scientific and commercial information available regarding past, present, and future threats to the Ozark hellbender. The population numbers continue to decline as a result of the multiple threats impacting this subspecies, increasing extinction risk. Based on the immediacy 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, on the basis of the best -scientific and commercial information available, we are proposing to list the Ozark hellbender as an endangered species. Because we find that this subspecies meets the definition of an endangered species (in danger of extinction) throughout all of its range, it is unnecessary to analyze its status in a significant portion of its range.

Critical Habitat

Background

Critical habitat is defined in section 3 of the Act as:

(i) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(I) essential to the conservation of the species and

(II) which may require special management considerations or protection; and

(ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the prohibition against Federal agencies carrying out, funding, or authorizing the destruction or adverse modification of critical habitat. Section 7(a)(2) requires consultation on Federal actions that may affect critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner seeks or requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even in the event of a destruction or adverse modification finding, Federal action agency's and the applicant's obligation is not to restore or recover the species, but to implement

reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

For inclusion in a critical habitat designation, the habitat within the geographical area occupied by the species at the time it was listed must contain the physical and biological features essential to the conservation of the species, and be included only if those features may require special management considerations or protection. Critical habitat designations identify, to the extent known using the best scientific and commercial data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the physical and biological features (PBFs) laid out in the appropriate quantity and spatial arrangement for the conservation of the species). Under the Act and regulations at 50 CFR 424.12, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed only when we determine that those areas are essential for the conservation of the species and that designation limited to those areas occupied at the time of listing would be inadequate to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific and commercial data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, or other unpublished materials and expert opinion or personal knowledge.

Habitat is often dynamic, and species may move from one area to another over time. Furthermore, we recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be required for recovery of the species.

Areas that are important to the conservation of the species, but are outside the critical habitat designation, will continue to be subject to conservation actions we implement under section 7(a)(1) of the Act. Areas that support populations are also subject to the regulatory protections afforded by the section 7(a)(2) jeopardy standard, as determined on the basis of the best available scientific information at the time of the agency action. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time these planning efforts calls for a different outcome.

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 proposal 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 websites, usually with maps of the 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. 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 given the species site fidelity and ease of capture once located.

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.). The agencies believe that designating critical habitat

could negate their efforts to restrict access to location information 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 PBFs 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 its 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.

Ozark hellbenders primarily occur on non-Federal lands. The species occurs exclusively on private lands in Arkansas and predominately on private lands in Missouri. In Missouri, Ozark hellbenders do occur on lands managed by the National Park Service (Ozark National Scenic Riverway) 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 ensure that a Federal action would not result in the destruction or adverse modification of the designated 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 educate 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 educate landowners, State and local governments, and the public regarding important conservation values. Furthermore, 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 (Ozark Hellbender Working Group 2008, Outreach and Education Chapter).

The Ozark Hellbender Working Group, formed in 2001, is composed of personnel from Federal and State agencies, academia, zoos, non-profit 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. The Ozark hellbender is critically imperiled, requiring a focused and comprehensive approach to reducing threats. Several measures are currently being implemented to address the threat of unauthorized collection and trade of hellbenders, and additional measures will be implemented if the species is listed under the Act. 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 increase the degree of threats to the Ozark hellbender and, at best, provide nominal benefits for this taxon, we find that the increased threat to the Ozark hellbender from the designation of critical habitat significantly outweighs any benefit of designation.

Summary of Prudency Determination

We have determined that the designation of critical habitat would increase unauthorized collection and trade threats to the Ozark hellbender. The Ozark hellbender is valued in the pet trade, and that value is likely to increase as the species becomes rarer. Critical habitat designation may provide some benefits to the conservation of the Ozark hellbender, for example, by identifying areas important for conservation. However, we have determined that the benefits of designating critical habitat for the Ozark hellbender are minimal. We have concluded that, even if some benefit from designation may exist, the increased threat to the species from unauthorized collection and trade outweighs any benefit to the taxon. A determination to not designate critical habitat also supports the measures taken by the States to control and restrict information on the locations of Ozark hellbenders and to no longer make location 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.

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. Section 7(a)(4) requires Federal agencies to confer informally with us on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. 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, and Federal loan programs. Activities will trigger consultation under section 7 of the Act if they may affect the Ozark hellbender addressed in this rule.

The listing of the Ozark hellbender would subsequently lead to development of a 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, identify responsibilities, 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 would be able to grant funds to the States of Missouri and Arkansas for management actions promoting the conservation of the Ozark hellbender.

The Act and implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered and threatened wildlife. As such, these prohibitions would be applicable to the Ozark hellbender. The prohibitions, under 50 CFR 17.21 and 17.31, 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 proposed 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 would be likely to result in a violation of section 9; however, possible violations are not limited to these actions alone:

(1) Unauthorized 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 flipping large rocks within streams, 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 **FOR FURTHER INFORMATION CONTACT** section). 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 Division, Henry Whipple Federal Building, 1 Federal Drive, Fort Snelling, MN 55111; Phone 612-713-5350; Fax 612-713–5292).

Peer Review

In accordance with our policy, "Notice of Interagency Cooperative Policy for Peer Review in Endangered Species Act Activities," that was published on July 1, 1994 (59 FR 34270), we will seek the expert opinion of at least three appropriate independent specialists regarding this proposed rule. The purpose of such review is to ensure listing decisions are based on scientifically sound data, assumptions, and analysis. We will send copies of this proposed rule to the peer reviewers immediately following publication in the **Federal Register**.

We will consider all comments and information we receive during this comment period on this proposed rule during our preparation of a final determination. Accordingly, our final decision may differ from this proposal.

Public Hearings

The Act provides for one or more public hearings on this proposal, if we receive any requests for hearings. We must receive your request for a public hearing within 45 days after the date of this **Federal Register** publication. Send your request to the address shown in the **ADDRESSES** section. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the first hearing.

Required Determinations

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).

Clarity of Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

(a) Be logically organized;

(b) Use the active voice to address readers directly;

(c) Use clear language rather than jargon;

(d) Be divided into short sections and sentences; and

(e) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in the **ADDRESSES** section. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

References Cited

A list of the references used to develop this proposed rule is available upon request (see **FOR FURTHER INFORMATION CONTACT** section).

Authors

The primary authors of this proposed rule are the staff members of the Columbia (Missouri) Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT** section).

List of Subjects in 50 CFR Part 17

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

Proposed Regulation Promulgation

Accordingly, we propose to 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) * * *

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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		NA	NA
*	*	*	*	*		*	*

Dated: August 19, 2010.

Wendi Weber,

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

[FR Doc. 2010–22249 Filed 9–7–10; 8:45 am]

BILLING CODE 4310–55–S

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: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to include 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), including live and dead whole specimens, and all readily recognizable parts, products, and derivatives. 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: To ensure that we are able to consider your comment on this proposed rulemaking action, you must send it by November 8, 2010.

ADDRESSES: You may submit comments by one of the following methods:

- Federal eRulemaking Portal: *http://www.regulations.gov*. Follow the instructions for submitting comments on Docket No. FWS–R9–IA–2009–0033.
- U.S. mail or hand–delivery: Public Comments Processing, Attn: FWS–R9–IA–2009–0033; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, Suite 222; Arlington, VA 22203.

We will post all comments on *http://www.regulations.gov*. This generally means that we will post any personal information you provide us (see the Public Comments section below for more information).

FOR FURTHER INFORMATION CONTACT: Clifton A. Horton, Division of Management Authority, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 212, Arlington, VA 22203; telephone 703–358–1908; facsimile 703–358–2298. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Public Comments

We intend that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, we request comments or suggestions on this proposed rule. We particularly seek comments concerning:

(1) Biological, trade, or other relevant data concerning any threats (or lack thereof) to this species (including subspecies), and regulations that may be addressing those threats.

(2) Additional information concerning the range, distribution, and population size of this species (including subspecies).

(3) Any information on the biological or ecological requirements of this species (including subspecies).

(4) Any information regarding legal or illegal collection of or trade in this species (including subspecies).

You may submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. We will not consider comments sent by e-mail or fax or to an address not listed in the **ADDRESSES** section.

If you submit a comment via *http://www.regulations.gov*, your entire comment—including any personal identifying information—will be posted on the website. If you submit a hardcopy comment that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy comments on *http://www.regulations.gov.*

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule,