

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service****50 CFR Part 17**

[Docket No. FWS–R3–ES–2021–0061;
FF09E21000 FXES1111090FEDR 223]

RIN 1018–BE79

Endangered and Threatened Wildlife and Plants; Threatened Species Status With Section 4(d) Rule for Western Fanshell and “Ouachita” Fanshell and Designation of Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to list the western fanshell (*Cyprogenia aberti*), a freshwater mussel species from Arkansas, Kansas, Missouri, and Oklahoma, and the “Ouachita” fanshell (*Cyprogenia* cf. *aberti*), a freshwater mussel species from Arkansas and Louisiana, as threatened species and to designate critical habitat for these species under the Endangered Species Act of 1973, as amended (Act). This document also proposes a rule issued under section 4(d) of the Act (4(d) rule) for these mussel species and serves as our 12-month finding on a petition to list the western fanshell. The proposed critical habitat designation for the western fanshell totals approximately 360 river miles (579 kilometers), all of which are occupied by the species, in Arkansas, Kansas, and Missouri, and the proposed critical habitat designation for the “Ouachita” fanshell totals approximately 294 river miles (474 kilometers), all of which are occupied by the species, in Arkansas. We also announce the availability of a draft economic analysis (DEA) of the proposed designation of critical habitat for the western fanshell and “Ouachita” fanshell. If we finalize this rule as proposed, it would add these species to the List of Endangered and Threatened Wildlife and extend the Act’s protections to these species and their designated critical habitats.

DATES: We will accept comments received or postmarked on or before May 2, 2022. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for a public hearing, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by April 18, 2022.

ADDRESSES:

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

(1) *Electronically:* Go to the Federal eRulemaking Portal: <http://www.regulations.gov>. In the Search box, enter FWS–R3–ES–2021–0061, which is the docket number for this rulemaking. Then, click on the Search button. On the resulting page, in the Search panel on the left side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on “Comment.”

(2) *By hard copy:* Submit by U.S. mail to: Public Comments Processing, Attn: FWS–R3–ES–2021–0061, U.S. Fish and Wildlife Service, MS: PRB/3W, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on <http://www.regulations.gov>. This generally means that we will post any personal information you provide us (see Information Requested, below, for more information).

Availability of supporting materials: For the critical habitat designation, the coordinates or plot points or both from which the maps are generated are included in the decision file and are available at <https://www.fws.gov/midwest/> for western fanshell and <https://www.fws.gov/southeast/> for “Ouachita” fanshell, at <http://www.regulations.gov> under Docket No. FWS–R3–ES–2021–0061, and at the Missouri and Arkansas Ecological Services Field Offices (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information that we may develop for the critical habitat designation will also be available at the Service websites and field offices set out above or at <http://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT: For information about the western fanshell, contact Karen Herrington, Field Supervisor, U.S. Fish and Wildlife Service, Missouri Ecological Services Field Office, 101 Park DeVillie Drive, Suite A, Columbia, MO 65203–0057; telephone 573–234–2132. For information about the “Ouachita” fanshell, contact Melvin Tobin, Field Supervisor, U.S. Fish and Wildlife Service, Arkansas Ecological Services Field Office, 110 South Amity, Suite 300, Conway, AR 72032–8975; telephone 501–513–4473. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, if we determine that a species is an endangered or threatened species throughout all or a significant portion of its range, we are required to promptly publish a proposal in the **Federal Register** and make a determination on our proposal within 1 year. To the maximum extent prudent and determinable, we must designate critical habitat for any species that we determine to be an endangered or threatened species under the Act. Listing a species as an endangered or threatened species and designation of critical habitat can only be completed by issuing a rule.

What this document does. We propose to list the western fanshell and “Ouachita” fanshell as threatened species with a rule issued under section 4(d) of the Act, and we propose the designation of critical habitat for these two species.

The basis for our action. Under the Act, we may determine that a species is an endangered or threatened species because of any of five factors: (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. We have determined that water quality degradation, altered flow, landscape changes, and habitat fragmentation, all of which are exacerbated by the effects of climate change, are the primary threats affecting the western fanshell and “Ouachita” fanshell.

Section 4(a)(3) of the Act requires the Secretary of the Interior (Secretary) to designate critical habitat concurrent with listing to the maximum extent prudent and determinable. Section 3(5)(A) of the Act defines critical habitat as (i) the specific areas within the geographical area occupied by the species, at the time it is listed, 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 protections; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species. Section 4(b)(2) of the Act states that the Secretary must make the designation on the basis of the best scientific data available and after taking into

consideration the economic impact, the impact on national security, and any other relevant impacts of specifying any particular area as critical habitat.

Information Requested

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from other governmental agencies, Native American Tribes, the scientific community, industry, or any other interested parties concerning this proposed rule.

We particularly seek comments concerning:

(1) The species' biology, range, and population trends, including:

(a) Biological or ecological requirements of the species, including habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat, or both.

(2) Factors that may affect the continued existence of these species, which may include habitat modification or destruction, overutilization, disease, predation, the inadequacy of existing regulatory mechanisms, or other natural or manmade factors.

(3) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to these species and existing regulations that may be addressing those threats.

(4) Additional information concerning the historical and current status, range, distribution, and population size of these species, including the locations of any additional populations of these species.

(5) Information on regulations that are necessary and advisable to provide for the conservation of western fanshell and "Ouachita" fanshell and that the Service can consider in developing a 4(d) rule for these species. In particular, we seek information concerning the extent to which we should include any of the Act's section 9 prohibitions in the 4(d) rule or whether we should consider any additional exceptions from the prohibitions in the 4(d) rule. In addition, we request comments on whether we should include an exception from permitting requirements for individuals conducting presence/absence surveys, studies to document

habitat use, population monitoring, and evaluations of potential impacts to the fanshells, provided the individual holds a valid scientific collecting permit for mussels from the appropriate State agency.

(6) The reasons why we should or should not designate habitat as "critical habitat" under section 4 of the Act (16 U.S.C. 1531 *et seq.*), including information to inform the following factors that the regulations identify as reasons why designation of critical habitat may be not prudent:

(a) The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species;

(b) The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act;

(c) Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States; or

(d) No areas meet the definition of critical habitat.

(7) Specific information on:

(a) The amount and distribution of western fanshell and "Ouachita" fanshell habitat;

(b) What areas, that were occupied at the time of listing and that contain the physical or biological features essential to the conservation of these species, should be included in the designation and why;

(c) Any additional areas occurring within the range of the species that should be included in the designation because they (1) are occupied at the time of listing and contain the physical or biological features that are essential to the conservation of the species and that may require special management considerations, or (2) are unoccupied at the time of listing and are essential for the conservation of the species;

(d) Special management considerations or protection that may be needed in critical habitat areas we are proposing, including managing for the potential effects of climate change; and

(e) What areas not occupied at the time of listing are essential for the conservation of these species. We particularly seek comments:

(i) Regarding whether occupied areas are adequate for the conservation of these species;

(ii) Providing specific information regarding whether or not unoccupied areas would, with reasonable certainty, contribute to the conservation of these species and contain at least one physical or biological feature essential to the conservation of these species; and

(iii) Explaining whether or not unoccupied areas fall within the definition of "habitat" at 50 CFR 424.02 and why.

(8) Land use designations and current or planned activities in the subject areas and their possible impacts on proposed critical habitat.

(9) Any probable economic, national security, or other relevant impacts of designating any area that may be included in the final designation, and the related benefits of including or excluding specific areas.

(10) Information on the extent to which the description of probable economic impacts in the draft economic analysis is a reasonable estimate of the likely economic impacts, the description of the environmental impacts in the draft environmental assessment is complete and accurate, and any additional information regarding probable economic impacts that we should consider.

(11) Whether any specific areas we are proposing for critical habitat designation should be considered for exclusion under section 4(b)(2) of the Act, and whether the benefits of potentially excluding any specific area outweigh the benefits of including that area under section 4(b)(2) of the Act. If you think we should exclude any additional areas, please provide credible information regarding the existence of a meaningful economic or other relevant impact supporting a benefit of exclusion.

(12) Whether we could improve or modify our approach to designating critical habitat in any way to provide for greater public participation and understanding, or to better accommodate public concerns and comments.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Please note that submissions merely stating support for, or opposition to, the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or a threatened species must be made "solely on the

basis of the best scientific and commercial data available.”

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES**.

If you submit information via <http://www.regulations.gov>, your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy 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 submissions on <http://www.regulations.gov>.

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>.

Because we will consider all comments and information we receive during the comment period, our final determinations may differ from this proposal. Based on the new information we receive (and any comments on that new information), we may conclude that the western fanshell or “Ouachita” fanshell is endangered instead of threatened, or we may conclude that either species does not warrant listing as either an endangered species or a threatened species. For critical habitat, our final designation may not include all areas proposed, may include some additional areas that meet the definition of critical habitat, and may exclude some areas if we find the benefits of exclusion outweigh the benefits of inclusion. In addition, we may change the parameters of the prohibitions or the exceptions to those prohibitions in the 4(d) rule if we conclude it is appropriate in light of comments and new information we receive. For example, we may expand the prohibitions to include prohibiting additional activities if we conclude that those additional activities are not compatible with conservation of the species. Conversely, we may establish additional exceptions to the prohibitions in the final rule if we conclude that the activities would facilitate or are compatible with the conservation and recovery of the species.

Public Hearing

Section 4(b)(5) of the Act provides for a public hearing on this proposal, if requested. Requests must be received by the date specified in **DATES**. Such requests must be sent to the address

shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule a public hearing on this proposal, if requested, and announce the date, time, and place of the hearing, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing. For the immediate future, we will provide these public hearings using webinars that will be announced on the Service’s website, in addition to the **Federal Register**. The use of these virtual public hearings is consistent with our regulations at 50 CFR 424.16(c)(3).

Previous Federal Actions

We identified the western fanshell as a “Category 2” candidate in our May 22, 1984, Review of Invertebrate Wildlife for Listing as Endangered or Threatened Species (49 FR 21664). Category 2 candidates were defined as species for which we had information that proposed listing was possibly appropriate, but conclusive data on biological vulnerability and threats were not available to support a proposed rule at the time. The species remained so designated in subsequent candidate notices of review (CNORs) (54 FR 554, January 6, 1989; 56 FR 58804, November 21, 1991; 59 FR 58982, November 15, 1994). In the February 28, 1996, CNOR (61 FR 7596), we discontinued the designation of Category 2 species as candidates; therefore, the western fanshell was no longer a candidate species.

On April 20, 2010, we received a petition from the Center for Biological Diversity (CBD), Alabama Rivers Alliance, Clinch Coalition, Dogwood Alliance, Gulf Restoration Network, Tennessee Forests Council, and West Virginia Highlands Conservancy, to list 404 aquatic, riparian, and wetland species, including the western fanshell, from the southeastern United States as endangered or threatened species and to designate critical habitat concurrent with listing under the Act. On September 27, 2011, we published a 90-day finding in the **Federal Register** (76 FR 59836), concluding that the petition presented substantial information that indicated listing the western fanshell may be warranted. Since that time, the “Ouachita” fanshell has been determined to be a separate species from western fanshell (Williams *et al.* 2017, p. 47; see discussion of taxonomy below); therefore, we conducted a discretionary status review for the “Ouachita” fanshell concurrent with our status review for the western fanshell.

Supporting Documents

A species status assessment (SSA) team prepared an SSA report for the western fanshell and “Ouachita” fanshell. The SSA team was composed of Service biologists, in consultation with other species experts. The SSA report represents a compilation of the best scientific and commercial data available concerning the status of these species, including the impacts of past, present, and future factors (both negative and beneficial) affecting these species. In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we sought the expert opinions of five appropriate specialists regarding the SSA report. We received two responses. We also sent the SSA report to eight Federal and State partners with expertise in aquatic ecology and freshwater mussel biology, taxonomy, and conservation. We received reviews from a Federal biologist and a State biologist.

I. Proposed Listing Determination

Background

The western fanshell (*Cyprogenia aberti*) is a freshwater mussel in the Unionidae family. Adults are a dull tan with a distinctive ray pattern from bands of tiny pigment flecks. The shell is thick, compressed to moderately inflated, and round to triangular (up to 3 inches (76 millimeters)), with a wrinkled or rough appearance (Conrad 1850, p. 10; McMurray *et al.* 2012, p. 30; Oesch 1995, pp. 143–144; Roe 2004, pp. 4–5).

Recent molecular analysis of *Cyprogenia* identified the fanshell from the Ouachita River basin in Arkansas and Louisiana as an independent evolutionary lineage (Chong *et al.* 2016, pp. 2445–2449). There is confusion regarding what name is available for the Ouachita River drainage fanshell, but the distinctiveness of this species was recognized in the most recent list of freshwater mussels of the United States and Canada (Williams *et al.* 2017, p. 47). The Arkansas Wildlife Action Plan refers to the species as the “Ouachita” fanshell (*C. cf. aberti*) (Arkansas Game and Fish Commission 2015, p. 974). Based on this information, we find the “Ouachita” fanshell is a listable entity under the Act, and we follow this naming convention until a specific epithet can be designated.

The western fanshell is currently found in the Lower Mississippi-St. Francis, Neosho-Verdigris, and Upper

White River basins, within the States of Arkansas, Kansas, Missouri, and Oklahoma (Service 2020, pp. 21–28; see Figure 1, below). It is considered

extirpated from the Lower Arkansas basin. The “Ouachita” fanshell currently occurs in the Lower Red-Ouachita basin in Arkansas and

historically in Louisiana (Service 2020, pp. 29–31; see Figure 2, below).

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Index Map: Western Fanshell Rangewide Distribution

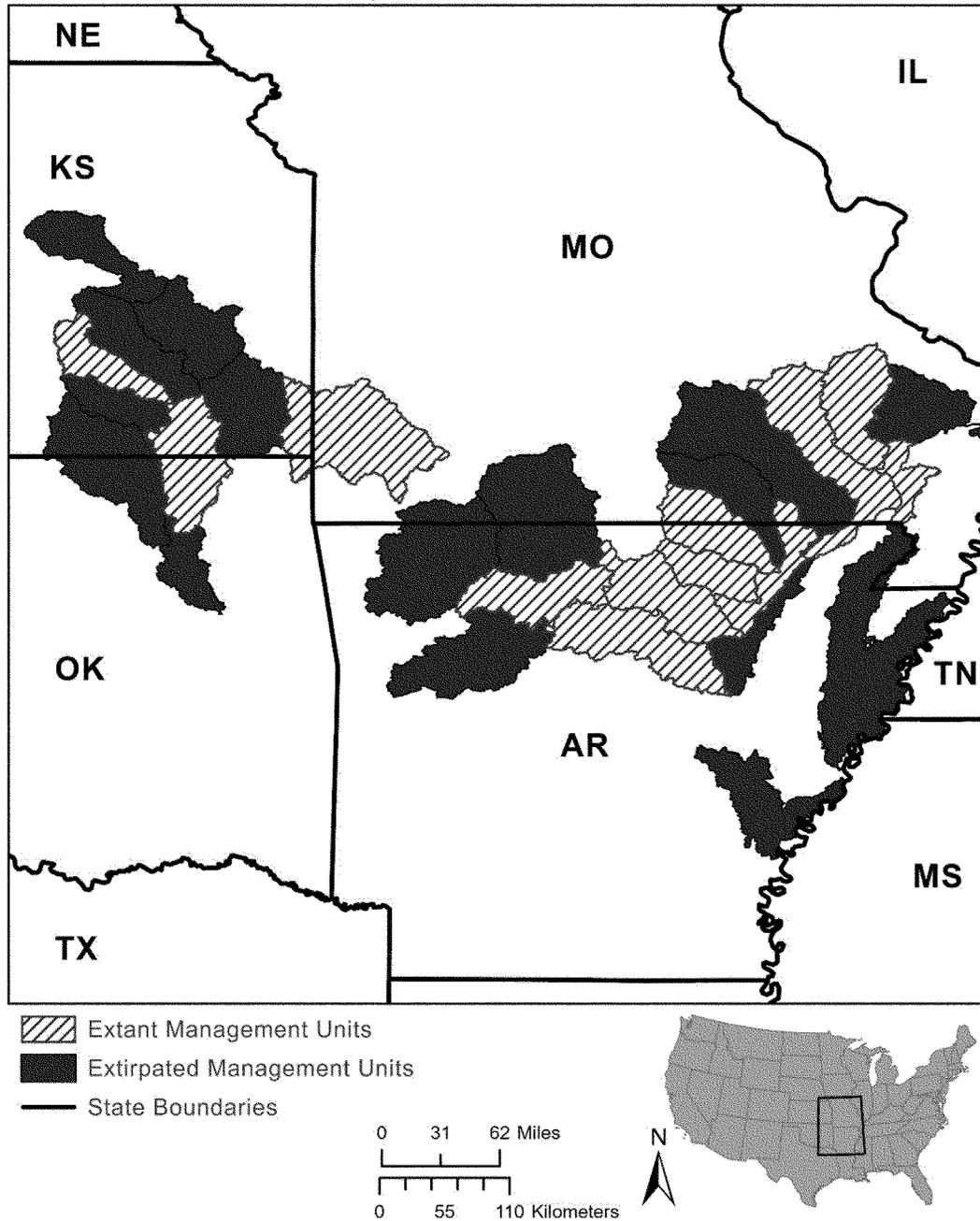


Figure 1. Distribution of the extant and extirpated management units of western fanshell in Arkansas, Kansas, Missouri, and Oklahoma.

Index Map: "Ouachita" Fanshell Rangewide Distribution

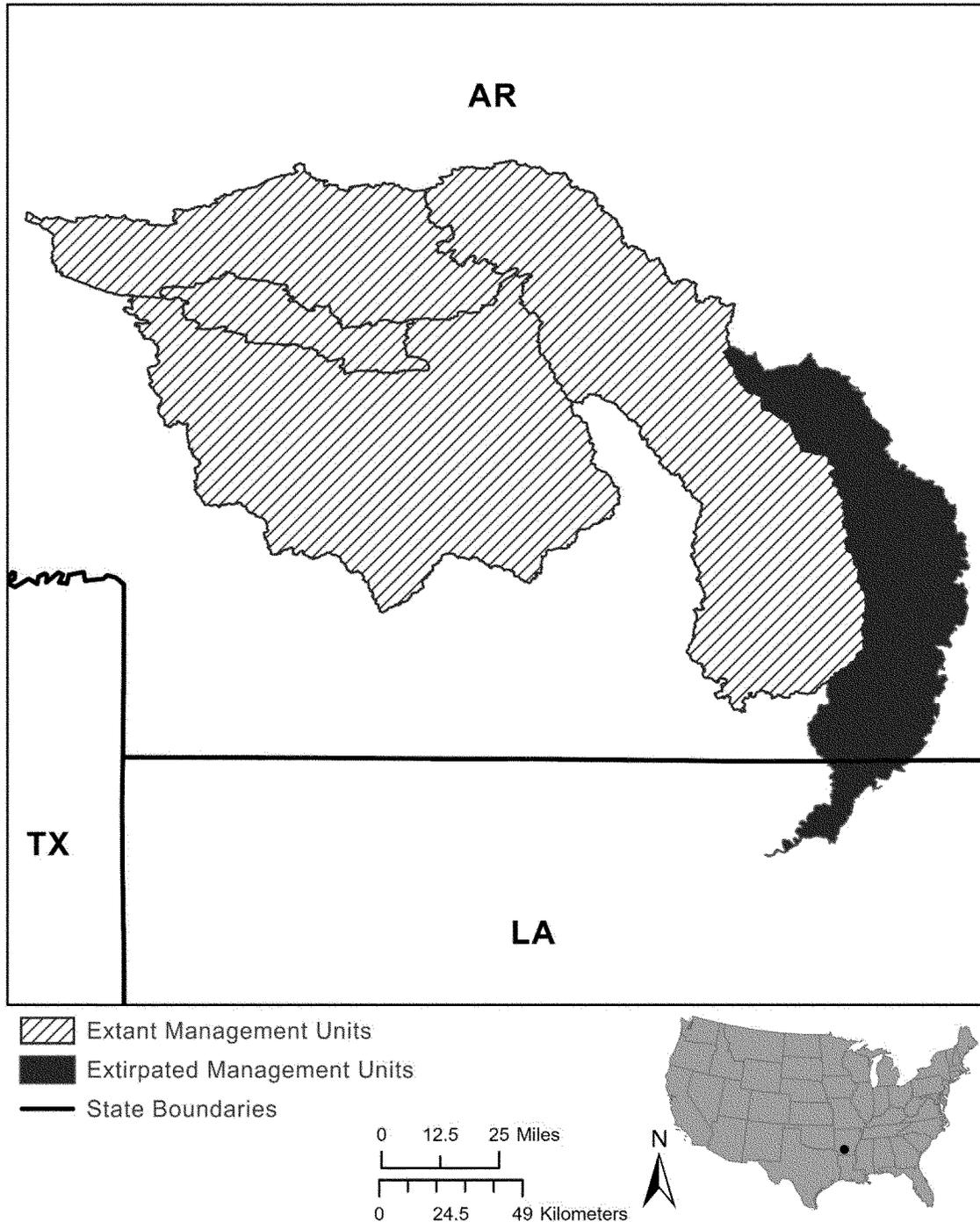


Figure 2. Distribution of the extant and extirpated management units of "Ouachita" fanshell in Arkansas and Louisiana.

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Both species are typically found in large creeks and rivers with good water quality, moderate to swift current, and gravel-sand substrates, but specific

information on microhabitat requirements is lacking. Like all mussels, these two species of fanshell are omnivores that primarily filter-feed on a wide variety of microscopic

particulate matter suspended in the water column, including phytoplankton, zooplankton, bacteria, detritus, and dissolved organic matter (Haag 2012, p. 26). As with most freshwater mussels,

the fanshell mussels have a unique life cycle that relies on fish hosts for successful reproduction (Barnhart *et al.* 2008, pp. 371–373; Vaughn and Taylor 1999, p. 913; Barnhart 1997, p. 12).

Thorough reviews of the taxonomy, life history, and ecology of the western fanshell and “Ouachita” fanshell are presented in detail in the SSA report (Service 2020, pp. 9–12).

Regulatory and Analytical Framework

Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species is an endangered species or a threatened species. The Act defines an “endangered species” as a species that is in danger of extinction throughout all or a significant portion of its range, and a “threatened species” as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an endangered species or a threatened species because of any of the following factors:

- (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.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species’ continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term “threat” to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term “threat” includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term “threat” may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean

that the species meets the statutory definition of an “endangered species” or a “threatened species.” In determining whether a species meets either definition, we must evaluate all identified threats by considering the expected response by the species, and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition of an “endangered species” or a “threatened species” only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term “foreseeable future,” which appears in the statutory definition of “threatened species.” Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term “foreseeable future” extends only so far into the future as the Service can reasonably determine that both the future threats and the species’ responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. “Reliable” does not mean “certain”; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species’ likely responses to those threats in view of its life-history characteristics. Data that are typically relevant to assessing the species’ biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

Analytical Framework

The SSA report documents the results of our comprehensive biological review of the best scientific and commercial

data regarding the status of these species, including an assessment of the potential threats to these species. The SSA report does not represent a decision by the Service on whether these species should be proposed for listing as an endangered or threatened species under the Act. However, it does provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies. The following is a summary of the key results and conclusions from the SSA report; the full SSA report can be found at Docket No. FWS–R3–ES–2021–0061 on <http://www.regulations.gov> and at <https://www.fws.gov/midwest/> and <https://www.fws.gov/southeast/>.

To assess the western fanshell’s and “Ouachita” fanshell’s viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years), redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, large pollution events), and representation supports the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes). In general, the more resilient and redundant a species is and the more representation it has, the more likely it is to sustain populations over time, even under changing environmental conditions. Using these principles, we identified the species’ ecological requirements for survival and reproduction at the individual, population, and species levels and described the beneficial and risk factors influencing the species’ viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated each individual species’ life-history needs. The next stage involved an assessment of the historical and current condition of the species’ demographics and habitat characteristics, including an explanation of how the species arrived at its current condition. The final stage of the SSA involved making predictions about the species’ responses to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best available information to characterize viability as the ability of a species to sustain populations in the wild over time. We use this information to inform our regulatory decision.

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the two species and their resources, and the threats that influence both species' current and future condition, to assess each species' overall viability and the risks to that viability.

Species Needs

Fanshell mussels feed primarily on a wide variety of microscopic particulate matter, including phytoplankton, zooplankton, bacteria, detritus, and dissolved organic matter (Haag 2012, p. 26). Juveniles likely pedal feed in the sediment, whereas adults filter-feed from the water column.

As with most freshwater mussels, both fanshell mussels rely on a host fish for reproduction. The female mussel holds the fertilized eggs internally as they develop into larvae. Once mature, the larvae are released as glochidia, which attach on the gills, head, or fins of fishes (Barnhart *et al.* 2008, pp. 371–373; Vaughn and Taylor 1999, p. 913). Glochidia encyst (enclose in a cyst-like structure) on the host's tissue and draw nutrients from the fish. The glochidia for the fanshell mussels remain encysted for about a month until transformation to the juvenile stage, at which point they release from the fish and drop to the substrate (Barnhart 1997, p. 12). Glochidia die if they fail to find a host fish, attach to the wrong species of host fish, attach to a fish that has developed immunity from prior infestations, or attach to the wrong location on a host fish (Bogan 1993, p. 599; Neves 1991, p. 254).

Logperch (*Percina caprodes*) is a suitable fish host for both fanshell species in all river basins (Eckert 2003, pp. 18–19). Slenderhead darter (*Percina phoxocephala*) and orangebelly darter (*Etheostoma radiosum*) are suitable hosts for “Ouachita” fanshell (Eckert 2003, p. 46), while slenderhead darter, fantail darter (*Etheostoma flabellare*), rainbow darter (*Etheostoma caeruleum*), and orangebelly darter are suitable hosts for western fanshell, but only for their respective sympatric fanshell mussel population (Eckert 2003, p. 33). In other words, glochidia had greater success transforming on darters from the same stream as the mussel. For example, a higher percentage of glochidia from Ouachita River transformed on orangebelly darters from Ouachita River than on orangebelly darters from Verdigris River (Eckert 2003, p. 11).

We assessed the best available information to identify the physical and biological needs to support individual

fitness at all life stages for the western fanshell and “Ouachita” fanshell. Full descriptions of all needs are available in chapter 2 of the SSA report (Service 2020, pp. 9–15). Based upon the best available scientific and commercial information, the resource needs for both species are characterized as:

- Stable river channels and banks (for example, stable riffles, sometimes with runs, and mid-channel island habitats that provide flow refuges), consisting of mixed sand, gravel, and cobble substrates with low to moderate amounts of fine sediment and attached filamentous algae;
- A hydrologic flow regime (the severity, frequency, duration, and seasonality of discharge over time) that maintains the benthic habitats where the species are found and the river connectivity with the floodplain;
- Habitat connectivity (that is, a lack of barriers for passage of host fish, which are necessary for dispersal of mussels);
- Water and sediment quality, such as (but not limited to) dissolved oxygen above 3 parts per million (ppm), ammonia generally below 1.0 ppm total ammonia-nitrogen, temperatures generally below 80 degrees Fahrenheit (°F) (27 degrees Celsius (°C)), low concentrations of metals, and an absence of excessive total suspended solids and other pollutants;
- The presence and abundance of fish hosts (logperch, slenderhead darter, fantail darter, rainbow darter, and orangebelly darter) necessary for recruitment of the fanshell mussels; and
- Appropriate food sources (phytoplankton, zooplankton, protozoans, detritus, and dissolved organic matter) in adequate supply.

Threats Analysis

We identified water quality degradation, altered flow, landscape changes, and habitat fragmentation, all of which are exacerbated by the effects of climate change, as the primary threats affecting the western fanshell and “Ouachita” fanshell (Service 2020, p. 65). We acknowledge that invasive species can have individual and, in some circumstances, population-level effects to mussels. However, the best available data do not support that invasive species are a driving force affecting the current or future conditions of these two fanshell mussels (Service 2020, pp. 62–63). The primary threats are discussed below.

Water Quality

Chemical contaminants are a major threat in the decline of mussel species (Cope *et al.* 2008, p. 451; Richter *et al.*

1997, p. 1081; Strayer *et al.* 2004, p. 436; Wang *et al.* 2007a, p. 2029). Chemicals enter rivers through point and nonpoint discharges, including spills, industrial and municipal effluents, and residential and agricultural runoff. These sources contribute organic compounds, heavy metals, nutrients, pesticides, and a wide variety of newly emerging contaminants, such as pharmaceuticals, to the aquatic environment.

The western fanshell has been exposed to zinc and copper at concentrations that cause acute toxicity (Service 2020, p. 41) and may be exposed to toxic levels of lead in the future (Service 2020, Appendix I–D–I–E). Metals from mine water runoff (for example, Tri-State Mining District in southwest Missouri and southeast Kansas) contributed to mussel declines in Shoal Creek and Spring River in the Arkansas River basin (Angelo *et al.* 2007, p. 467; EcoAnalysts, Inc. 2018, p. 59).

Nutrients, such as nitrogen and phosphorus, primarily occur in runoff from livestock farms, feedlots, heavily fertilized row crops and pastures (Peterjohn and Correll 1984, p. 1471), post timber management activities, and urban and suburban runoff (including residential lawns and leaking septic tanks). Sources of ammonia include agricultural wastes (animal feedlots and nitrogenous fertilizers), municipal wastewater treatment plants, and industrial waste (Augspurger *et al.* 2007, p. 2569), as well as precipitation and natural processes (decomposition of organic nitrogen) (Augspurger *et al.* 2003, p. 2569; Goudreau *et al.* 1993, p. 212; Hickey and Martin 1999, p. 44; Newton *et al.* 2003, p. 1243). As discussed above under *Species Needs*, both fanshell species require dissolved oxygen above 3 ppm and ammonia generally below 1.0 ppm total ammonia-nitrogen. We analyzed total ammonia nitrogen data in rivers occupied by the two fanshell mussel species, but did not find concentrations at levels expected to result in acute or chronic toxicity to mussels (Service 2020, p. 41, Appendix I–D–I–E). In addition, nutrient enrichment increases primary productivity, and the associated algae respiration depletes dissolved oxygen levels. However, available water quality data indicate that hypoxia (low dissolved oxygen) is not occurring in occupied streams and is not currently a threat to the fanshell mussels.

Flow

Reductions in the diversity and abundance of mussels are principally attributed to habitat alteration caused by inundation of free-flowing rivers and

streams (Neves *et al.* 1997, p. 60), which has occurred in portions of the fanshell mussel's ranges (for example, White, Ouachita, Caddo, and Neosho rivers). The construction of reservoirs and other impoundments permanently alters the hydrology, with deleterious effects to fish host movement and mussel dispersal.

The water released from the hypolimnion (lower layers of the lake) in large reservoirs is cold and often devoid of oxygen and necessary nutrients, which adversely affects mussel survival. Cold water can stunt mussel growth and delay or hinder spawning (Vaughn and Taylor 1999, p. 917). Reservoirs, like Bull Shoals on the White River in north-central Arkansas, that release cold water from the bottom of the reservoir (in part to support nonnative rainbow trout and brown trout recreational fisheries) can affect water temperatures for many kilometers downstream. These cold releases create an extinction gradient, where freshwater mussels are absent or present in low numbers near the dam, and abundance does not rebound until some distance downstream where ambient conditions raise the water temperature to within the tolerance limits of mussels (Vaughn and Taylor 1999, pp. 915–916).

In addition to low water temperature limits, freshwater mussels also have an upper water temperature threshold. As described above under *Species Needs*, both fanshell species require water temperatures generally below 80 °F (27 °C).

In “Ouachita” fanshell occupied streams from 1990 to 2018, the percent of water temperature samples exceeding 27 °C ranged from 6.9 to 15.4 percent, with maximum water temperature ranging from 30.3 °C to 36.6 °C. In western fanshell MUs from 1990 to 2018, the percent of water temperature samples exceeding 27 °C ranged from 0 to 12.6 percent, with maximum water temperature ranging from 22.0 °C to 35.8 °C.

Recruitment in some species of mussels is significantly related to components of spring and summer flow (Ries *et al.* 2016, p. 711). High velocity flows during spawning can decrease fertilization success (Ries *et al.* 2016, p. 712) and affect juvenile settling (Daraio *et al.* 2010, p. 838; Hardison and Layzer 2001, p. 77). Mussel beds may be constrained by threshold limits at both flow extremes. Under low flow conditions, mussels may require a minimum flow to transport nutrients, oxygen, and waste products. Under high flow conditions, areas with relatively low flow may provide a refuge for mussels (Steuer *et al.* 2008, p. 67).

Fanshell mussels undoubtedly evolved in the presence of extreme hydrological conditions to some degree, including severe droughts leading to dewatering, and heavy rains leading to damaging scour events and movement of mussels and substrate, although the frequency, duration, and intensity of these events may be different from today. Streamflow and overall discharge for rivers inhabited by western and “Ouachita” fanshell mussels will likely decline due to climate change and projected increases in temperatures and evaporation rates, resulting in more frequent and intense droughts (LaFontaine *et al.* 2019, entire).

Excessive sediments adversely affect riverine mussel populations requiring clean, stable streams (Brim Box and Mossa 1999, p. 99; Ellis 1936, pp. 39–40). Specific biological effects include reduced feeding and respiratory efficiency from clogged gills, disrupted metabolic processes, reduced growth rates, limited burrowing activity, physical smothering, and disrupted host fish attraction mechanisms (Ellis 1936, pp. 39–40; Hartfield and Hartfield 1996, p. 373; Marking and Bills 1979, p. 210; Vannote and Minshall 1982, pp. 4105–4106; Waters 1995, pp. 173–175). The physical effects of sediment on mussel habitat include changes in suspended and bed material load; changes in bed sediment composition associated with increased sediment production and runoff in the watershed; channel changes in form, position, and degree of stability; changes in depth or the width and depth ratio that affects light penetration and flow regime, actively aggrading (filling) or degrading (scouring) channels; and changes in channel position. These effects to habitat may dislodge, transport downstream, or leave mussels stranded (Brim Box and Mossa 1999, pp. 109–112; Kanehl and Lyons 1992, pp. 4–5; Vannote and Minshall 1982, p. 4106).

The majority of sediment transport occurs during floods (Clark and Mangham 2019, pp. 6–7; Kondolf 1997, p. 533). The increase in flooding severity results in greater sediment transport, with important effects to substrate stability and benthic habitats for freshwater mussels, as well as other organisms that are dependent on stable benthic habitats (Kondolf 1997, p. 535). High base flows can incise channels, erode riverbanks, scour mussel beds, and remove substrate preferred by mussels. Over time, the physical force of these higher base flows can dislodge mussels from the sediment and permanently alter the geomorphology of rivers (Clark and Mangham 2019, pp. 6–7; Kondolf 1997, p. 533).

Runoff from impervious surfaces prevalent in urban areas affects the natural hydrology of streams by increasing flood magnitude, duration, and frequency (Bressler *et al.* 2009, p. 292). Frequent floods in urban areas scour stream substrate and banks, thereby increasing erosion and sedimentation and altering geomorphology. Geomorphic changes, such as changes in channel width, occur with impervious areas as low as 2 to 10 percent (Booth and Jackson 1997, p. 1084; Dunne and Leopold 1978, pp. 275–277; Morisawa and LaFlure 1979, Figure 11). Initial degradation of fish communities and lower larval densities have been associated with as low as 10 percent impervious areas (Limburg and Schmidt 1990, pp. 1241–1242; Steedman 1988, pp. 498–499). Unpaved road networks also interact with streams, delivering sediment runoff and increasing water velocity entering stream channels, thereby increasing stream energy, eroding streambanks, scouring channels, and increasing flooding (Coffin 2007, pp. 397–398).

Landscape Alterations

Many rivers where the western fanshell and “Ouachita” fanshell occur are threatened by land use activities and changes (for example, increased urbanization, alteration of riparian buffers, improperly designed and maintained unpaved roads). Urbanization of a watershed can result in increased pollutant loads from stormwater runoff, altered flow, decreased bank stability, and increased water temperature. Urbanization can also indirectly increase channel erosion and downstream sedimentation by increasing the frequency and volume of channel-altering storm flows (Hammer 1972, p. 1530; Leopold 1968, entire). These effects of urbanization can lower fish species richness and density, leading to predictable changes in species composition, and these changes can accrue rapidly (less than 10 years) and are detectable at low levels (approximately 5 to 10 percent urbanization) (Walters *et al.* 2005, p. 1). In 2016, 80 percent of the western and “Ouachita” fanshell MUs had 5 percent or greater urban land use, but all were less than 10 percent (Service 2020, Appendix I–A).

The amount of impervious surface and riparian forest cover influences stream hydrology and water quality (Brabec *et al.* 2002, pp. 505–507). Riparian forest cover intercepts and moderates the timing of runoff, buffers temperature extremes, filters pollutants in runoff, provides woody debris to stream channels that enhances aquatic

food webs, and stabilizes excessive erosion. Furthermore, the removal of riparian trees in forested watersheds has a strong influence on stream invertebrate communities (Wallace *et al.* 1997, entire). In 2016, forest cover ranged from 70 to 76 percent in “Ouachita” fanshell MUs and 12 to 77 percent in western fanshell MUs (Service 2020, Appendix I–A).

Agricultural practices, such as livestock grazing and tilling on land adjacent to streams, can lead to soil erosion and subsequent runoff of fine sediments, nutrients, and pesticides (for example, Schulz and Liess 1999, p. 155). Watersheds with the most habitat converted to farmland often have the greatest levels of mussel richness decline (Poole and Downing 2004, p. 123). In 2016, agricultural land use ranged from 5 to 13 percent in “Ouachita” fanshell MUs and 17 to 68 percent in western fanshell MUs, and decreased in all MUs for both species from 2011 to 2016 (Service 2020, Appendix I–A).

Roads adversely affect watershed integrity by intercepting, concentrating, and diverting water. Roads directly affect natural sediment and hydrologic regimes by altering stream flow, sediment loading, sediment transport and deposition, channel morphology, channel stability, substrate composition, stream temperature, water quality, and riparian condition (Lee *et al.* 1997, pp. 1102–1104). Hydrologic effects are sensitive to road density, with increased peak flows evident at road densities of 2 to 3 kilometers (km)/square kilometers (km²) (Forman and Alexander 1998, p. 223). In 2016, unpaved road density in all the western and “Ouachita” fanshell mussel MUs were 1.6 km/km² or less.

Habitat Fragmentation

Hydrologic and geomorphic processes directly relate to habitat extent. The number and distribution of habitat patches and their connectivity influence species population health. Historically, the two fanshell species likely occurred throughout the river basins described in the SSA (Service 2020, pp. 21–31). Large-scale reductions in mussel diversity and abundance are largely due to habitat changes caused by impoundments (Neves *et al.* 1997, p. 63). The number of impoundments in “Ouachita” fanshell MUs ranges from 3 to 51, and in western fanshell MUs ranges from 4 to 73.

Effects of Climate Change

We examined information on the anticipated effects of climate change, including changes to water temperatures and precipitation patterns. In its 5th

Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) adopted “representative concentration pathways” (RCPs), which are greenhouse gas concentration trajectories, to describe potential future climate outcomes, depending on the amount of greenhouse gases that are emitted in the future (IPCC 2014, pp. 126–127). Under RCP4.5 and RCP8.5, the seasonal averages of 30 Coupled Model Intercomparison Project 5 (CMIP5) models from 1950 to 2100 indicate warming air temperatures in the Lower Mississippi River region, with a central tendency of less than 2 inches change in precipitation (Alder and Hostetler 2013, pp. 2–3). We expect changes in stream temperatures to reflect changes in air temperature, at a rate of an approximately 0.6–0.8 °C increase in stream water temperature for every 1 °C increase in air temperature (Morrill *et al.* 2005, pp. 1–2, 15). These water temperature changes will have implications for temperature-dependent water quality parameters (such as dissolved oxygen and ammonia toxicity), spawning, and physiological effects to thermally sensitive species.

Future increases in the frequency and severity of both extreme drought and extreme rainfall are expected to transform many ecosystems in the Southeast, including Arkansas (Carter *et al.* 2018, pp. 743–808). Mussels are highly sensitive to secondary effects of drought (for example, water temperature, etc.), but their ability to withstand severe drought is highly dependent on where they occur (Haag and Warren 2008, p. 1165) and sufficient time between sequential drought events for mussel populations to recover (Vaughn *et al.* 2015, pp. 1297–1298).

We also considered whether the threats discussed above may be exacerbated by small population size (or low condition). Although there are populations in low condition in all the basins in which the two species occur, none of the basins have seen their populations reduced to one or two populations in low condition.

Regulatory Mechanisms

State Protections

The western fanshell is listed as State endangered with designated critical habitats under the Kansas Nongame and Endangered Species Conservation Act. Under State law, any time an eligible project is proposed that will impact the species’ preferred habitats within its probable range in Kansas, the project sponsor must contact the Kansas Department of Wildlife, Parks and

Tourism, regarding potential permit requirements. The western fanshell and “Ouachita” fanshell do not receive protection under State law in any other States.

Other Regulatory Mechanisms

The U.S. Forest Service (2005, p. 58) established a wildlife and fish habitat road density objective of less than or equal to 1.6 km/2.6 km² on the Ouachita National Forest in west-central Arkansas, which includes the Ouachita Headwaters and Caddo MUs for “Ouachita” Fanshell. The Arkansas Unpaved Roads Program, authorized by Act 898 of the 90th General Assembly in 2005, establishes a proactive, incentive-based management program that results in utilization of best management practices on unpaved roads to minimize erosion and maintain and improve the health of priority lakes and rivers (TNC 2017, entire), including those where both fanshell mussel species occur.

Current Conditions

Current (and future) conditions are described using categories that estimate the overall condition (resiliency) of the western fanshell and “Ouachita” fanshell populations. These categories are based on an evaluation of multiple population and habitat factors (Service 2020, pp. 16–19).

Given that both of the fanshells’ ranges include medium to large rivers with some populations fragmented by dams and creation of navigation channels, we delineated separate populations for each watershed through which these streams flow (if there was an occurrence record for the stream in that watershed), based on the hydrologic unit code (HUC) (Seaber *et al.* 1987, entire; U.S. Geological Survey 2018, entire) at the fourth of six levels (that is, the HUC–8 watershed), and termed these “management units” (MUs). MUs represent areas with one or more populations capable of dispersal and interaction. As a result, some watersheds have been combined into one management unit because of a lack of dispersal barriers and some divided into multiple management units. MUs were identified as most appropriate for assessing population-level resiliency because the stream level was determined to be too coarse of a scale to estimate the condition factors influencing resiliency (Service 2020, p. 16). We defined a MU as currently extant if it contains live or recent dead individuals observed in surveys from 2000 to the present (Service 2020, p. 21).

To evaluate the species' genetic and ecological diversity (representation) in the absence of species-specific genetic information, we considered the extent and variability of environmental conditions within the two species' geographic ranges. Based on the best available data, we identified representation units at the HUC-4 watershed level, which is the second HUC level and covers a larger area than HUC-8.

Western Fanshell

The western fanshell's current range includes a total of 11 MUs across three HUC-4 units: Neosho-Verdigris (2 MUs), Lower Mississippi-St. Francis (3 MUs), and Upper White (6 MUs) river drainages of Arkansas, Missouri, Kansas, and Oklahoma. Historically, the western fanshell occurred in another 14 MUs and is presumed extirpated from the Lower Arkansas (HUC-4) river drainage. Of the current MUs, three (27 percent) are estimated to be highly resilient, three (27 percent) are estimated to be moderately resilient, and five (46 percent) are estimated to have low resiliency (Service 2020, pp. 36-46). The habitat conditions across the 11 extant populations are medium to high (Service 2020, p. 41).

"Ouachita" Fanshell

The "Ouachita" fanshell currently occurs in 4 MUs within portions of the Ouachita River basin (HUC-4) in Arkansas. One population is presumed extirpated. Of the current MUs, one (25 percent) is estimated to be highly resilient, one (25 percent) is estimated to be moderately resilient, and two (50 percent) are estimated to have low resiliency (Service 2020, pp. 46-50). The habitat conditions across the 4 extant populations are medium to high (Service 2020, p. 47).

Future Conditions

We forecasted the western fanshell's and "Ouachita" fanshell's responses to plausible future scenarios of environmental conditions. The future scenarios project the threats into the future and consider the impacts those threats could have on the viability of the western fanshell and "Ouachita" fanshell. We apply the concepts of resiliency, redundancy, and representation to the future scenarios to describe possible future conditions of the western fanshell and "Ouachita" fanshell. The scenarios described in the SSA report represent only two possible future conditions for each species. Uncertainty is inherent in any projection of future condition, so we must consider plausible scenarios to

make our determinations. When assessing the future, viability is not a specific state, but rather a continuous measure of the likelihood that the species will sustain populations over time.

In the SSA, we considered two future scenarios. Scenario 1 assesses the species' responses to moderate increases in stressors influencing the western fanshell and "Ouachita" fanshell populations, although current conservation practices would remain in place. Scenario 2 assesses the species' responses to severe increases in stressors. Due to a lack of resolution of the available data, we were unable to distinguish any meaningful difference between a moderate increase in stressors and a moderate decrease in stressors. As a result, we limited the future forecasts to these two scenarios, which we projected over a 40-year period. We restricted our evaluation to 40 years primarily due to limitations projecting non-modeled, extrapolated future conditions for water quality, road density, and habitat fragmentation. A full description of the future scenarios and our methods is available in the SSA report (Service 2020, pp. 64-69).

Under Scenario 1, populations of both fanshell species are projected to decline in resiliency and redundancy over time as conditions moderately decline from current conditions. For western fanshell, we project five (45 percent) of the currently extant MUs to become extirpated. Of the remaining six populations, four (67 percent) would be in medium condition, and two (33 percent) in low condition, with no MUs in high condition. For "Ouachita" fanshell, we project two (50 percent) of the currently extant MUs to become extirpated. Of the remaining two populations, one (50 percent) would be in medium condition, and one (50 percent) in low condition, with no MUs in high condition. All of the extant HUC-4 river basins would remain occupied for both species.

While our projections under Scenario 2 do not anticipate additional extirpations from those observed under Scenario 1, we expect all remaining populations of both species to be in low condition in 40 years. All extant HUC-4 river basins would remain occupied for both species.

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have not only analyzed individual effects on the species, but we have also analyzed their potential cumulative effects. We incorporate the cumulative effects into our SSA analysis when we characterize

the current and future condition of the species. To assess the current and future condition of the species, we undertake an iterative analysis that encompasses and incorporates the threats individually and then accumulates and evaluates the effects of all the factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of the factors, but to what degree they collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative effects analysis.

Determination of Western Fanshell and "Ouachita" Fanshell Status

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of an "endangered species" or a "threatened species." The Act defines "endangered species" as a species in danger of extinction throughout all or a significant portion of its range, and "threatened species" as a species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of "endangered species" or "threatened species" because of any of the following factors: (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.

Western Fanshell—Status Throughout All of Its Range

After evaluating threats to the species and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we determined that the western fanshell has experienced a reduction in populations/management units from historical conditions. However, the species still ranges over three of the four major drainages (HUC-4 representation units) in which it historically occurred. Eleven of 27 historical MUs are extant. Of those 11, 3 MUs are currently in high condition, 3 in medium condition, and 5 in low condition. The majority (54 percent) of the MUs are in high or medium condition. There is at least one MU in high condition in each of the 3 extant representation units. With 11 extant

MUs across three HUC-4s, the species currently retains redundancy to withstand and survive potential catastrophic events, although there is no imminent catastrophic threat. Therefore, we determined that the species is not in danger of extinction throughout all of its range.

However, the following threats currently acting on the western fanshell will likely continue into the foreseeable future and decrease the condition of the species further over time: Habitat loss and degradation from siltation, water quality degradation, altered flow, landscape changes, and habitat fragmentation (Factor A). These threats are reasonably expected to be exacerbated by continued urbanization, and threats of water quality (temperature) and flow are especially exacerbated by climate change (Factor E). These threats will continue to impact the species into the foreseeable future, and the existing regulatory mechanisms (Factor D) are not adequately reducing the impact of these threats on the species. The best available data do not indicate that the western fanshell is currently impacted at the population level by overutilization for commercial, recreational, scientific, or educational purposes (Factor B) or predation or disease (Factor C), nor do the best available data indicate that the species will be impacted by these factors in the future.

Given the projection of threats 40 years into the future, the number of western fanshell populations will decline with the projected loss of five MUs, reducing the species' redundancy. Across the plausible future scenarios, resiliency also declines with zero to four populations projected to be in medium condition and two to six populations in low condition. No populations are projected to be in high condition in the foreseeable future. Representation is projected to remain across the range, but the considerable loss of redundancy and resiliency makes the species likely to become in danger of extinction in the foreseeable future throughout its range. Thus, after assessing the best available information, we conclude that the western fanshell is likely to become in danger of extinction within the foreseeable future throughout all of its range.

Western Fanshell—Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. The court in *Center*

for Biological Diversity v. Everson, 2020 WL 437289 (D.D.C. Jan. 28, 2020) (*Center for Biological Diversity*), vacated the aspect of the Final Policy on Interpretation of the Phrase “Significant Portion of Its Range” in the Endangered Species Act’s Definitions of “Endangered Species” and “Threatened Species” (79 FR 37578; July 1, 2014) that provided that the Service does not undertake an analysis of significant portions of a species’ range if the species warrants listing as threatened throughout all of its range. Therefore, we proceed to evaluating whether the species is endangered in a significant portion of its range—that is, whether there is any portion of the species’ range for which both (1) the portion is significant; and (2) the species is in danger of extinction in that portion. Depending on the case, it might be more efficient for us to address the “significance” question or the “status” question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species’ range.

Following the court’s holding in *Center for Biological Diversity*, we now consider whether there are any significant portions of the species’ range where the species is in danger of extinction now (that is, endangered). In undertaking this analysis for western fanshell, we choose to address the status question first—we consider information pertaining to the geographic distribution of both the species and the threats that the species faces to identify any portions of the range where the species is endangered.

For western fanshell, we considered whether the threats are geographically concentrated in any portion of the species’ range at a biologically meaningful scale. We examined the following threats: Water quality degradation, altered flow, landscape changes, and habitat fragmentation, including cumulative effects. We evaluated multiple factors—including various water quality parameters, land cover data, road density, and barriers—that contribute to these primary threats. These habitat factors are in a medium to high condition across the species’ range. Overall, we found that threats are acting similarly within the occupied river basins across the species’ range. We found no concentration of threats in any portion of the western fanshell’s range at a biologically meaningful scale. Thus, there are no portions of the species’ range where the species has a different status from its rangewide status.

Therefore, no portion of the species’ range provides a basis for determining that the species is in danger of extinction in a significant portion of its range, and we determine that the species is likely to become in danger of extinction within the foreseeable future throughout all of its range. This is consistent with the courts’ holdings in *Desert Survivors v. Department of the Interior*, No. 16-cv-01165-JCS, 2018 WL 4053447 (N.D. Cal. Aug. 24, 2018), and *Center for Biological Diversity v. Jewell*, 248 F. Supp. 3d, 946, 959 (D. Ariz. 2017).

Western Fanshell—Determination of Status

Our review of the best available scientific and commercial information indicates that the western fanshell meets the Act’s definition of a threatened species. Therefore, we propose to list the western fanshell as a threatened species in accordance with sections 3(20) and 4(a)(1) of the Act.

“Ouachita” Fanshell—Status Throughout All of Its Range

After evaluating threats to the species and assessing the cumulative effect of the threats under the section 4(a)(1) factors, we determined that the “Ouachita” fanshell has experienced a reduction in resiliency and redundancy from historical conditions. The species is extant in four MUs within one major drainage (HUC-4 representation unit). The species historically occurred in Bayou Bartholomew in Louisiana. Of the four extant MUs, one is currently in high condition, one in medium condition, and two in low condition. The species appears to be endemic to the Ouachita River basin. Although the species is known from only one representation unit, half of the extant populations are in high or medium condition. The species currently retains redundancy to withstand and survive potential catastrophic events, although there is no imminent catastrophic threat. Therefore, we determined that the species is not in danger of extinction throughout all of its range.

The following threats currently acting on the “Ouachita” fanshell will likely continue into the foreseeable future and decrease the condition of the species further over time: Habitat loss and degradation from siltation, water quality degradation, altered flow, landscape changes, and habitat fragmentation (Factor A). These threats are reasonably expected to be exacerbated by continued urbanization, and threats of water quality (temperature) and flow are especially exacerbated by climate change (Factor E). These threats will

continue to impact the species into the foreseeable future, and the existing regulatory mechanisms (Factor D) are not adequately reducing the impact of these threats on the species. The best available data do not indicate that the “Ouachita” fanshell is currently impacted at the population level by overutilization for commercial, recreational, scientific, or educational purposes (Factor B) or predation or disease (Factor C), nor do the best available data indicate that the species will be impacted by these factors in the future.

Given the projection of threats 40 years into the future, the number of “Ouachita” fanshell populations will decline with the projected loss of two MUs, reducing the species’ redundancy. Resiliency also declines with three to four populations projected to be in low condition and zero to one population(s) in medium condition. No populations are projected to be in high condition in the foreseeable future. As the species occurs in only the Ouachita River basin, representation is projected to remain, but the considerable loss of redundancy and resiliency makes the species likely to become in danger of extinction in the foreseeable future throughout its range. Thus, after assessing the best available information, we conclude that the “Ouachita” fanshell is likely to become in danger of extinction within the foreseeable future throughout all of its range.

“Ouachita” Fanshell—Status Throughout a Significant Portion of Its Range

See above, under *Western Fanshell—Status Throughout a Significant Portion of Its Range*, for a description of our evaluation methods and our policy application.

In undertaking the analysis for the “Ouachita” fanshell, we choose to address the status question first—we consider information pertaining to the geographic distribution of both the species and the threats that the species faces to identify any portions of the range where the species is endangered. We examined the following threats: Water quality degradation, altered flow, landscape changes, and habitat fragmentation, including cumulative effects. We evaluated multiple factors—including various water quality parameters, land cover data, road density, and barriers—that contribute to these primary threats. These habitat factors are in a medium to high condition across the species’ range. Overall, we found that threats are acting similarly across the species’ range. We found no concentration of threats in any

portion of the “Ouachita” fanshell’s range at a biologically meaningful scale. Thus, there are no portions of the species’ range where the species has a different status from its rangewide status. Therefore, no portion of the species’ range provides a basis for determining that the species is in danger of extinction in a significant portion of its range, and we determine that the species is likely to become in danger of extinction within the foreseeable future throughout all of its range. This is consistent with the courts’ holdings in *Desert Survivors v. Department of the Interior*, No. 16–cv–01165–JCS, 2018 WL 4053447 (N.D. Cal. Aug. 24, 2018), and *Center for Biological Diversity v. Jewell*, 248 F. Supp. 3d, 946, 959 (D. Ariz. 2017).

“Ouachita” Fanshell—Determination of Status

Our review of the best available scientific and commercial information indicates that the “Ouachita” fanshell meets the Act’s definition of a threatened species. Therefore, we propose to list the “Ouachita” fanshell as a threatened species in accordance with sections 3(20) and 4(a)(1) of the Act.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and other countries and calls for recovery actions to be carried out for listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Section 4(f) of the Act calls for the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The recovery planning process involves the identification of actions that are necessary to halt or reverse the species’ decline by addressing the threats to its survival and recovery. The goal of this process is to restore listed species to a

point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning consists of preparing draft and final recovery plans, beginning with the development of a recovery outline and making it available to the public within 30 days of a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery plan also identifies recovery criteria for review of when a species may be ready for reclassification from endangered to threatened (“downlisting”) or removal from protected status (“delisting”), and as a benchmark for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our website (<http://www.fws.gov/endangered>), or from our Arkansas Ecological Services Field Office for “Ouachita” fanshell or Missouri Ecological Services Field Office for western fanshell (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (for example, restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the States of Arkansas, Kansas, Missouri, and Oklahoma would be eligible for Federal funds to implement management actions that promote the protection or recovery of the western fanshell and the States of Arkansas and

Louisiana would be eligible for Federal funds to implement management actions that promote the protection or recovery of the “Ouachita” fanshell. Information on our grant programs that are available to aid species recovery can be found at: <http://www.fws.gov/grants>.

Although the western fanshell and “Ouachita” fanshell are only proposed for listing under the Act at this time, please let us know if you are interested in participating in conservation efforts for these species. Additionally, we invite you to submit any new information on these species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as an endangered or threatened species 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) of the Act requires Federal agencies to confer with the Service 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) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into consultation with the Service.

Federal agency actions within the species’ habitat that may require conference or consultation or both as described in the preceding paragraph include, but are not limited to, activities authorized, funded, or carried out by the following agencies:

(1) U.S. Army Corps of Engineers (channel dredging and maintenance; dam projects including flood control, navigation, hydropower, bridge projects, stream restoration, and Clean Water Act permitting).

(2) U.S. Department of Agriculture, including the Natural Resources Conservation Service and Farm Service Agency (technical and financial assistance for projects) and the Forest Service (aquatic habitat restoration, fire management plans, fuel reduction treatments, forest plans, mining permits).

(3) U.S. Department of Energy (renewable and alternative energy projects).

(4) Federal Energy Regulatory Commission (interstate pipeline construction and maintenance, dam relicensing, hydrokinetics).

(5) U.S. Department of Transportation (highway and bridge construction and maintenance).

(6) U.S. Fish and Wildlife Service (issuance of section 10 permits for enhancement of survival, habitat conservation plans, and safe harbor agreements; National Wildlife Refuge planning and refuge activities; Partners for Fish and Wildlife program projects benefiting these species or other listed species; Wildlife and Sportfish Restoration program sportfish stocking).

(7) Environmental Protection Agency (water quality criteria, permitting).

(8) Office of Surface Mining (land resource management plans, mining permits, oil and natural gas permits, renewable energy development).

It is our policy, as 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. The intent of this policy is to increase public awareness of the effect of a proposed listing on proposed and ongoing activities within the range of the species proposed for listing. The discussion below regarding protective regulations under section 4(d) of the Act complies with our policy.

II. Proposed Rule Issued Under Section 4(d) of the Act

Background

Section 4(d) of the Act contains two sentences. The first sentence states that the Secretary shall issue such regulations as she deems necessary and advisable to provide for the conservation of species listed as threatened. The U.S. Supreme Court has noted that statutory language like “necessary and advisable” demonstrates a large degree of deference to the agency (see *Webster v. Doe*, 486 U.S. 592 (1988)). Conservation is defined in the Act to mean the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Additionally, the second sentence of section 4(d) of the Act states that the Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife, or section 9(a)(2), in the case

of plants. Thus, the combination of the two sentences of section 4(d) provides the Secretary with wide latitude of discretion to select and promulgate appropriate regulations tailored to the specific conservation needs of the threatened species. The second sentence grants particularly broad discretion to the Service when adopting the prohibitions under section 9.

The courts have recognized the extent of the Secretary’s discretion under this standard to develop rules that are appropriate for the conservation of a species. For example, courts have upheld rules developed under section 4(d) as a valid exercise of agency authority where they prohibited take of threatened wildlife, or include a limited taking prohibition (see *Asea Valley Alliance v. Lautenbacher*, 2007 U.S. Dist. Lexis 60203 (D. Or. 2007); *Washington Environmental Council v. National Marine Fisheries Service*, 2002 U.S. Dist. Lexis 5432 (W.D. Wash. 2002)). Courts have also upheld 4(d) rules that do not address all of the threats a species faces (see *State of Louisiana v. Verity*, 853 F.2d 322 (5th Cir. 1988)). As noted in the legislative history when the Act was initially enacted, “once an animal is on the threatened list, the Secretary has an almost infinite number of options available to him [or her] with regard to the permitted activities for those species. He [or she] may, for example, permit taking, but not importation of such species, or he [or she] may choose to forbid both taking and importation but allow the transportation of such species” (H.R. Rep. No. 412, 93rd Cong., 1st Sess. 1973).

Exercising this authority under section 4(d), we have developed a proposed rule that is designed to address the western fanshell’s and “Ouachita” fanshell’s specific threats and conservation needs. Although the statute does not require us to make a “necessary and advisable” finding with respect to the adoption of specific prohibitions under section 9, we find that this rule as a whole satisfies the requirement in section 4(d) of the Act to issue regulations deemed necessary and advisable to provide for the conservation of the western fanshell and “Ouachita” fanshell. As discussed above under Summary of Biological Status and Threats, we have concluded that the western fanshell and “Ouachita” fanshell are likely to become in danger of extinction within the foreseeable future primarily due to habitat loss and degradation from siltation, water and sediment quality degradation, changes to flow, and impoundments. These threats, which

are expected to be exacerbated by continued urbanization and the effects of climate change, were central to our assessment of the future viability of the western fanshell and “Ouachita” fanshell. The provisions of this proposed 4(d) rule would promote conservation of the western fanshell and “Ouachita” fanshell by encouraging management of the landscape in ways that meet both land management considerations and the conservation needs of the western fanshell and “Ouachita” fanshell. The provisions of this proposed rule are one of many tools that we would use to promote the conservation of the western fanshell and “Ouachita” fanshell. This proposed 4(d) rule would apply only if and when we make final the listing of the western fanshell and “Ouachita” fanshell as threatened species.

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat—and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or carried out by a Federal agency—do not require section 7 consultation.

This obligation does not change in any way for a threatened species with a species-specific 4(d) rule. Actions that result in a determination by a Federal agency of “not likely to adversely

affect” continue to require the Service’s written concurrence and actions that are “likely to adversely affect” a species require formal consultation and the formulation of a biological opinion.

Provisions of the Proposed 4(d) Rule

This proposed 4(d) rule would provide for the conservation of the western fanshell and “Ouachita” fanshell by prohibiting the following activities, except as otherwise authorized or permitted: Importing or exporting; take; possession and other acts with unlawfully taken specimens; delivering, receiving, transporting, or shipping in interstate or foreign commerce in the course of commercial activity; or selling or offering for sale in interstate or foreign commerce.

As discussed above under Summary of Biological Status and Threats, multiple factors are affecting the status of western fanshell and “Ouachita” fanshell. A range of activities have the potential to affect these species, including, for example, habitat loss and degradation from siltation, water and sediment quality degradation, changes to flow, and impoundments. These threats, which are expected to be exacerbated by continued urbanization and the effects of climate change, were central to our assessment of the future viability of western fanshell and “Ouachita” fanshell. Therefore, we prohibit actions resulting in the incidental take of western fanshell and “Ouachita” fanshell by altering or degrading the habitat. Regulating incidental take resulting from these activities would help preserve the species’ remaining populations, slow their rate of decline, and decrease synergistic, negative effects from other stressors.

Under the Act, “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Some of these provisions have been further defined in regulation at 50 CFR 17.3. Take can result knowingly or otherwise, by direct and indirect impacts, intentionally or incidentally.

The proposed 4(d) rule would also provide for the conservation of the species by allowing exceptions to actions and activities that, while they may have some minimal level of disturbance to the western fanshell and “Ouachita” fanshell, are not expected to negatively affect the species’ conservation and recovery efforts. The proposed exceptions to these prohibitions include: (1) Channel and bank restoration projects; (2) silviculture and forest management that implements best management practices; and (3)

transportation projects that avoid instream disturbance in waters occupied by the species.

The first exception is for incidental take resulting from channel and bank restoration projects for creation of natural, physically stable, ecologically functioning streams, taking into consideration connectivity with floodplain and groundwater aquifers. This exception includes a requirement that bank restoration projects require planting appropriate native vegetation, including woody species appropriate for the region and habitat. We also propose language that would require surveys and relocation prior to commencement of restoration actions (and, if applicable, monitoring after relocation) for western fanshell and “Ouachita” fanshell that would otherwise be negatively affected by the actions. Actions related to restoration activities that would negatively affect western fanshell and “Ouachita” fanshell include: Individual mussels being removed, dislodged, crushed and/or killed by heavy equipment operations and rip-rap placement; removal, destruction and/or replacement of habitat; increased turbidity from streambed disturbance; and alterations to flow and turbidity from permanent (weirs) or temporary (causeways) structures needed for construction.

The second exception is for incidental take resulting from silviculture and forest management activities that use State-approved best management practices to protect water and sediment quality and stream and riparian habitat. Best management practices are designed to reduce sedimentation, erosion, and bank destruction, thereby protecting instream habitat for these species.

The third exception is for incidental take resulting from transportation projects that do not include activities that disturb instream habitat. Bridge designs that include spanning the stream and avoiding stream bank disturbance reduce sedimentation and erosion, thereby protecting instream habitat for these species.

We reiterate that these actions and activities may have some minimal level of take of the western fanshell and “Ouachita” fanshell, but any such take is expected to be rare and insignificant, and is not expected to negatively impact the species’ conservation and recovery efforts. Rather, we expect they would have a net beneficial effect on the species. Across the species’ range, instream habitats have been degraded physically by sedimentation and by direct and indirect channel disturbance. The habitat restoration activities in the proposed 4(d) rule are intended to

improve habitat conditions for the species in the long term.

We may issue permits to carry out otherwise prohibited activities, including those described above, involving threatened wildlife under certain circumstances. Regulations governing permits for threatened wildlife are codified at 50 CFR 17.32. With regard to threatened wildlife, a permit may be issued for the following purposes: For scientific purposes, to enhance the propagation or survival of the species, for economic hardship, for zoological exhibition, for educational purposes, for incidental taking, or for special purposes consistent with the purposes of the Act. The statute also contains certain exemptions from the prohibitions, which are found in sections 9 and 10 of the Act. In addition, we are considering, but have not specifically proposed in this document, an exception from permitting requirements for individuals conducting presence/absence surveys, studies to document habitat use, population monitoring, and evaluations of potential impacts to the fanshells, provided the individual holds a valid scientific collecting permit for mussels from the appropriate State agency. If we conclude that this measure would provide for the conservation of the species, we may include a provision in the final 4(d) rule. We specifically request comments on this provision we are considering.

We recognize the special and unique relationship with our State natural resource agency partners in contributing to conservation of listed species. State agencies often possess scientific data and valuable expertise on the status and distribution of endangered, threatened, and candidate species of wildlife and plants. State agencies, because of their authorities and their close working relationships with local governments and landowners, are in a unique position to assist the Service in implementing all aspects of the Act. In this regard, section 6 of the Act provides that the Service shall cooperate to the maximum extent practicable with the States in carrying out programs authorized by the Act. Therefore, any qualified employee or agent of a State conservation agency that is a party to a cooperative agreement with the Service in accordance with section 6(c) of the Act, who is designated by his or her agency for such purposes, would be able to conduct activities designed to conserve the western fanshell and "Ouachita" fanshell that may result in otherwise prohibited take without additional authorization.

Nothing in this proposed 4(d) rule would change in any way the recovery

planning provisions of section 4(f) of the Act, the consultation requirements under section 7 of the Act, or the ability of the Service to enter into partnerships for the management and protection of the western fanshell and "Ouachita" fanshell. However, interagency cooperation may be further streamlined through planned programmatic consultations for the species between Federal agencies and the Service, where appropriate. We ask the public, particularly State agencies and other interested stakeholders that may be affected by the proposed 4(d) rule, to provide comments and suggestions regarding additional guidance and methods that the Service could provide or use, respectively, to streamline the implementation of this proposed 4(d) rule (see Information Requested, above).

III. Critical Habitat

Background

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

(1) 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:

(a) Essential to the conservation of the species, and

(b) Which may require special management considerations or protection; and

(2) 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.

Our regulations at 50 CFR 424.02 define the geographical area occupied by the species as an area that may generally be delineated around species' occurrences, as determined by the Secretary (that is, range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (for example, migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals). Additionally, our regulations at 50 CFR 424.02 define the word "habitat," for the purposes of designating critical habitat only, as the abiotic and biotic setting that currently or periodically contains the resources and conditions necessary to support one or more life processes of a 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 requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of 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 also 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 requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the Federal agency would be required to consult with the Service under section 7(a)(2) of the Act. However, even if the Service were to conclude that the proposed activity would result in destruction or adverse modification of the critical habitat, the Federal action agency and the landowner are not required to abandon the proposed activity, or to restore or recover the species; instead, they must implement "reasonable and prudent alternatives" to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical or biological features that occur in specific occupied areas, we focus on the specific

features that are essential to support the life-history needs of the species, including, but not limited to, water characteristics, soil type, geological features, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in 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. The implementing regulations at 50 CFR 424.12(b)(2) further delineate unoccupied critical habitat by setting out three specific parameters: (1) When designating critical habitat, the Secretary will first evaluate areas occupied by the species; (2) the Secretary will consider unoccupied areas to be essential only where a critical habitat designation limited to geographical areas occupied by the species would be inadequate to ensure the conservation of the species; and (3) for an unoccupied area to be considered essential, the Secretary must determine that there is a reasonable certainty both that the area will contribute to the conservation of the species and that the area contains one or more of those physical or biological features essential to the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific 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 from the SSA report and information developed during the listing process for the species. Additional information sources may include any generalized conservation strategy, criteria, or outline that may have been developed for the species; 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; other unpublished materials; or experts' opinions or personal knowledge.

As the regulatory definition of "habitat" reflects (50 CFR 424.02), habitat is dynamic, and species may move from one area to another over time. 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 needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act; (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species; and (3) the prohibitions found in section 9 of the Act. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of these species. 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 of those planning efforts calls for a different outcome.

Prudency Determination

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, the Secretary shall designate critical habitat at the time the species is determined to be an

endangered or threatened species. Our regulations (50 CFR 424.12(a)(1)) state that the Secretary may, but is not required to, determine that a designation would not be prudent in the following circumstances:

(i) The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species;

(ii) The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act;

(iii) Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States;

(iv) No areas meet the definition of critical habitat; or

(v) The Secretary otherwise determines that designation of critical habitat would not be prudent based on the best scientific data available.

As discussed earlier in this document, there is currently no imminent threat of collection or vandalism identified under Factor B for these species, and identification and mapping of critical habitat is not expected to initiate any such threat. In our SSA and proposed listing determination for the western fanshell and "Ouachita" fanshell, we determined that the present or threatened destruction, modification, or curtailment of habitat or range is a threat to the western fanshell and "Ouachita" fanshell and that those threats can be addressed in some way by section 7(a)(2) consultation measures. These species occur wholly in the jurisdiction of the United States, and we are able to identify areas that meet the definition of critical habitat. Therefore, because none of the circumstances enumerated in our regulations at 50 CFR 424.12(a)(1) have been met and because the Secretary has not identified other circumstances for which this designation of critical habitat would be not prudent, we have determined that the designation of critical habitat is prudent for the western fanshell and "Ouachita" fanshell.

Critical Habitat Determinability

Having determined that designation is prudent, under section 4(a)(3) of the Act we must find whether critical habitat for the western fanshell and "Ouachita" fanshell is determinable. Our regulations at 50 CFR 424.12(a)(2) state

that critical habitat is not determinable when one or both of the following situations exist:

- (i) Data sufficient to perform required analyses are lacking, or
- (ii) The biological needs of the species are not sufficiently well known to identify any area that meets the definition of “critical habitat.”

When critical habitat is not determinable, the Act allows the Service an additional year to publish a critical habitat designation (16 U.S.C. 1533(b)(6)(C)(ii)).

We reviewed the available information pertaining to the biological needs of the species and habitat characteristics where these species are located. This and other information represent the best scientific data available and led us to conclude that the designation of critical habitat is determinable for the western fanshell and “Ouachita” fanshell.

Physical or Biological Features Essential to the Conservation of the Species

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12(b), in determining which areas we will designate as critical habitat from within the geographical area occupied by the species at the time of listing, we consider the physical or biological features that are essential to the conservation of the species and which may require special management considerations or protection. The regulations at 50 CFR 424.02 define “physical or biological features essential to the conservation of the species” as the features that occur in specific areas and that are essential to support the life-

history needs of the species, including, but not limited to, water characteristics, soil type, geological features, sites, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity. For example, physical features essential to the conservation of the species might include gravel of a particular size required for spawning, alkaline soil for seed germination, protective cover for migration, or susceptibility to flooding or fire that maintains necessary early-successional habitat characteristics. Biological features might include prey species, forage grasses, specific kinds or ages of trees for roosting or nesting, symbiotic fungi, or absence of or a particular level of nonnative species consistent with conservation needs of the listed species. The features may also be combinations of habitat characteristics and may encompass the relationship between characteristics or the necessary amount of a characteristic essential to support the life history of the species.

In considering whether features are essential to the conservation of the species, we may consider an appropriate quality, quantity, and spatial and temporal arrangement of habitat characteristics in the context of the life-history needs, condition, and status of the species. These characteristics

include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing (or development) of offspring; and habitats that are protected from disturbance.

As described above under Summary of Biological Status and Threats, western fanshell and “Ouachita” fanshell occur in large creeks and rivers. Occasional or regular interaction among individuals in different river reaches not interrupted by a barrier likely occurs, but in general, interaction is strongly influenced by habitat fragmentation and distance between occupied river or stream reaches. Once released from their fish host, freshwater mussels are benthic (bottom-dwelling), generally sedentary aquatic organisms and closely associated with appropriate habitat patches within a river or stream.

We derive the specific physical or biological features essential to the western fanshell and “Ouachita” fanshell from studies of these species’ (or appropriate surrogate species’) habitat, ecology, and life history. The primary habitat elements that influence resiliency of the western fanshell and “Ouachita” fanshell include water quality, water quantity, substrate, habitat connectivity, and the presence of host fish species to ensure recruitment. These features are also described above as species needs under Summary of Biological Status and Threats, and a full description is available in the SSA report; the individuals’ needs are summarized below in Table 1.

TABLE 1—REQUIREMENTS FOR LIFE STAGES OF WESTERN FANSHELL AND “OUACHITA” FANSHELL

Life stage	Resource needs—habitat requirements	References
All Life Stages	<p><i>Water Quality:</i> Naturally clean, high quality water with little or no harmful pollutants (that is, pollutants occur below tolerance limits of mussels, fish hosts, prey). The values below are based on the best available science and assume mussels respond to average values of a constituent over time (acute or chronic exposure).</p> <ul style="list-style-type: none"> > Dissolved oxygen >3 milligrams per liter (mg/L) > Low salinity/total dissolved solids > Low nutrient concentrations <ul style="list-style-type: none"> > Total ammonia nitrogen <0.3–1.0 mg/L at pH 8.0 & 25 °C > Nitrate <2.0 mg/L > Nitrite <55.8 mg/L > Low concentrations of metals <ul style="list-style-type: none"> > Cadmium <0.014 mg/L at 50 mg/L calcium carbonate (CaCO₃) hardness > Zinc <0.120 mg/L at 50 mg/L CaCO₃ hardness > Lead <0.205 mg/L at 50 mg/L CaCO₃ hardness > Copper <0.005 mg/L in moderately hard water > Natural, unaltered ambient water temperature generally <27 °C <p><i>Water Quantity:</i> Flowing water in sufficient quantity to support the life-history requirements of mussels and their fish hosts.</p>	<p>Allen <i>et al.</i> 2007, pp. 80–85; Augspurger <i>et al.</i> 2003, p. 2569; Bringolf <i>et al.</i> 2007a, p. 2094; 2007b, p. 2086; Cope <i>et al.</i> 2008, p. 455; Fuller 1974, pp. 240–246; Gillis <i>et al.</i> 2008, pp. 140–141; Gray <i>et al.</i> 2002, pp. 155–156; Kolpin <i>et al.</i> 2002, pp. 1208–1210; Spooner and Vaughn 2008, p. 311; Steingraeber <i>et al.</i> 2007, p. 297; Wang <i>et al.</i> 2007a, 2007b, 2010, 2013, entire.</p> <p>Galbraith and Vaughn 2009, p. 46; Allen and Vaughn 2010, p. 390; Peterson <i>et al.</i> 2011, p. 115; Daraio <i>et al.</i> 2010, p. 838.</p>

TABLE 1—REQUIREMENTS FOR LIFE STAGES OF WESTERN FANSELL AND “OUACHITA” FANSELL—Continued

Life stage	Resource needs—habitat requirements	References
Gamete (sperm, egg development, fertilization). Glochidia	<ul style="list-style-type: none"> ➤ Sexually mature males and females with appropriate water temperatures for spawning, fertilization, and brooding. ➤ Presence of fish hosts (of appropriate species) with sufficient flow to allow attachment, encystment, relocation, excystment, and dispersal of glochidia. 	Haag 2012, pp. 38–39; Galbraith and Vaughn 2009, pp. 45–46; Barnhart <i>et al.</i> 2008, p. 372.
Juvenile, sub-adult, and adult (from excystment to maturity).	<ul style="list-style-type: none"> ➤ Stable substrate comprised of mixed sand, gravel and cobble, and appropriate for burrowing, pedal feeding, and survival. ➤ Appropriate food sources (phytoplankton, zooplankton, protozoans, detritus, dissolved organic matter) in adequate supply. ➤ Presence and abundance of fish hosts available for recruitment. 	Allen and Vaughn 2010, pp. 384–385; Haag 2012, pp. 26–42; Eckert 2003, pp. 18–19, 33.

Summary of Essential Physical or Biological Features

We derive the specific physical or biological features essential to the conservation of the western fanshell and “Ouachita” fanshell from studies of the species’ habitat, ecology, and life history as described below. Additional information can be found in chapter 2 of the SSA report (Service 2020, pp. 9–15), which is available on <http://www.regulations.gov> under Docket No. FWS–R3–ES–2021–0061. We have determined that the following physical or biological features are essential to the conservation of the western fanshell and “Ouachita” fanshell:

(1) Adequate flows, or a hydrologic flow regime (magnitude, timing, frequency, duration, rate of change, and overall seasonality of discharge over time), necessary to maintain benthic habitats where the species are found and to maintain stream connectivity, specifically providing for the exchange of nutrients and sediment for maintenance of the mussels’ and fish hosts’ habitat and food availability, maintenance of spawning habitat for native host fishes, and the ability for newly transformed juveniles to settle and become established in their habitats. Adequate flows ensure delivery of oxygen, enable reproduction, deliver food to filter-feeding mussels, and reduce contaminants and fine sediments from interstitial spaces.

(2) Suitable substrates and connected instream habitats, characterized by geomorphically stable stream channels and banks (that is, channels that maintain lateral dimensions, longitudinal profiles, and sinuosity patterns over time without an aggrading or degrading bed elevation) with habitats that support a diversity of freshwater mussel and native fish (such as stable riffle-run-pool habitats that provide flow refuges consisting of silt-free gravel and coarse sand substrates).

(3) Water and sediment quality necessary to sustain natural physiological processes for normal

behavior, growth, and viability of all life stages, including, but not limited to: Dissolved oxygen (generally above 3 parts per million (ppm)) and water temperature (generally below 80 degrees Fahrenheit (°F) (27 degrees Celsius (°C))). Additionally, water and sediment should be low in ammonia (generally below 1.0 ppm total ammonia-nitrogen) and heavy metals, and lack excessive total suspended solids and other pollutants.

(4) The presence and abundance of fish hosts necessary for recruitment of the western fanshell and “Ouachita” fanshell, including logperch (*Percina caprodes*), rainbow darter (*Etheostoma caeruleum*), slenderhead darter (*Percina phoxocephala*), fantail darter (*Etheostoma flabellare*), or orangebelly darter (*Etheostoma radiosum*).

Special Management Considerations or Protection

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features essential to the conservation of the species and which may require special management considerations or protection.

The features essential to the conservation of the western fanshell and “Ouachita” fanshell may require special management considerations or protections to reduce the following threats: (1) Alteration of the natural flow regime (modifying the natural hydrograph and seasonal flows), including water withdrawals, resulting in flow reduction and available water quantity; (2) urbanization of the landscape, including (but not limited to) land conversion for urban and commercial use, infrastructure (pipelines, roads, bridges, utilities), and urban water uses (resource extraction activities, water supply reservoirs, wastewater treatment, etc.); (3) significant alteration of water quality and nutrient pollution from a variety of activities, such as industrial and

municipal effluents, mining, and agricultural activities; (4) land use activities that remove large areas of forested wetlands and riparian systems; (5) dam construction and culvert and pipe installation that create barriers to movement for the western fanshell and “Ouachita” fanshell, or their host fishes; (6) changes and shifts in seasonal precipitation patterns as a result of climate change; and (7) other watershed and floodplain disturbances that release sediments, pollutants, or nutrients into the water.

Management activities that could ameliorate these threats include, but are not limited to: Use of best management practices designed to reduce sedimentation, erosion, and bank destruction; protection of riparian corridors and woody vegetation; moderation of surface and ground water withdrawals to maintain natural flow regimes; improved stormwater management; and reduction of other watershed and floodplain disturbances that release sediments, pollutants, or nutrients into the water.

In summary, we find that the occupied areas we are proposing to designate as critical habitat contain the physical or biological features that are essential to the conservation of the species and which may require special management considerations or protection. Special management considerations or protection may be required of the Federal action agency to eliminate, or to reduce to negligible levels, the threats affecting the physical and biological features of each unit.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. In accordance with the Act and our implementing regulations at 50 CFR 424.12(b), we review available information pertaining to the habitat requirements of the species and identify specific areas within the geographical

area occupied by the species at the time of listing and any specific areas outside the geographical area occupied by the species to be considered for designation as critical habitat.

We anticipate that recovery will require conserving the genetic diversity of extant populations across the HUC-4 watersheds within the species' current range and maintaining and, where necessary, improving habitat and habitat connectivity to ensure the long-term viability of western fanshell and "Ouachita" fanshell. We have determined that the currently occupied MUs of western fanshell and "Ouachita" fanshell would maintain each species' resiliency, redundancy, and representation and are sufficient to conserve these two species. Therefore, we are not currently proposing to designate any areas outside the geographical area occupied by the species.

Methodology Used for Selection of Proposed Units

First, we included current populations with high or medium resiliency. These populations show recruitment or varied age class structure and could be used for recovery actions to augment other populations through propagation activities or direct translocations within their basins. We defined a population as "current" if it contains live or recent dead individuals observed in surveys from 2000 to the present (Service 2020, p. 21).

Second, we evaluated spatial representation and redundancy across the species' ranges, to include last remaining population(s) in major river basins.

Third, we examined the overall contribution of populations in low condition and threats to those populations. We considered adjacency and connectivity to high and medium populations, as well as isolated populations with potentially important genetic or adaptive traits, and did not include populations that have potentially low likelihood of recovery due to low abundance and limited distribution or populations currently under high levels of threats.

Sources of data for this proposed critical habitat designation include information from State agencies throughout the species' ranges and numerous survey reports on streams throughout the species' ranges (Service 2020, entire). We have also reviewed available information that pertains to the habitat requirements of these species. Sources of information on habitat requirements include studies conducted at occupied sites and

published in peer-reviewed articles, agency reports, and data collected during monitoring efforts (Service 2020, entire).

In summary, for areas within the geographic area occupied by these species at the time of listing, we delineated critical habitat unit boundaries using a precise set of criteria. Specifically, we identified river and stream reaches with observations from 2000 to present. We determined it is reasonable to find these areas occupied, given the variable data associated with timing and frequency of mussel surveys conducted throughout the species' ranges and available State heritage databases, and information supports the likelihood of both species' continued presence in these areas within this timeframe. Specific habitat areas were delineated, based on Natural Heritage Element Occurrences, published reports, and unpublished survey data provided by States. These areas provide habitat for western fanshell and "Ouachita" fanshell populations and are large enough to be self-sustaining over time, despite fluctuations in local conditions. The areas within the proposed units represent continuous river and stream reaches of free-flowing habitat patches capable of sustaining host fishes and allowing for seasonal transport of glochidia, which are essential for reproduction and dispersal of western fanshell and "Ouachita" fanshell. We consider portions of the following rivers and streams to be occupied by these species at the time of proposed listing, and appropriate for critical habitat designation:

(1) Western fanshell—Black River, Fall River, Middle Fork Little Red River, St. Francis River, South Fork Spring River, Spring River, Strawberry River, and Verdigris River.

(2) "Ouachita" fanshell—Little Missouri River, Ouachita River, and Saline River.

When determining proposed critical habitat boundaries, we made every effort to avoid inclusion of developed areas, such as lands covered by buildings, pavement, and other structures because such lands lack physical or biological features necessary for the western fanshell and "Ouachita" fanshell. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this proposed rule have been excluded by text in the proposed rule and are not proposed for designation as

critical habitat. Therefore, if the critical habitat is finalized as proposed, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

We propose to designate as critical habitat lands that we have determined are occupied at the time of listing (that is, currently occupied) and that contain one or more of the physical or biological features that are essential to support life-history processes of the species.

We are proposing to designate as critical habitat nine units for the western fanshell and four units for the "Ouachita" fanshell based on one or more of the physical or biological features being present to support the western fanshell's or "Ouachita" fanshell's life-history processes. Some units contain all of the identified physical or biological features and support multiple life-history processes. Some units contain only some of the physical or biological features necessary to support the western fanshell's and "Ouachita" fanshell's particular use of that habitat.

The proposed critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document under Proposed Regulation Promulgation. We include more detailed information on the boundaries of the critical habitat designation in the preamble of this document. We will make the coordinates or plot points or both on which each map is based available to the public on <http://www.regulations.gov> at Docket No. FWS-R3-ES-2021-0061 and on our internet sites <https://www.fws.gov/midwest/> for western fanshell and <https://www.fws.gov/southeast/> for "Ouachita" fanshell.

Proposed Critical Habitat Designation

We are proposing to designate approximately 360 river miles (river mi) (579 kilometers (km)) in nine units as critical habitat for western fanshell and approximately 294 river mi (474 km) in four units for "Ouachita" fanshell. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for western fanshell and "Ouachita" fanshell. All units are occupied by their respective species. The nine areas we propose as critical habitat for western fanshell are: (1) Upper Black River, (2) Lower Black/Strawberry River, (3) Fall River, (4)

Middle Fork Little Red River, (5) St. Francis River, (6) South Fork Spring River, (7) Spring River (AR), (8) Spring River (MO/KS), and (9) Verdigris River. The four areas we propose as critical habitat for “Ouachita” fanshell are: (1) Little Missouri River, (2) Ouachita Headwaters, (3) Ouachita River, and (4) Saline River. Tables 2 and 3 show the proposed critical habitat units and the approximate area of each unit.

TABLE 2—PROPOSED CRITICAL HABITAT UNITS FOR WESTERN FANSHELL
[Area estimates reflect all land within critical habitat unit boundaries.]

Critical habitat unit	Adjacent riparian land ownership by type	River miles (kilometers)
WF 1. Upper Black River	Public (Federal, State)	13.7 (22)
	Private	51 (82.1)
WF 2. Lower Black/Strawberry River	Public (State)	10.9 (17.5)
	Private	100.4 (161.6)
WF 3. Fall River	Private	45.5 (73.2)
WF 4. Middle Fork Little Red River	Public (Federal)	3.5 (5.6)
	Private	30.6 (49.2)
WF 5. St. Francis River	Public (Federal, State)	12.6 (20.2)
	Private	36.7 (59.1)
WF 6. South Fork Spring River	Private	13.4 (21.6)
WF 7. Spring River (AR)	Private	14.2 (22.9)
WF 8. Spring River (MO/KS)	Public (State)	1.0 (1.6)
	Private	14.0 (22.5)
WF 9. Verdigris River	Private	12.4 (20)
	Totals	41.7 (67.1)
	Public	318.2 (512.1)
	Private	359.9 (579.2)
	Total	

Note: Area sizes may not sum due to rounding.

TABLE 3—PROPOSED CRITICAL HABITAT UNITS FOR “OUACHITA” FANSHELL
[Area estimates reflect all land within critical habitat unit boundaries.]

Critical habitat unit	Adjacent riparian land ownership by type	River miles (kilometers)
OF 1. Little Missouri River	Private	22.9 (36.9)
	Public (Federal)	2.8 (4.5)
OF 2. Ouachita Headwaters	Private	29.9 (48.1)
	Public (State)	53.5 (86.1)
OF 3. Ouachita River	Private	0.5 (0.8)
OF 4. Saline River	Public (State)	184.8 (297.4)
	Private	
Totals	Public	3.3 (5.3)
	Private	291.1 (468.5)
	Total	294.4 (473.8)

Note: Area sizes may not sum due to rounding.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for the western fanshell or “Ouachita” fanshell, below.

WF 1: Upper Black River

Unit WF 1 consists of 64.7 river mi (104.1 km) of Black River in Butler and Wayne Counties, Missouri, from Clearwater Dam southwest of Piedmont, Wayne County, extending downstream to Butler County Road 658 crossing southeast of Poplar Bluff, Butler County, and includes the river channel up to the ordinary high water mark. Riparian lands that border the unit include approximately 51 river mi (82.1 km; 79 percent) in private ownership and 13.7

river mi (22 km; 21 percent) in public (Federal or State) ownership. Approximately 2.7 miles of the public ownership in this unit are State lands associated with Missouri Department of Conservation’s (MDC) Bradley A. Hammer Memorial Conservation Area, Dan River Access, Hilliard Access, and Stephen J. Sun Conservation Area. Eleven miles are Federal land associated with the U.S. Forest Service’s (USFS) Mark Twain National Forest and U.S. Army Corps of Engineers (USACE) Clearwater Recreation Area. General land use within the adjacent riparian areas of this unit includes forest, agriculture, several State-managed game lands, the town of Mill Spring, and city of Poplar Bluff. Clearwater Dam is

operated by the USACE. Unit WF 1 is occupied by the species and contains all of the physical or biological features essential to the conservation of the species. There is no overlap with any designated critical habitat for other listed species.

Threats identified within the unit include degradation of habitat and water quality from impoundments, channelization, and point and nonpoint source water pollution, including siltation and pollution associated with agriculture, development, and wastewater treatment plants. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and

habitat loss associated with agriculture, development, and wastewater treatment plants (see Special Management Considerations or Protection, above).

WF 2: Lower Black/Strawberry River

Unit WF 2 consists of 111.3 river mi (179.1 km) of Black River and Strawberry River in Independence, Jackson, Lawrence, and Sharp Counties in Arkansas and includes the river channel up to the ordinary high water mark. Black River makes up 54.6 river mi (87.9 km) from the mouth of Spring River northeast of Black Rock, extending downstream to the mouth of Strawberry River northeast of Dowdy, Independence County, Arkansas. Strawberry River makes up 56.7 river mi (91.2 km) from the mouth of Lave Creek north of Evening Shade, Sharp County, extending downstream to the confluence with Black River northeast of Dowdy, Independence County, Arkansas. Riparian lands that border the unit include approximately 100.4 river mi (161.6 km; 90 percent) in private ownership and 10.9 river mi (17.5 km; 10 percent) in public (State) ownership. The public land ownership in this unit is associated with Arkansas Game and Fish Commission's Shirey Bay Rainey Brake Wildlife Management Area on Black River. The Nature Conservancy's Strawberry River Preserve and Ranch on Strawberry River is also in this unit. General land use within this unit includes forest, agriculture, State-managed game lands, the town of Powhatan, and city of Black Rock. Unit WF 2 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is overlap of 70.3 river mi (113.1 km) of this unit with designated critical habitat for rabbitsfoot (*Quadrula cylindrica cylindrica*) (see 50 CFR 17.95(f) and 80 FR 24692, April 30, 2015).

Threats identified within the unit include degradation of habitat and water quality from impoundments, channelization, and point and nonpoint source water pollution, including siltation and pollution associated with agriculture, development, unpaved roads, and wastewater treatment plants. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss associated with agriculture, development, and wastewater treatment plants (see Special Management Considerations or Protection, above).

WF 3: Fall River

Unit WF 3 consists of 45.5 river mi (73.2 km) of Fall River in Greenwood

and Wilson Counties, Kansas, from the Greenwood County Road 33/Merchants Avenue crossing at Fall River, Greenwood County, extending downstream to the U.S. Route 400 crossing west of Neodesha, Wilson County, and includes the river channel up to the ordinary high water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership. General land use within the adjacent riparian areas of this unit includes forest, agriculture, and the city of Fall River. Unit WF 3 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is overlap of 45.5 river mi (73.2 km) of this unit with designated critical habitat for Neosho mucket (*Lampsilis rafinesqueana*) (see 50 CFR 17.95(f) and 80 FR 24692, April 30, 2015).

Threats identified within the unit include degradation of habitat and water quality from impoundments and point and nonpoint source water pollution, including siltation and pollution associated with agriculture, development, unpaved roads, and wastewater treatment plants. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss associated with agriculture, development, and wastewater treatment plants (see Special Management Considerations or Protection, above).

WF 4: Middle Fork Little Red River

Unit WF 4 consists of 34.1 river mi (54.8 km) of Middle Fork Little Red River in Cleburne, Stone, and Van Buren Counties, Arkansas, from the mouth of Linn Creek east of Dennard, Van Buren County, extending downstream to the mouth of Wild Goose Creek north of Fairfield Bay, Cleburne and Van Buren Counties, and includes the river channel up to the ordinary high water mark. Riparian lands that border the unit include approximately 30.6 river mi (49.2 km; 90 percent) in private ownership and 3.5 river mi (5.6 km; 10 percent) in public (Federal) ownership. All of the public land ownership in this unit is Federal land associated with the USACE's Greers Ferry Recreation Area. General land use within the adjacent riparian areas of this unit includes forest, pasture, the town of Shirley, and the city of Fairfield Bay. Unit WF 4 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is overlap of 34.1 river mi (54.9 km) of this unit with designated critical habitat for yellowcheek darter (*Etheostoma moorei*)

(see 50 CFR 17.95(e) and 77 FR 63604, October 16, 2012) and rabbitsfoot (see 50 CFR 17.95(f) and 80 FR 24692, April 30, 2015).

Threats identified within the unit include degradation of habitat and water quality from impoundments and point and nonpoint source water pollution, including siltation and pollution associated with agriculture, development, unpaved roads, and wastewater treatment plants. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss associated with agriculture, development, and wastewater treatment plants (see Special Management Considerations or Protection, above).

WF 5: St. Francis River

Unit WF 5 consists of 49.3 river mi (79.3 km) of St. Francis River in Madison and Wayne Counties, Missouri, extending from the mouth of Wachita Creek west of Fredericktown, Madison County, downstream to the mouth of Big Creek northwest of Silva, Wayne County, and includes the river channel up to the ordinary high water mark. Riparian lands that border the unit include approximately 36.7 river mi (59.1 km; 74 percent) in private ownership and 12.6 river mi (20.2 km; 26 percent) in public (Federal or State) ownership. Approximately 2.4 river mi of the public ownership in this unit are State lands associated with MDC's Coldwater Conservation Area, Mill Stream Gardens, and Roselle Access. Ten miles are Federal land associated with the USFS's Mark Twain National Forest. General land use within the adjacent riparian areas of this unit is predominantly forest and pasture with isolated occurrences of developed areas. Unit WF 5 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is overlap of 49.3 river mi (79.3 km) of this unit with designated critical habitat for rabbitsfoot (see 50 CFR 17.95(f) and 80 FR 24692, April 30, 2015).

Threats identified within the unit include degradation of habitat and water quality from impoundments and point and nonpoint source water pollution, including siltation and pollution associated with development, unpaved roads, and wastewater treatment plants. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss associated with agriculture, development, and wastewater treatment

plants (see Special Management Considerations or Protection, above).

WF 6: South Fork Spring River

Unit WF 6 consists of 13.4 river mi (21.6 km) of South Fork Spring River in Fulton County, Arkansas, from the mouth of Camp Creek east of Salem, Fulton County, extending downstream to the Arkansas Highway 289 crossing northwest of Cherokee Village, Fulton and Sharp Counties, and includes the river channel up to the ordinary high water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership. General land use within the adjacent riparian areas of this unit is predominantly forest, agriculture, and pasture with isolated occurrences of developed areas. Unit WF 6 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is no overlap with any designated critical habitat for other listed species.

Threats identified within the unit include degradation of habitat and water quality from point and nonpoint source water pollution, including siltation and pollution associated with agriculture, development, unpaved roads, and wastewater treatment plants. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss associated with agriculture, development, and wastewater treatment plants (see Special Management Considerations or Protection, above).

WF 7: Spring River (AR)

Unit WF 7 consists of 14.2 river mi (22.9 km) of Spring River in Lawrence and Randolph Counties, Arkansas, from the mouth of Wells Creek at Ravenden, extending downstream to the mouth of Stennitt Creek southeast of Imboden, Lawrence County, and includes the river channel up to the ordinary high water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership. General land use within the adjacent riparian areas of this unit includes forest, agriculture, pasture, and the towns of Imboden and Ravenden. Unit WF 7 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is overlap of 14.2 river mi (22.9 km) of this unit with designated critical habitat for rabbitsfoot (see 50 CFR 17.95(f) and 80 FR 24692, April 30, 2015).

Threats identified within the unit include degradation of habitat and water quality from point and nonpoint source water pollution, including siltation and

pollution associated with agriculture, development, unpaved roads, and wastewater treatment plants. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss associated with agriculture, development, and wastewater treatment plants (see Special Management Considerations or Protection, above).

WF 8: Spring River (MO/KS)

Unit WF 8 consists of 15 river mi (24.1 km) of Spring River in Jasper County, Missouri, and Cherokee County, Kansas, from the mouth of North Fork Spring River east of Asbury, Jasper County, Missouri, extending downstream through Cherokee County, Kansas, to the mouth of Center Creek west of Carl Junction, Jasper County, Missouri, and includes the river channel up to the ordinary high water mark. Riparian lands that border the unit include approximately 14.0 river mi (22.5 km; 94 percent) in private ownership and 1.0 river mi (1.6 km; 6 percent) in public (State) ownership. The public ownership of this unit is State land associated with the Kansas Department of Wildlife, Parks and Tourism's Spring River Wildlife Area. General land use within the adjacent riparian areas of this unit is predominantly forest, agriculture, pasture, and State-managed lands with isolated occurrences of developed areas. Unit WF 8 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is overlap of 15 river mi (24.1 km) of this unit with designated critical habitat for Neosho mucket and rabbitsfoot (see 50 CFR 17.95(f) and 80 FR 24692, April 30, 2015).

Threats identified within the unit include degradation of habitat and water quality from point and nonpoint source water pollution, including siltation and pollution associated with agriculture, development, unpaved roads, wastewater treatment plants, and historical heavy metal mining. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss associated with agriculture, development, wastewater treatment plants, and heavy metal contamination (see Special Management Considerations or Protection, above).

WF 9: Verdigris River

Unit WF 9 consists of 12.4 river mi (20 km) of Verdigris River in Montgomery and Wilson Counties,

Kansas, from the mouth of Fall River south of Neodesha, Wilson County, extending downstream to the mouth of Choteau Creek northeast of Independence, Montgomery County, and includes the river channel up to the ordinary high water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership. General land use within the adjacent riparian areas of this unit is predominantly forest and agriculture with isolated occurrences of developed areas. Unit WF 9 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is overlap of 12.4 river mi (20 km) of this unit with designated critical habitat for Neosho mucket (see 50 CFR 17.95(f) and 80 FR 24692, April 30, 2015).

Threats identified within the unit include degradation of habitat and water quality from point and nonpoint source water pollution, including siltation and pollution associated with agriculture, development, unpaved roads, and wastewater treatment plants. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss associated with agriculture, development, and wastewater treatment plants (see Special Management Considerations or Protection, above).

OF 1: Little Missouri River

Unit OF 1 consists of 22.9 river mi (36.9 km) of Little Missouri River in Clark, Nevada, and Ouachita Counties, Arkansas, from the mouth of Garland Creek northeast of Prescott, Nevada County, downstream to the mouth of Horse Branch north of Red Hill, Ouachita County, and includes the river channel up to the ordinary high water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership. General land use within the adjacent riparian areas of this unit includes forest and agriculture. Unit OF 1 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is no overlap with any designated critical habitat for other listed species.

Threats identified within the unit include dams, impoundments, and point and nonpoint source water pollution, including siltation and pollution associated with a variety of land uses. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss and

fragmentation (see Special Management Considerations or Protection, above).

OF 2: Ouachita Headwaters

Unit OF 2 consists of 32.7 river mi (52.6 km) of Ouachita River in Montgomery and Polk Counties, Arkansas, from the County Road 67 crossing south of Cherry Hill, Polk County, downstream to the U.S. Route 270 crossing southeast of Pencil Bluff, Montgomery County, and includes the river channel up to the ordinary high water mark. Riparian lands that border the unit include approximately 29.9 river mi (48.1 km; 91 percent) in private ownership and 2.8 river mi (4.5 km; 9 percent) in public (Federal) ownership. The public ownership in this unit is Federal land associated with USFS's Ouachita National Forest. General land use within the adjacent riparian areas of this unit includes forest and agriculture. Unit OF 2 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is no overlap with any designated critical habitat for other listed species.

Threats identified within the unit include impoundments and point and nonpoint source water pollution, including siltation and pollution associated with a variety of land uses. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss and fragmentation (see Special Management Considerations or Protection, above).

OF 3: Ouachita River

Unit OF 3 consists of 53.5 river mi (86.1 km) of Ouachita River in Clark, Dallas, and Ouachita Counties, Arkansas, from the mouth of L'Eau Frais Creek southeast of Arkadelphia, Clark County, downstream to the mouth of Ecore Fabre Bayou north of Camden, Ouachita County, and includes the river channel up to the ordinary high water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership. There is a Wetlands Reserve Program easement within the unit. General land use within the adjacent riparian areas of this unit includes forest, agriculture, and pasture. Unit OF 3 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is overlap of 22.8 river mi (36.7 km) of this unit with designated critical habitat for rabbitsfoot (see 50 CFR 17.95(f) and 80 FR 24692, April 30, 2015).

Threats identified within the unit include dams, impoundments, and

point and nonpoint source water pollution, including siltation and pollution associated with a variety of land uses. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss and fragmentation (see Special Management Considerations or Protection, above).

OF 4: Saline River

Unit OF 4 consists of 185.3 river mi (298.2 km) of Saline River in Ashley, Bradley, Cleveland, Dallas, Drew, Grant, and Saline Counties, Arkansas, from the mouth of North Fork Saline River north of Benton, Saline County, downstream to the mouth of Mill Creek north of Stillions, Ashley County, and includes the river channel up to the ordinary high water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership and less than 1 percent is in public ownership. The public ownership in this unit is State-owned land associated with Jenkins Ferry State Park. General land use within the adjacent riparian areas of this unit includes forest, agriculture, pasture, the town of Tull, and the city of Benton. Unit OF 4 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. There is overlap of 185.3 river mi (298.2 km) of this unit with designated critical habitat for the rabbitsfoot (see 50 CFR 17.95(f) and 80 FR 24692, April 30, 2015).

Threats identified within the unit include dams, impoundments, mining, development, and point and nonpoint source water pollution, including siltation and pollution associated with development in the headwaters and a variety of other land uses. Special management considerations or protection measures to reduce or alleviate the threats may include reducing water quality degradation and habitat loss and fragmentation (see Special Management Considerations or Protection, above).

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with

the Service on any agency action that is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

We published a final rule revising the definition of destruction or adverse modification on August 27, 2019 (84 FR 44976). Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat—and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or carried out by a Federal agency—do not require section 7 consultation.

Compliance with the requirements of section 7(a)(2) is documented through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, and are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define "reasonable and prudent alternatives" (at 50 CFR 402.02) as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Service Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 set forth requirements for Federal agencies to reinitiate formal consultation on previously reviewed actions. These requirements apply when the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law) and, subsequent to the previous consultation: (1) If the amount or extent of taking specified in the incidental take statement is exceeded; (2) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action. In such situations, Federal agencies sometimes may need to request reinitiation of consultation with us, but the regulations also specify some exceptions to the requirement to reinitiate consultation on specific land management plans after subsequently listing a new species or designating new critical habitat. See the regulations for a description of those exceptions.

Application of the "Destruction or Adverse Modification" Standard

The key factor related to the destruction or adverse modification determination is whether implementation of the proposed Federal action directly or indirectly alters the designated critical habitat in a way that appreciably diminishes the value of the critical habitat as a whole for the conservation of the listed species. As discussed above, the role of critical habitat is to support physical or biological features essential to the conservation of a listed species and

provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may violate section 7(a)(2) of the Act by destroying or adversely modifying such habitat, or that may be affected by such designation.

Activities that the Service may, during a consultation under section 7(a)(2) of the Act, consider likely to destroy or adversely modify critical habitat include, but are not limited to, actions that would: (1) Alter the geomorphology of the species' stream and river habitats (for example, instream excavation or dredging, impoundment, channelization, sand and gravel mining, clearing riparian vegetation, and discharge of fill materials); (2) significantly alter the existing flow regime where these species occur (for example, impoundment, urban development, water diversion, water withdrawal, water draw-down, and hydropower generation); (3) significantly alter water chemistry or water quality (for example, hydropower discharges, or the release of chemicals, biological pollutants, or heated effluents into surface water or connected groundwater at a point source or by dispersed release (nonpoint source)); and (4) significantly alter stream bed material composition and quality by increasing sediment deposition or filamentous algal growth (for example, construction projects, gravel and sand mining, oil and gas development, coal mining, livestock grazing, irresponsible logging practices, and other watershed and floodplain disturbances that release sediments or nutrients into the water).

Exemptions

Application of Section 4(a)(3) of the Act

Section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that the Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense (DoD), or designated for its use, that are subject to an integrated natural resources management plan (INRMP) prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation. No DoD lands with a completed INRMP are within the proposed critical habitat designation.

Consideration of Impacts Under Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from designated critical habitat based on economic impacts, impacts on national security, or any other relevant impacts. In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise discretion to exclude the area only if such exclusion would not result in the extinction of the species. In making the determination to exclude a particular area, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

We describe below the process that we undertook for taking into consideration each category of impacts and our analyses of the relevant impacts.

Consideration of Economic Impacts

Section 4(b)(2) of the Act and its implementing regulations require that we consider the economic impact that may result from a designation of critical habitat. To assess the probable economic impacts of a designation, we must first evaluate specific land uses or activities and projects that may occur in the area of the critical habitat. We then must evaluate the impacts that a specific critical habitat designation may have on restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the areas proposed. We then identify which conservation efforts may be the result of the species being listed under the Act versus those attributed solely to the designation of critical habitat for this particular species. The probable economic impact of a proposed critical habitat designation is analyzed by comparing scenarios both "with critical habitat" and "without critical habitat."

The "without critical habitat" scenario represents the baseline for the analysis, which includes the existing

regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat (for example, under the Federal listing as well as other Federal, State, and local regulations). Therefore, the baseline represents the costs of all efforts attributable to the listing of the species under the Act (that is, conservation of the species and its habitat incurred regardless of whether critical habitat is designated). The “with critical habitat” scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts would not be expected without the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat, above and beyond the baseline costs. These are the costs we use when evaluating the benefits of inclusion and exclusion of particular areas from the final designation of critical habitat should we choose to conduct a discretionary 4(b)(2) exclusion analysis.

For this particular designation, we developed an incremental effects memorandum (IEM) considering the probable incremental economic impacts that may result from this proposed designation of critical habitat. The information contained in our IEM was then used to develop a screening analysis of the probable effects of the designation of critical habitat for the western fanshell and “Ouachita” fanshell (Industrial Economics, Inc. 2021, entire). We began by conducting a screening analysis of the proposed designation of critical habitat in order to focus our analysis on the key factors that are likely to result in incremental economic impacts. The purpose of the screening analysis is to filter out particular geographic areas of critical habitat that are already subject to such protections and are, therefore, unlikely to incur incremental economic impacts. In particular, the screening analysis considers baseline costs (that is, absent critical habitat designation) and includes any probable incremental economic impacts where land and water use may already be subject to conservation plans, land management plans, best management practices, or regulations that protect the habitat area as a result of the Federal listing status of the species. Ultimately, the screening analysis allows us to focus our analysis on evaluating the specific areas or sectors that may incur probable incremental economic impacts as a

result of the designation. If the proposed critical habitat designation contains any unoccupied units, the screening analysis assesses whether those units require additional management or conservation efforts that may incur incremental economic impacts. This screening analysis combined with the information contained in our IEM constitute what we consider to be our draft economic analysis (DEA) of the proposed critical habitat designations for the western fanshell and “Ouachita” fanshell; our DEA is summarized in the narrative below.

Executive Orders (E.O.s) 12866 and 13563 direct Federal agencies to assess the costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consistent with the E.O. regulatory analysis requirements, our effects analysis under the Act may take into consideration impacts to both directly and indirectly affected entities, where practicable and reasonable. If sufficient data are available, we assess to the extent practicable the probable impacts to both directly and indirectly affected entities. As part of our screening analysis, we considered the types of economic activities that are likely to occur within the areas likely affected by the critical habitat designation. In our evaluation of the probable incremental economic impacts that may result from the proposed designation of critical habitat for the western fanshell and “Ouachita” fanshell, first we identified, in the IEM dated February 1, 2021, probable incremental economic impacts associated with the following categories of activities: Instream excavation or dredging; impoundments; channelization; sand and gravel mining; clearing riparian vegetation; discharge of fill materials; urban development; water diversion; water withdrawal; water draw-down; hydropower generation and discharges; release of chemicals, biological pollutants, or heated effluents into surface water or connected ground water at a point source or by dispersed release (nonpoint); construction projects; oil and gas development; coal mining; livestock grazing; timber harvest; and other watershed or floodplain disturbances that release sediments or nutrients into the water. We considered each industry or category individually. Additionally, we considered whether their activities have any Federal involvement. Critical habitat designation generally will not affect activities that do not have any Federal involvement; under the Act, designation

of critical habitat affects only activities conducted, funded, permitted, or authorized by Federal agencies. If we list these species, in areas where the western fanshell or “Ouachita” fanshell are present, Federal agencies would be required to consult with the Service under section 7 of the Act on activities they fund, permit, or implement that may affect the species. If, when we list these species, we also finalize this proposed critical habitat designation, consultations would include an evaluation of measures to avoid the destruction or adverse modification of critical habitat.

In our IEM, we attempted to clarify the distinction between the effects that would result from the species being listed and those attributable to the critical habitat designation (that is, difference between the jeopardy and adverse modification standards) for the western fanshell’s and “Ouachita” fanshell’s critical habitat. Because the designation of critical habitat for western fanshell and “Ouachita” fanshell is proposed concurrently with the listing, it has been our experience that it is more difficult to discern which conservation efforts are attributable to the species being listed and those which would result solely from the designation of critical habitat. However, the following specific circumstances in this case help to inform our evaluation: (1) The essential physical or biological features identified for critical habitat are the same features essential for the life requisites of the species, and (2) any actions that would result in sufficient harm or harassment to constitute jeopardy to the western fanshell or “Ouachita” fanshell would also likely adversely affect the essential physical or biological features of critical habitat. The IEM outlines our rationale concerning this limited distinction between baseline conservation efforts and incremental impacts of the designation of critical habitat for this species. This evaluation of the incremental effects has been used as the basis to evaluate the probable incremental economic impacts of this proposed designation of critical habitat.

The proposed critical habitat designation for the western fanshell includes nine units, all of which are occupied by the species. Ownership of riparian lands adjacent to the proposed units includes 318.2 river mi (512.1 km; 88 percent) in private ownership and 41.7 river mi (67.1 km; 12 percent) in public (Federal or State) ownership. The proposed critical habitat designation for the “Ouachita” fanshell includes four units, all of which are occupied by the species. Ownership of riparian lands

adjacent to the proposed units includes 291.1 river mi (468.5 km; 99 percent) in private ownership and 3.3 river mi (5.3 km; 1 percent) in public (Federal or State) ownership.

Total incremental costs of critical habitat designation for the western fanshell and “Ouachita” fanshell are not expected to exceed \$79,000 (2021 dollars) per year. The costs are reflective of: (1) All proposed units are considered occupied, (2) project modifications requested to avoid adverse modification are likely to be the same as those recommended to avoid jeopardy in occupied habitat for these species, and (3) the proposed designations receive baseline protection from the presence of critical habitat for co-occurring listed mussel species with similar habitat needs in 60 percent of the proposed western fanshell critical habitat and in 71 percent of the proposed “Ouachita” fanshell critical habitat. Because consultation would be required as a result of the listing of the western fanshell and “Ouachita” fanshell and is already required in some of these areas as a result of the presence of other listed species and critical habitats, the economic costs of the critical habitat designation would likely be primarily limited to additional administrative efforts to consider adverse modification for these two species in section 7 consultations.

Based on the consultation history regarding historical projects and activities overlapping the proposed critical habitat area for the western fanshell, the number of future consultations, including technical assistance efforts, is likely to be no more than 23 per year across all nine units. Based on the consultation history regarding historical projects and activities overlapping the proposed critical habitat area for the “Ouachita” fanshell, the number of future consultations, including technical assistance efforts, is likely to be no more than 15 per year across all four units. Overall, transportation and utilities activities are expected to result in the largest portion of consultations for both the western and “Ouachita” fanshells and, therefore, incur the highest costs. The geographic distribution of future section 7 consultations and associated costs are likely to be most heavily concentrated in western fanshell proposed Unit 2 and “Ouachita” fanshell proposed Unit 4. However, even assuming consultation activity increases substantially, incremental administrative costs are still likely to remain well under \$100 million per year.

We are soliciting data and comments from the public on the DEA discussed above, as well as on all aspects of this proposed rule and our required determinations. During the development of a final designation, we will consider the information presented in the DEA and any additional information on economic impacts we receive during the public comment period to determine whether any specific areas should be excluded from the final critical habitat designation under authority of section 4(b)(2) and our implementing regulations at 50 CFR 17.90. If we receive credible information regarding the existence of a meaningful economic or other relevant impact supporting a benefit of exclusion, we will conduct an exclusion analysis for the relevant area or areas. We may also exercise the discretion to evaluate any other particular areas for possible exclusion. Furthermore, when we conduct an exclusion analysis based on impacts identified by experts in, or sources with firsthand knowledge about, impacts that are outside the scope of the Service’s expertise, we will give weight to those impacts consistent with the expert or firsthand information unless we have rebutting information. We may exclude an area from critical habitat if we determine that the benefits of excluding the area outweigh the benefits of including the area, provided the exclusion will not result in the extinction of either species.

Consideration of National Security Impacts

Section 4(a)(3)(B)(i) of the Act may not cover all DoD lands or areas that pose potential national-security concerns (for example, a DoD installation that is in the process of revising its INRMP for a newly listed species or a species previously not covered). If a particular area is not covered under section 4(a)(3)(B)(i), then national-security or homeland-security concerns are not a factor in the process of determining what areas meet the definition of “critical habitat.” However, the Service must still consider impacts on national security, including homeland security, on those lands or areas not covered by section 4(a)(3)(B)(i), because section 4(b)(2) requires the Service to consider those impacts whenever it designates critical habitat. Accordingly, if DoD, Department of Homeland Security (DHS), or another Federal agency has requested exclusion based on an assertion of national-security or homeland-security concerns, or we have otherwise identified national-security or homeland-security impacts from

designating particular areas as critical habitat, we generally have reason to consider excluding those areas.

However, we cannot automatically exclude requested areas. When DoD, DHS, or another Federal agency requests exclusion from critical habitat on the basis of national-security or homeland-security impacts, we must conduct an exclusion analysis if the Federal requester provides credible information, including a reasonably specific justification of an incremental impact on national security that would result from the designation of that specific area as critical habitat. That justification could include demonstration of probable impacts, such as impacts to ongoing border-security patrols and surveillance activities, or a delay in training or facility construction, as a result of compliance with section 7(a)(2) of the Act. If the agency requesting the exclusion does not provide us with a reasonably specific justification, we will contact the agency to recommend that it provide a specific justification or clarification of its concerns relative to the probable incremental impact that could result from the designation. If we conduct an exclusion analysis because the agency provides a reasonably specific justification or because we decide to exercise the discretion to conduct an exclusion analysis, we will defer to the expert judgment of DoD, DHS, or another Federal agency as to: (1) Whether activities on its lands or waters, or its activities on other lands or waters, have national-security or homeland-security implications; (2) the importance of those implications; and (3) the degree to which the cited implications would be adversely affected in the absence of an exclusion. In that circumstance, in conducting a discretionary section 4(b)(2) exclusion analysis, we will give great weight to national-security and homeland-security concerns in analyzing the benefits of exclusion.

Under section 4(b)(2) of the Act, we also consider whether a national-security or homeland-security impact might exist on lands not owned or managed by DoD or DHS. In preparing this proposal, we have determined that the lands within the proposed designation of critical habitat for western fanshell and “Ouachita” fanshell are not owned or managed by the DoD or DHS. Therefore, we anticipate no impact on national security. However, if through the public comment period we receive credible information regarding impacts on national security or homeland security from designating particular areas as critical habitat, then as part of

developing the final designation of critical habitat, we will conduct a discretionary exclusion analysis to determine whether to exclude those areas under authority of section 4(b)(2) and our implementing regulations at 50 CFR 17.90.

Consideration of Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security discussed above. Other relevant impacts may include, but are not limited to, impacts to Tribes, States, local governments, public health and safety, community interests, the environment (such as increased risk of wildfire or pest and invasive species management), Federal lands, and conservation plans, agreements, or partnerships. To identify other relevant impacts that may affect the exclusion analysis, we consider a number of factors, including whether there are permitted conservation plans covering the species in the area—such as HCPs, safe harbor agreements (SHAs), or candidate conservation agreements with assurances (CCAAs)—or whether there are non-permitted conservation agreements and partnerships that may be impaired by designation of, or exclusion from, critical habitat. In addition, we look at whether Tribal conservation plans or partnerships, Tribal resources, or government-to-government relationships of the United States with Tribal entities may be affected by the designation. We also consider any State, local, public-health, community-interest, environmental, or social impacts that might occur because of the designation.

We have not identified any areas to consider for exclusion from critical habitat based on other relevant impacts. However, during the development of a final designation, we will consider all information currently available or received during the public comment period. If we receive credible information regarding the existence of a meaningful impact supporting a benefit of excluding any areas, we will undertake an exclusion analysis and determine whether those areas should be excluded from the final critical habitat designation under the authority of section 4(b)(2) and our implementing regulations at 50 CFR 17.90. We may also exercise the discretion to undertake exclusion analyses for other areas as well, and we will describe all of our exclusion analyses as part of a final critical habitat determination.

Summary of Exclusions Considered Under 4(b)(2) of the Act

At this time, we are not considering any exclusions from the proposed designation based on economic impacts, national security impacts, or other relevant impacts—such as partnerships, management, or protection afforded by cooperative management efforts—under section 4(b)(2) of the Act. In preparing this proposal, we have determined that no HCPs or other management plans for western fanshell or “Ouachita” fanshell currently exist, and the proposed designation does not include any Tribal lands or trust resources. Therefore, we anticipate no impact on Tribal lands, partnerships, or HCPs from this proposed critical habitat designation and thus, as described above, we are not considering excluding any particular areas on the basis of the presence of conservation agreements or impacts to trust resources.

During the development of a final designation, we will consider any additional information received through the public comment period regarding other relevant impacts to determine whether any specific areas should be excluded from the final critical habitat designation under authority of section 4(b)(2) and our implementing regulations at 50 CFR 17.90.

Required Determinations

Clarity of the 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:

- (1) Be logically organized;
- (2) Use the active voice to address readers directly;
- (3) Use clear language rather than jargon;
- (4) Be divided into short sections and sentences; and
- (5) 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 **ADDRESSES**. 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.

Regulatory Planning and Review (Executive Orders 12866 and 13563)

Executive Order 12866 provides that the Office of Information and Regulatory

Affairs (OIRA) in the Office of Management and Budget will review all significant rules. OIRA has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation’s regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this proposed rule in a manner consistent with these requirements.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (that is, small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than \$5 million in annual sales, general and heavy construction businesses with less

than \$27.5 million in annual business, special trade contractors doing less than \$11.5 million in annual business, and agricultural businesses with annual sales less than \$750,000. To determine whether potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term “significant economic impact” is meant to apply to a typical small business firm’s business operations.

Under the RFA, as amended, and as understood in light of recent court decisions, Federal agencies are required to evaluate the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself; in other words, the RFA does not require agencies to evaluate the potential impacts to indirectly regulated entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried out by the agency is not likely to destroy or adversely modify critical habitat. Therefore, under section 7, only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Consequently, it is our position that only Federal action agencies would be directly regulated if we adopt the proposed critical habitat designations. The RFA does not require evaluation of the potential impacts to entities not directly regulated. Moreover, Federal agencies are not small entities. Therefore, because no small entities would be directly regulated by this rulemaking, the Service certifies that, if made final as proposed, the proposed critical habitat designations will not have a significant economic impact on a substantial number of small entities.

In summary, we have considered whether the proposed designations would result in a significant economic impact on a substantial number of small entities. For the above reasons and based on currently available information, we certify that, if made final, the proposed critical habitat designations would not have a significant economic impact on a substantial number of small business entities. Therefore, an initial regulatory flexibility analysis is not required.

Energy Supply, Distribution, or Use—Executive Order 13211

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. Facilities that provide energy supply, distribution, or use occur within some units of the proposed critical habitat designations (for example, dams, pipelines) and may potentially be affected. We determined that consultations, technical assistance, and requests for species lists may be necessary in some instances. In our economic analysis, we did not find that this proposed critical habitat designation would significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.), we make the following finding:

(1) This proposed rule would not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or Tribal governments, or the private sector, and includes both “Federal intergovernmental mandates” and “Federal private sector mandates.” These terms are defined in 2 U.S.C. 658(5)–(7). “Federal intergovernmental mandate” includes a regulation that “would impose an enforceable duty upon State, local, or Tribal governments” with two exceptions. It excludes “a condition of Federal assistance.” It also excludes “a duty arising from participation in a voluntary Federal program,” unless the regulation “relates to a then-existing Federal program under which \$500,000,000 or more is provided annually to State, local, and Tribal governments under entitlement authority,” if the provision would “increase the stringency of conditions of assistance” or “place caps upon, or otherwise decrease, the Federal Government’s responsibility to provide funding,” and the State, local, or Tribal governments “lack authority” to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent

Living; Family Support Welfare Services; and Child Support Enforcement. “Federal private sector mandate” includes a regulation that “would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.”

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments because it will not produce a Federal mandate of \$100 million or greater in any year, that is, it is not a “significant regulatory action” under the Unfunded Mandates Reform Act. The designation of critical habitat imposes no obligations on State or local governments and, as such, a Small Government Agency Plan is not required.

Takings—Executive Order 12630

In accordance with E.O. 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for western fanshell and “Ouachita” fanshell in a takings implications assessment. The Act does not authorize the Service to regulate private actions on private lands or confiscate private property as a result of critical habitat designation. Designation of critical habitat does not affect land ownership, or establish any closures, or restrictions on use of or access to the designated areas. Furthermore, the designation of critical habitat does not affect landowner actions that do not require Federal

funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. However, Federal agencies are prohibited from carrying out, funding, or authorizing actions that would destroy or adversely modify critical habitat. A takings implications assessment has been completed for the proposed designation of critical habitat for western fanshell and “Ouachita” fanshell, and it concludes that, if adopted, these designations of critical habitat would not pose significant takings implications for lands within or affected by the designations.

Federalism—Executive Order 13132

In accordance with E.O. 13132 (Federalism), this proposed rule does not have significant Federalism effects. A federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of these proposed critical habitat designations with, appropriate State resource agencies. From a federalism perspective, the designation of critical habitat directly affects only the responsibilities of Federal agencies. The Act imposes no other duties with respect to critical habitat, either for States and local governments, or for anyone else. As a result, the proposed rule does not have substantial direct effects either on the States, or on the relationship between the national government and the States, or on the distribution of powers and responsibilities among the various levels of government. The proposed designations may have some benefit to these governments because the areas that contain the features essential to the conservation of the species are more clearly defined, and the physical or biological features of the habitat necessary for the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist State and local governments in long-range planning because they no longer have to wait for case-by-case section 7 consultations to occur.

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) of the Act would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal

agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform—Executive Order 12988

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule would not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, this proposed rule identifies the physical or biological features essential to the conservation of the species. The proposed areas of designated critical habitat are presented on maps, and the proposed rule provides several options for the interested public to obtain more detailed location information, if desired.

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

This rule does not contain information collection requirements, and a submission to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.) is not required. We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) in connection with regulations adopted pursuant to 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). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)). However, when the range of the species includes States within the Tenth Circuit, such as that of the western fanshell, under the Tenth Circuit ruling in *Catron County Board of Commissioners v. U.S. Fish and Wildlife Service*, 75 F.3d 1429 (10th Cir. 1996), we undertake a NEPA analysis for

critical habitat designation. We invite the public to comment on the extent to which this proposed regulation may have a significant impact on the human environment, or fall within one of the categorical exclusions for actions that have no individual or cumulative effect on the quality of the human environment. We will complete our analysis, in compliance with NEPA, before finalizing this proposed rule.

Government-to-Government Relationship With Tribes

In accordance with the President’s memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior’s manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. We have determined that no Tribal lands fall within the boundaries of the proposed critical habitat for the western fanshell and “Ouachita” fanshell, so no Tribal lands would be affected by the proposed designation.

References Cited

A complete list of references cited in this rulemaking is available on the internet at <http://www.regulations.gov> and upon request from the Missouri Ecological Services Field Office for western fanshell and the Arkansas Ecological Services Field Office for “Ouachita” fanshell (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposed rule are the staff members of the Fish and Wildlife Service’s Species Assessment Team and the Missouri and Arkansas Ecological Services Field Offices.

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 set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

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

Authority: 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245, unless otherwise noted.

■ 2. Amend § 17.11(h) by adding entries for “Fanshell, ‘Ouachita’” and

“Fanshell, western” to the List of Endangered and Threatened Wildlife in alphabetical order under CLAMS to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *
(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
* CLAMS	*	*	*	*
Fanshell, “Ouachita”	<i>Cyprogenia cf. aberti</i>	Wherever found	T	[Federal Register citation when published as a final rule]; 50 CFR 17.45(e); ^{4d} 50 CFR 17.95(f). ^{CH}
Fanshell, western	<i>Cyprogenia aberti</i>	Wherever found	T	[Federal Register citation when published as a final rule]; 50 CFR 17.45(e); ^{4d} 50 CFR 17.95(f). ^{CH}
*	*	*	*	*

■ 3. Add § 17.45 to read as follows:

§ 17.45 Special rules—snails and clams.

(a)–(d) [Reserved]

(e) “Ouachita” fanshell (*Cyprogenia cf. aberti*) and western fanshell (*Cyprogenia aberti*).

(1) *Prohibitions.* The following prohibitions that apply to endangered wildlife also apply to the “Ouachita” fanshell and western fanshell. Except as provided under paragraph (e)(2) of this section and §§ 17.4 and 17.5, it is unlawful for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit, or cause to be committed, any of the following acts in regard to this species:

(i) Import or export, as set forth at § 17.21(b) for endangered wildlife.

(ii) Take, as set forth at § 17.21(c)(1) for endangered wildlife.

(iii) Possession and other acts with unlawfully taken specimens, as set forth at § 17.21(d)(1) for endangered wildlife.

(iv) Interstate or foreign commerce in the course of commercial activity, as set forth at § 17.21(e) for endangered wildlife.

(v) Sale or offer for sale, as set forth at § 17.21(f) for endangered wildlife.

(2) *Exceptions from prohibitions.* In regard to this species, you may:

(i) Conduct activities as authorized by a permit under § 17.32.

(ii) Take, as set forth at § 17.21(c)(2) through (c)(4) for endangered wildlife.

(iii) Take, as set forth at § 17.31(b).

(iv) Take incidental to an otherwise lawful activity caused by:

(A) Channel and bank restoration projects for creation of natural, physically stable, ecologically functioning streams, taking into consideration connectivity with floodplain and groundwater aquifers. These projects can be accomplished using a variety of methods, but the desired outcome is a natural channel with low shear stress (force of water moving against the channel); bank heights that enable reconnection to the floodplain; connection of surface and groundwater systems, resulting in perennial flows in the channel; riffles and pools comprised of existing soil, rock, and wood instead of large imported materials; low compaction of soils within adjacent riparian areas; and inclusion of riparian wetlands. For bank stabilization projects that use bioengineering methods to replace preexisting, bare, eroding stream banks with vegetated, stable stream banks, thereby reducing bank erosion and instream sedimentation and improving habitat conditions for the species, stream banks may be stabilized using native species live stakes (live, vegetative cuttings inserted or tamped into the ground in a manner that allows the stake to take root and grow), native species live fascines (live branch cuttings, usually willows, bound together into long, cigar-shaped bundles), or native species brush layering (cuttings or branches of easily rooted tree species layered between successive lifts of soil fill). Bank restoration projects require planting appropriate native vegetation, including

woody species appropriate for the region and habitat. These projects will not include the sole use of quarried rock (rip-rap) or the use of rock baskets or gabion structures. To qualify under this exception, restoration projects must include the following:

(1) Surveys to determine presence of “Ouachita” fanshell and western fanshell prior to the commencement of restoration actions;

(2) If either mussel is present, coordination with the Service’s local Ecological Services field office for relocation of “Ouachita” fanshell and western fanshell mussels to suitable habitat outside of the project footprint prior to project implementation; and

(3) If relocation of mussels occurs, monitoring of relocated mussels post-implementation of restoration activities.

(B) Silviculture practices and forest management activities that use State-approved best management practices to protect water and sediment quality and stream and riparian habitat.

(C) Transportation projects that avoid or do not include instream disturbance in waters occupied by the species.

(v) Possess and engage in other acts with unlawfully taken wildlife, as set forth at § 17.21(d)(2) for endangered wildlife.

■ 4. Amend § 17.95(f) by adding entries for “‘Ouachita’ Fanshell (*Cyprogenia cf. aberti*)” and “Western Fanshell (*Cyprogenia aberti*)” immediately following the entry for “Appalachian Elktoe (*Alasmidonta raveneliana*)”, to read as follows:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(f) *Clams and Snails.*

* * * * *

“Ouachita” Fanshell (*Cyprogenia cf. aberti*)

(1) Critical habitat units are depicted for Ashley, Bradley, Clark, Cleveland, Dallas, Drew, Grant, Montgomery, Nevada, Ouachita, Polk, and Saline Counties, Arkansas, on the maps in this entry.

(2) Within these areas, the physical or biological features essential to the conservation of “Ouachita” fanshell consist of the following components:

(i) Adequate flows, or a hydrologic flow regime (magnitude, timing, frequency, duration, rate of change, and overall seasonality of discharge over time), necessary to maintain benthic habitats where the species is found and to maintain stream connectivity, specifically providing for the exchange of nutrients and sediment for maintenance of the mussel’s and fish hosts’ habitat and food availability, maintenance of spawning habitat for native host fishes, and the ability for newly transformed juveniles to settle and become established in their habitats. Adequate flows ensure delivery of oxygen, enable reproduction, deliver food to filter-feeding mussels, and reduce contaminants and fine sediments from interstitial spaces.

(ii) Suitable substrates and connected instream habitats, characterized by geomorphically stable stream channels and banks (that is, channels that

maintain lateral dimensions, longitudinal profiles, and sinuosity patterns over time without an aggrading or degrading bed elevation) with habitats that support a diversity of freshwater mussel and native fish (such as stable riffle-run-pool habitats that provide flow refuges consisting of silt-free gravel and coarse sand substrates).

(iii) Water and sediment quality necessary to sustain natural physiological processes for normal behavior, growth, and viability of all life stages, including, but not limited to: Dissolved oxygen (generally above 3 parts per million (ppm)) and water temperature (generally below 80 degrees Fahrenheit (°F) (27 degrees Celsius (°C))). Additionally, water and sediment should be low in ammonia (generally below 1.0 ppm total ammonia-nitrogen) and heavy metals, and lack excessive total suspended solids and other pollutants.

(iv) The presence and abundance of fish hosts necessary for recruitment of the “Ouachita” fanshell, including logperch (*Percina caprodes*), slenderhead darter (*Percina phoxocephala*), or orangebelly darter (*Etheostoma radiosum*).

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of the rule.

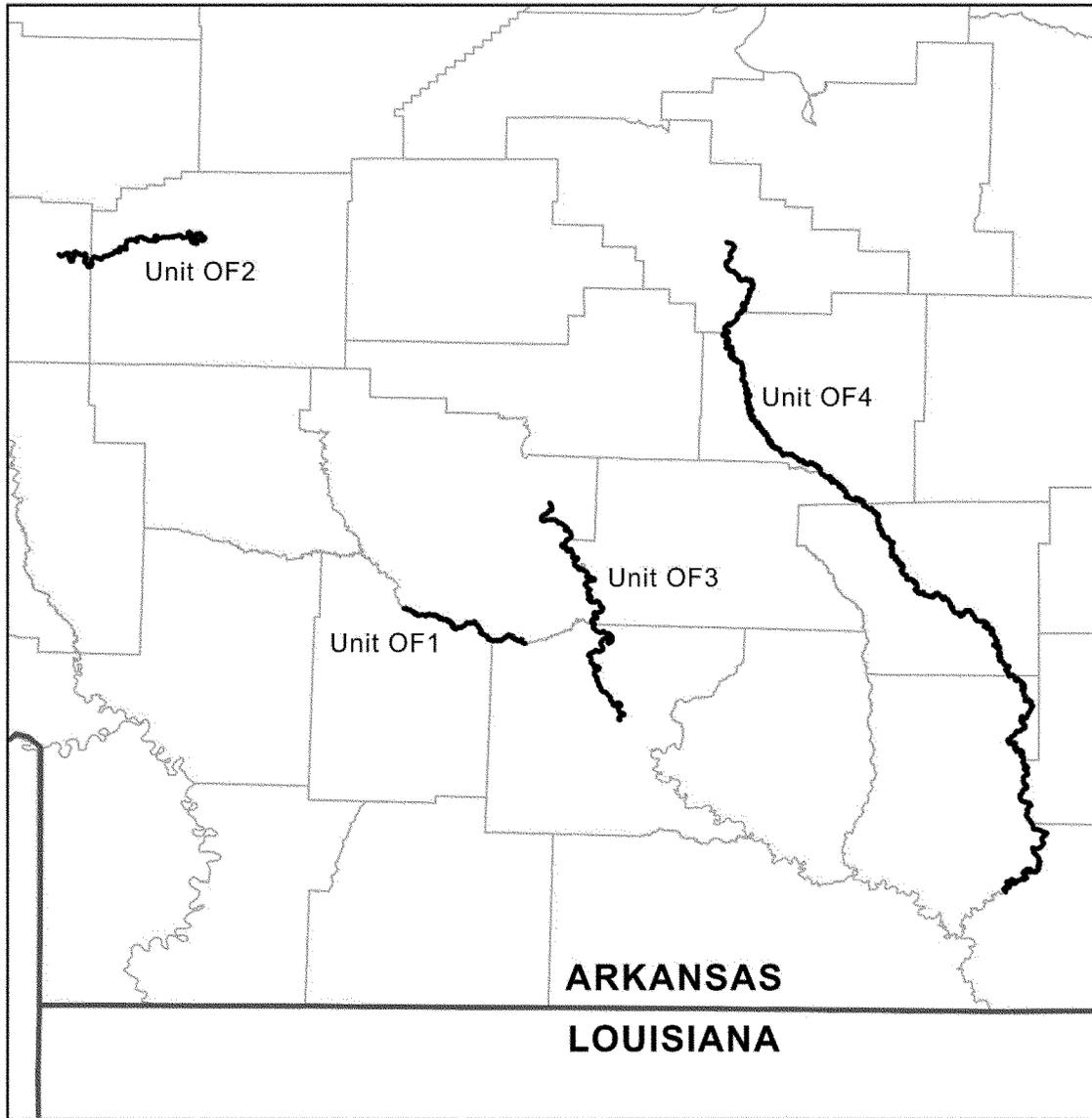
(4) Data layers defining map units were created by overlaying Natural Heritage Element Occurrence data and

U.S. Geological Survey hydrologic data for stream reaches using ESRI ArcGIS mapping software. Critical habitat unit upstream and downstream limits were delineated at the nearest road crossing or stream confluence of each occupied reach. Data layers defining map units were created with U.S. Geological Survey National Hydrography Dataset (NHD) Medium Flowline data. ArcGIS was also used to calculate river kilometers and river miles from the NHD dataset, and it was used to determine longitude and latitude coordinates in decimal degrees. The projection used in mapping and calculating distances and locations within the units was EPSG:4269–NAD83 Geographic. Natural Heritage program and State mussel database species presence data from Arkansas were used to select specific river and stream segments for inclusion in the critical habitat layer. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service’s internet site at <https://www.fws.gov/southeast/>, at <http://www.regulations.gov> at Docket No. FWS–R3–ES–2021–0061, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

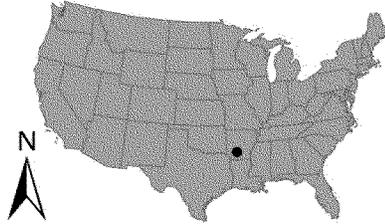
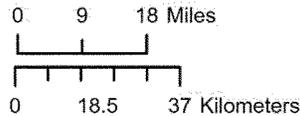
(5) *Note:* Index map follows:

BILLING CODE 4333–15–P

Index Map: "Ouachita" Fanshell Critical Habitat Units



— Critical Habitat
 — State Boundaries



(6) *Unit OF 1*: Little Missouri River; Clark, Nevada, and Ouachita Counties, Arkansas.

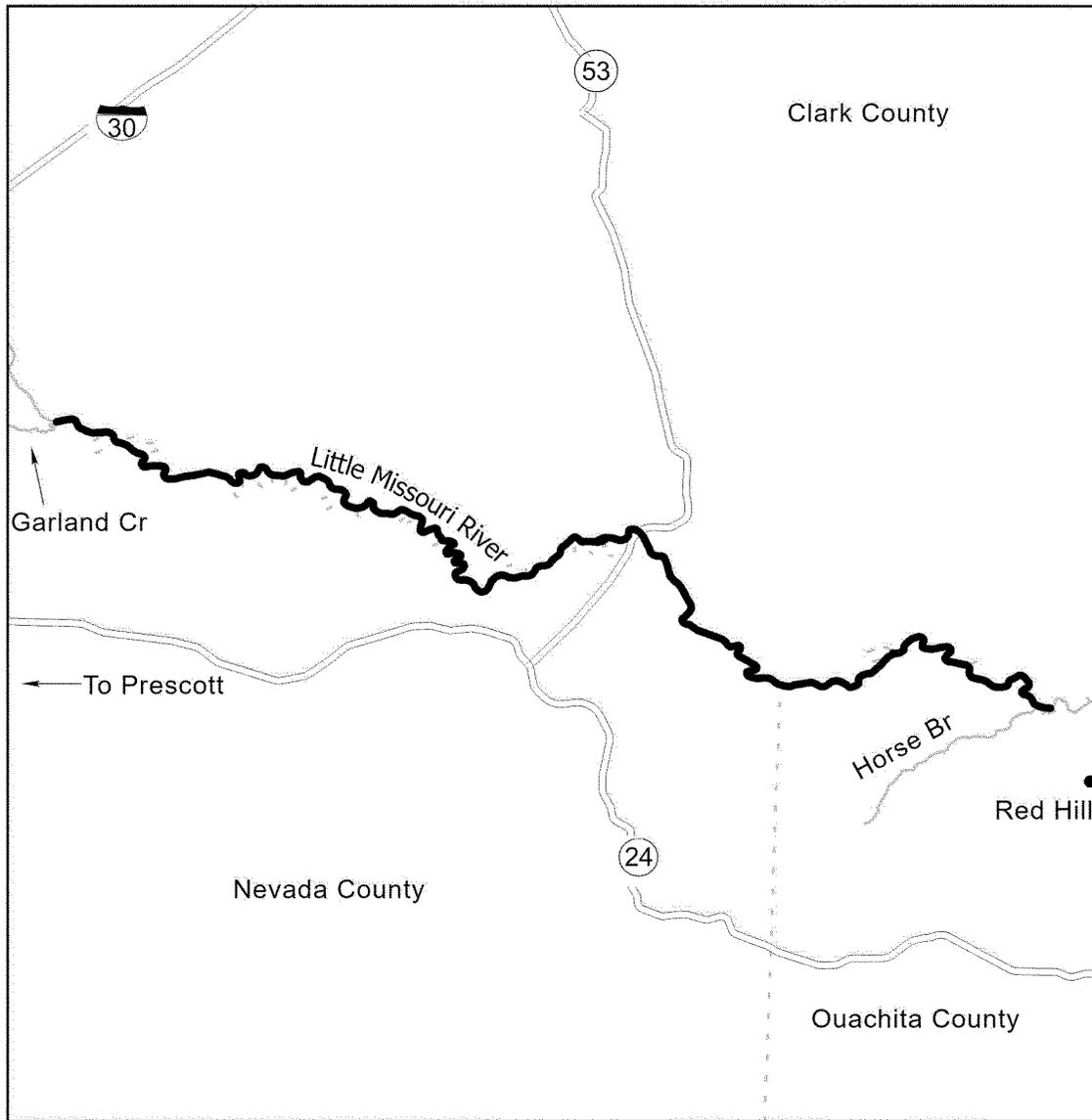
(i) Unit OF 1 consists of 22.9 river miles (mi) (36.9 kilometers (km)) of Little Missouri River in Clark, Nevada,

and Ouachita Counties, Arkansas, from the mouth of Garland Creek northeast of Prescott, Nevada County, downstream to the mouth of Horse Branch north of Red Hill, Ouachita County, and includes the river channel up to the ordinary high

water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership.

(ii) Map of Unit OF 1 follows:

Critical Habitat for "Ouachita" Fanshell
 OF1 Little Missouri River; Clark, Nevada, and Ouachita Counties, Arkansas



- Critical Habitat
- Major Road
- County Boundary
- State Boundary
- River
- Waterbody

N

 1 inch = 5 Kilometers
 1 inch = 3 miles



(7) Unit OF 2: Ouachita Headwaters; Montgomery and Polk Counties, Arkansas.

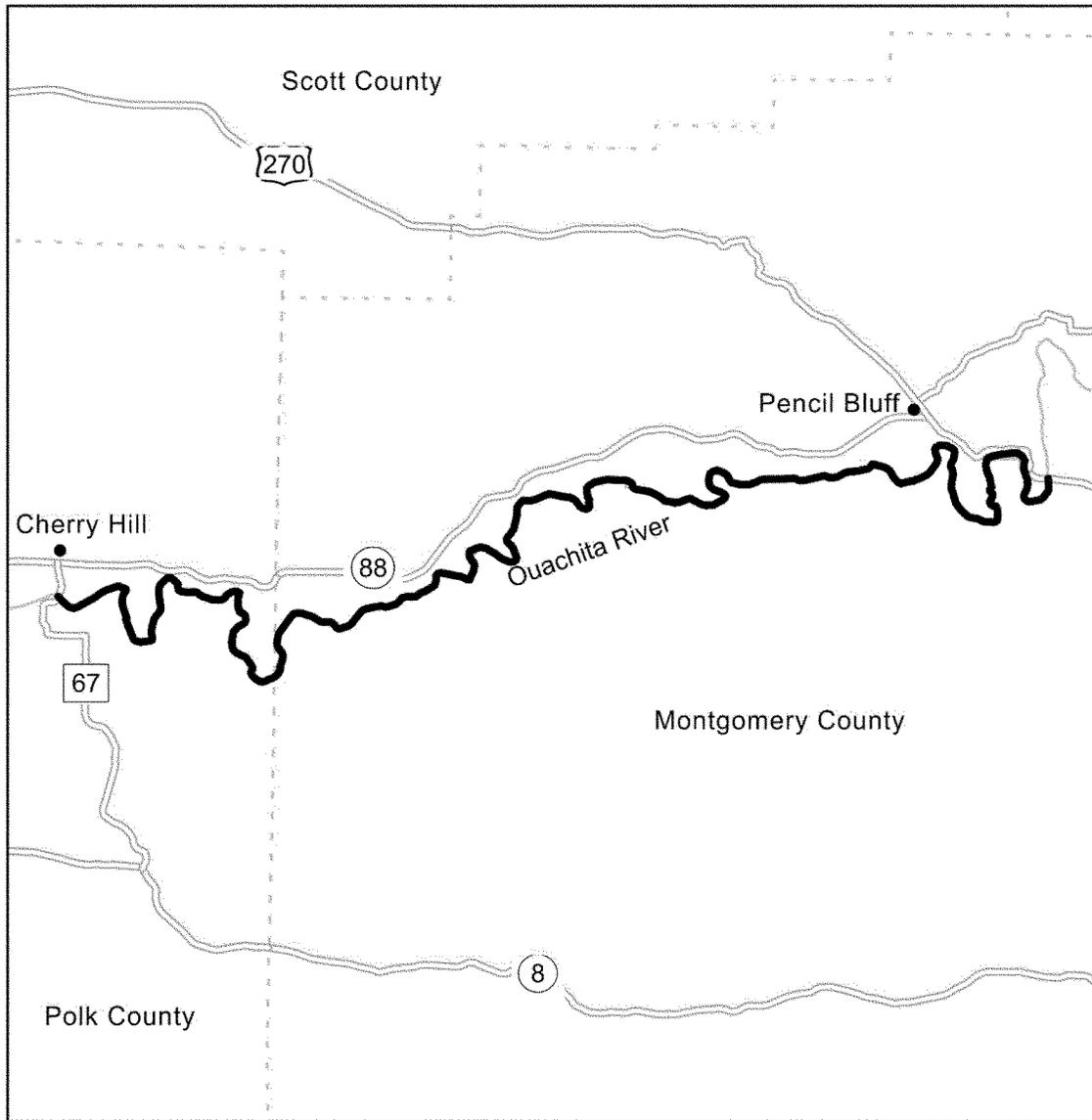
(i) Unit OF 2 consists of 32.7 river mi (52.6 km) of Ouachita River in Montgomery and Polk Counties, Arkansas, from the County Road 67 crossing south of Cherry Hill, Polk

County, downstream to the U.S. Route 270 crossing southeast of Pencil Bluff, Montgomery County, and includes the river channel up to the ordinary high water mark. Riparian lands that border the unit include approximately 29.9 river mi (48.1 km; 91 percent) in private ownership and 2.8 river mi (4.5 km; 9

percent) in public (Federal) ownership. The public ownership in this unit is Federal land associated with the U.S. Forest Service's Ouachita National Forest.

(ii) Map of Unit OF 2 follows:

Critical Habitat for "Ouachita" Fanshell
 OF2 Ouachita Headwaters; Montgomery and Polk Counties, Arkansas



- Critical Habitat
- Major Road
- County Boundary
- State Boundary
- River
- Waterbody

1 inch = 6 Kilometers
 1 inch = 4 miles



(8) *Unit OF 3*: Ouachita River; Clark, Dallas, and Ouachita Counties, Arkansas.

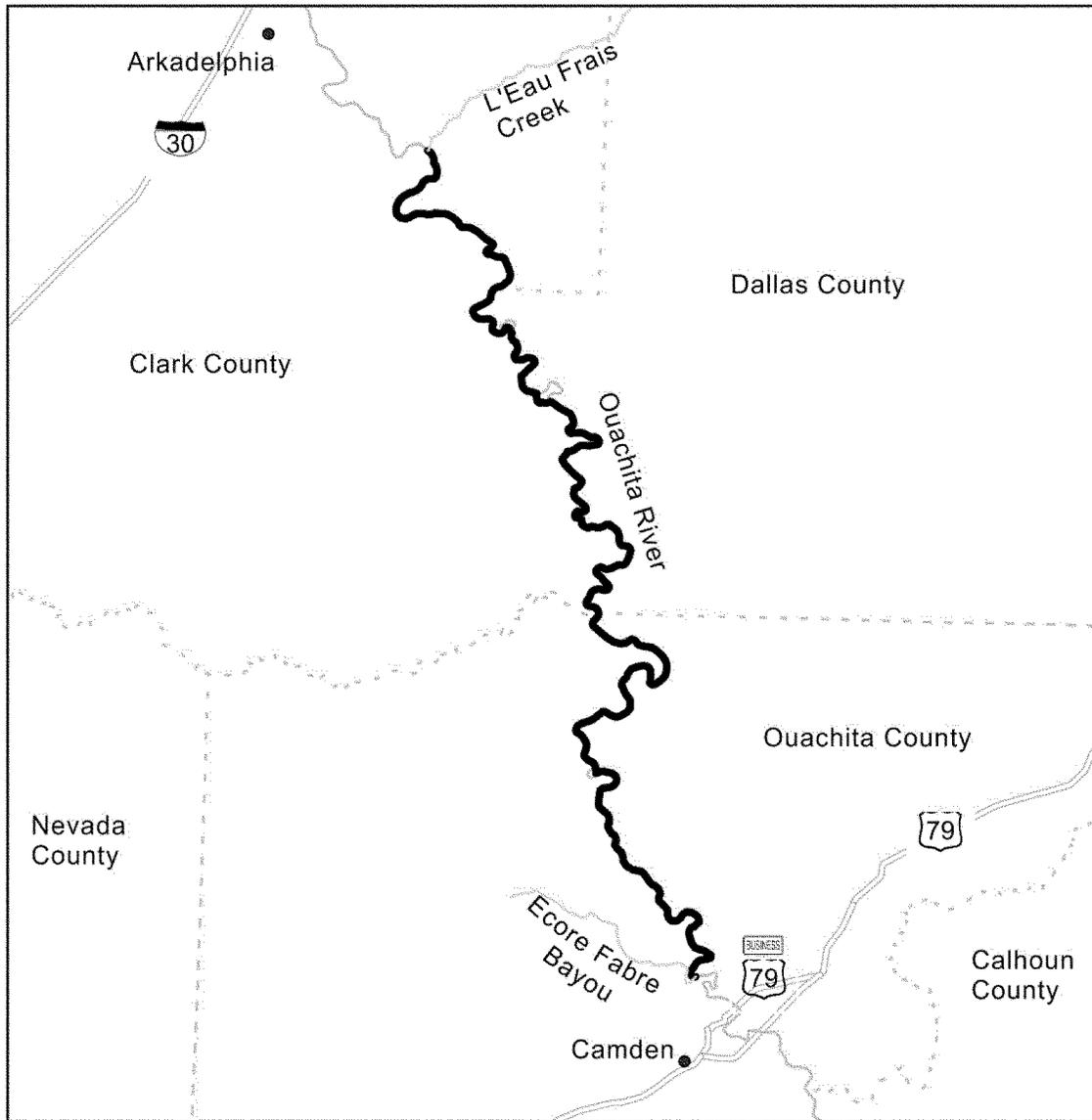
(i) *Unit OF 3* consists of 53.5 river mi (86.1 km) of Ouachita River in Clark, Dallas, and Ouachita Counties,

Arkansas, from the mouth of L'Eau Frais Creek southeast of Arkadelphia, Clark County, downstream to the mouth of Ecore Fabre Bayou north of Camden, Ouachita County, and includes the river channel up to the ordinary high water

mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership. There is a Wetlands Reserve Program easement within the unit.

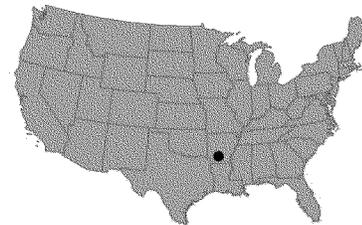
(ii) Map of *Unit OF 3* follows:

Critical Habitat for "Ouachita" Fanshell
 OF3 Ouachita River; Clark, Dallas, and Ouachita Counties, Arkansas



- Critical Habitat
- Major Road
- County Boundary
- State Boundary
- River
- Waterbody


 1 inch = 11 Kilometers
 1 inch = 7 miles



(9) *Unit OF 4*: Saline River; Ashley, Bradley, Cleveland, Dallas, Drew, Grant, and Saline Counties, Arkansas.

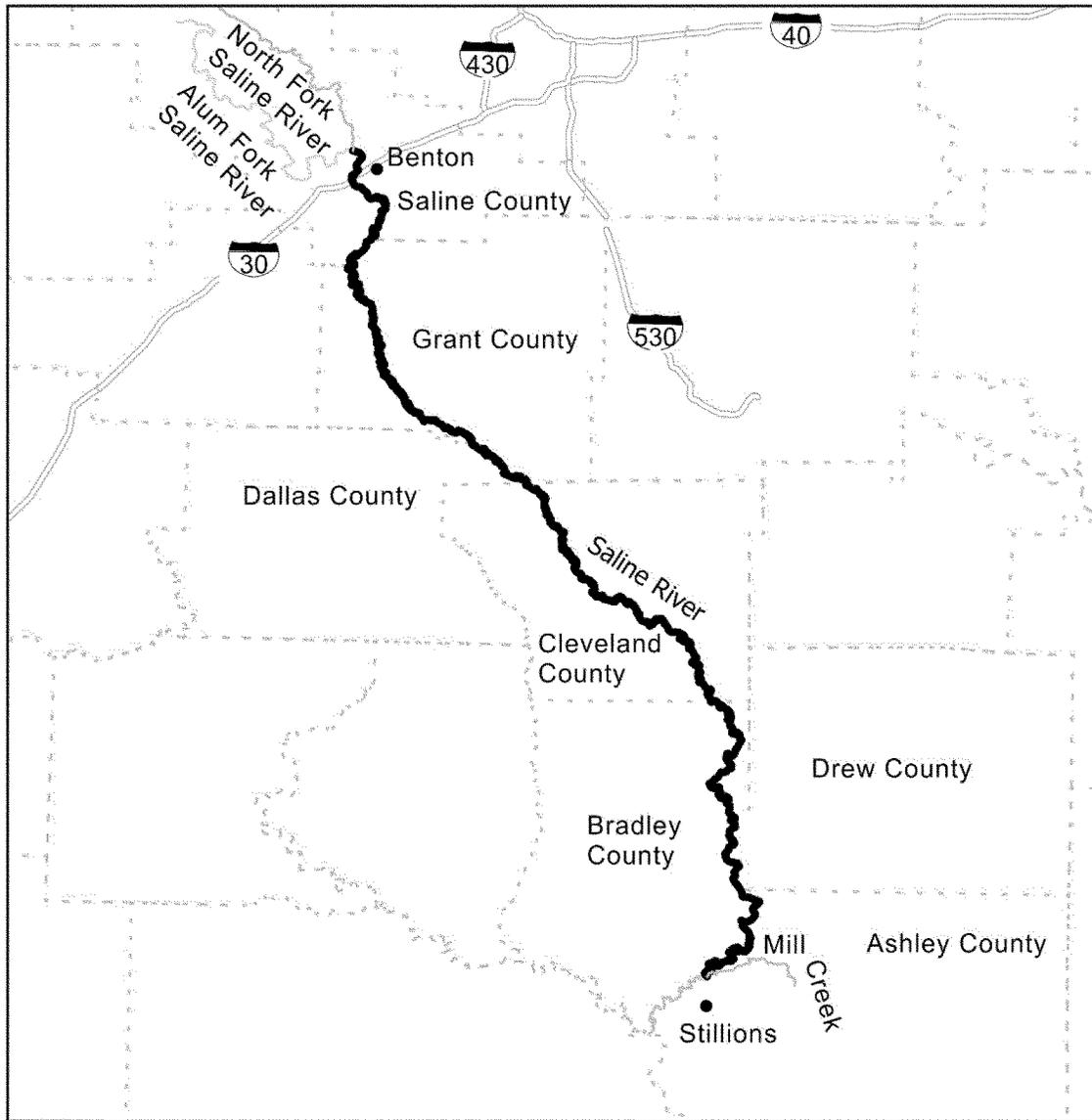
(i) Unit OF 4 consists of 185.3 river mi (298.2 km) of Saline River in Ashley, Bradley, Cleveland, Dallas, Drew, Grant, and Saline Counties, Arkansas, from the

mouth of North Fork Saline River north of Benton, Saline County, downstream to the mouth of Mill Creek north of Stillions, Ashley County, and includes the river channel up to the ordinary high water mark. Approximately 100 percent of the riparian lands that border

the unit are in private ownership and less than 1 percent is in public ownership. The public ownership in this unit is State-owned land associated with Jenkins Ferry State Park.

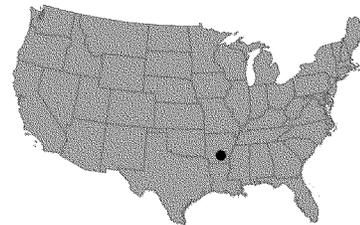
(ii) Map of Unit OF 4 follows:

**Critical Habitat for "Ouachita" Fanshell
OF4 Saline River; Ashley, Bradley, Cleveland, Dallas, Drew, Grant, and Saline
Counties, Arkansas**



- Critical Habitat
- Major Road
- - - County Boundary
- State Boundary
- River
- Waterbody

N
1 inch = 34 Kilometers
1 inch = 21 miles



Western Fanshell (*Cyprogenia aberti*)

(1) Critical habitat units are depicted for Cleburne, Fulton, Independence, Jackson, Lawrence, Randolph, Sharp, Stone, and Van Buren Counties, Arkansas; Cherokee, Greenwood, Montgomery, and Wilson Counties, Kansas; and Butler, Jasper, Madison,

and Wayne Counties, Missouri, on the maps in this entry.

(2) Within these areas, the physical or biological features essential to the conservation of western fanshell consist of the following components:

(i) Adequate flows, or a hydrologic flow regime (magnitude, timing, frequency, duration, rate of change, and overall seasonality of discharge over

time), necessary to maintain benthic habitats where the species is found and to maintain stream connectivity, specifically providing for the exchange of nutrients and sediment for maintenance of the mussel's and fish hosts' habitat and food availability, maintenance of spawning habitat for native host fishes, and the ability for newly transformed juveniles to settle

and become established in their habitats. Adequate flows ensure delivery of oxygen, enable reproduction, deliver food to filter-feeding mussels, and reduce contaminants and fine sediments from interstitial spaces.

(ii) Suitable substrates and connected instream habitats, characterized by geomorphically stable stream channels and banks (that is, channels that maintain lateral dimensions, longitudinal profiles, and sinuosity patterns over time without an aggrading or degrading bed elevation) with habitats that support a diversity of freshwater mussel and native fish (such as stable riffle-run-pool habitats that provide flow refuges consisting of silt-free gravel and coarse sand substrates).

(iii) Water and sediment quality necessary to sustain natural physiological processes for normal behavior, growth, and viability of all life stages, including, but not limited to: dissolved oxygen (generally above 3 parts per million (ppm)) and water temperature (generally below 80 degrees Fahrenheit (°F) (27 degrees Celsius (°C))). Additionally, water and sediment should be low in ammonia (generally below 1.0 ppm total ammonia-nitrogen) and heavy metals, and lack excessive

total suspended solids and other pollutants.

(iv) The presence and abundance of fish hosts necessary for recruitment of the western fanshell, including logperch (*Percina caprodes*), rainbow darter (*Etheostoma caeruleum*), slenderhead darter (*Percina phoxocephala*), fantail darter (*Etheostoma flabellare*), or orangebelly darter (*Etheostoma radiosum*).

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of the rule.

(4) Data layers defining map units were created by overlaying Natural Heritage Element Occurrence data and U.S. Geological Survey hydrologic data for stream reaches using ESRI ArcGIS mapping software. Critical habitat unit upstream and downstream limits were delineated at the nearest road crossing or stream confluence of each occupied reach. Data layers defining map units were created with U.S. Geological Survey National Hydrography Dataset (NHD) Medium Flowline data. ArcGIS was also used to calculate river

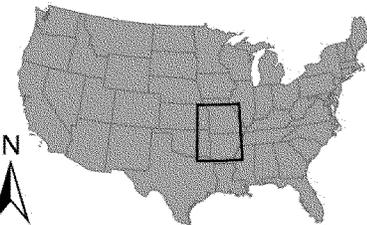
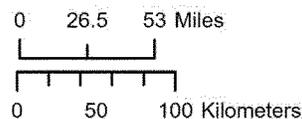
kilometers and river miles from the NHD dataset, and it was used to determine longitude and latitude coordinates in decimal degrees. The projection used in mapping and calculating distances and locations within the units was EPSG:4269–NAD83 Geographic. Natural Heritage program and State mussel database species presence data from Arkansas, Kansas, and Missouri were used to select specific river and stream segments for inclusion in the critical habitat layer. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's internet site at <https://www.fws.gov/midwest/>, at <http://www.regulations.gov> at Docket No. FWS–R3–ES–2021–0061, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) *Note:* Index map follows:

Index Map: Western Fanshell Critical Habitat Units



— Critical Habitat
— State Boundaries



(6) *Unit WF 1*: Upper Black River; Butler and Wayne Counties, Missouri.

(i) Unit WF 1 consists of 64.7 river miles (mi) (104.1 kilometers (km)) of Black River in Butler and Wayne Counties, Missouri, from Clearwater Dam southwest of Piedmont, Wayne County, extending downstream to Butler County Road 658 crossing southeast of

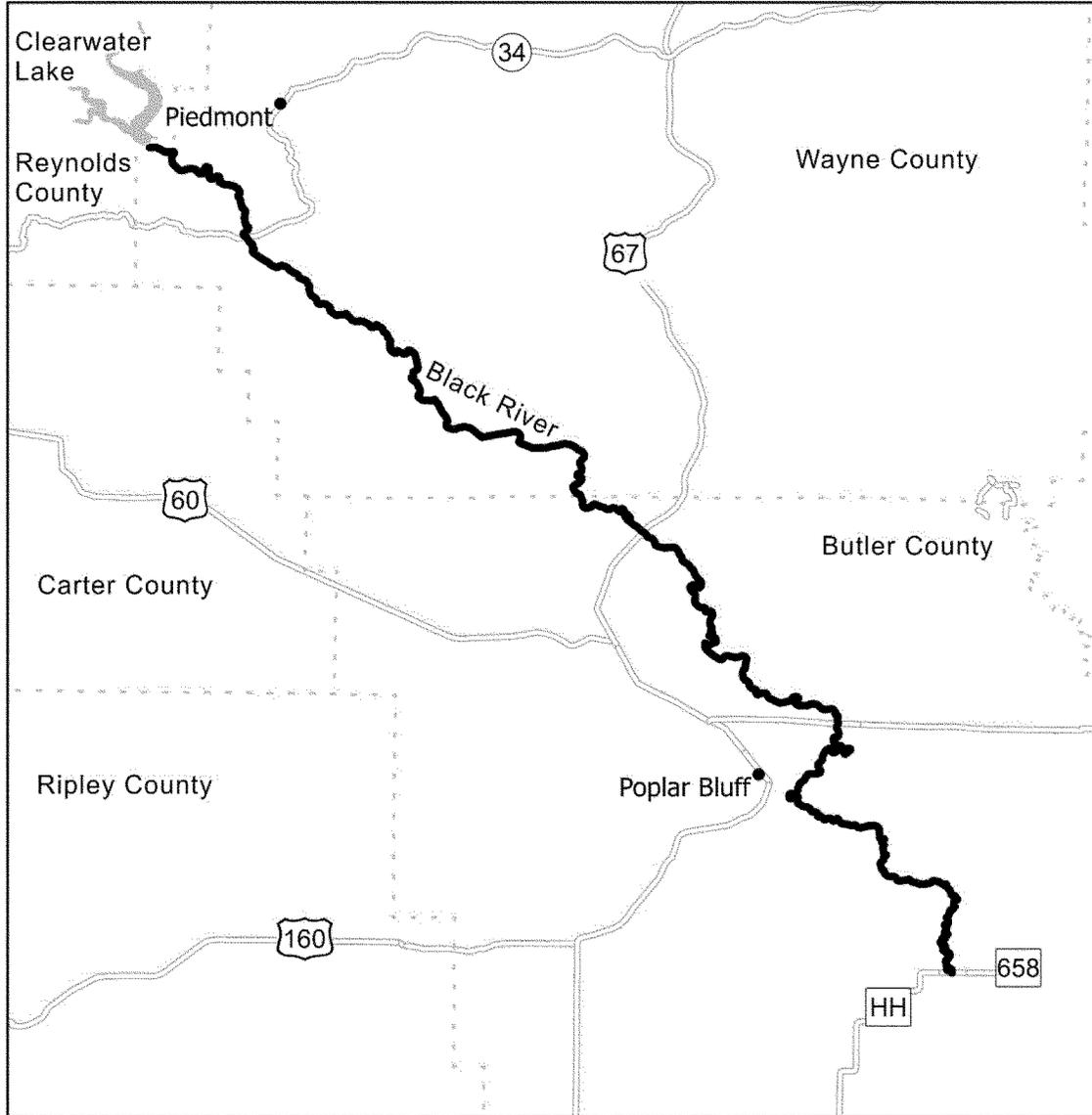
Poplar Bluff, Butler County, and includes the river channel up to the ordinary high water mark. Riparian lands that border the unit include approximately 51 river mi (82.1 km; 79 percent) in private ownership and 13.7 river mi (22 km; 21 percent) in public (Federal or State) ownership. Approximately 2.7 miles of the public

ownership in this unit are State lands associated with Missouri Department of Conservation's (MDC) Bradley A. Hammer Memorial Conservation Area, Dan River Access, Hilliard Access, and Stephen J. Sun Conservation Area. Eleven miles are Federal land associated with the U.S. Forest Service's (USFS) Mark Twain National Forest and U.S.

Army Corps of Engineers (USACE)
Clearwater Recreation Area.

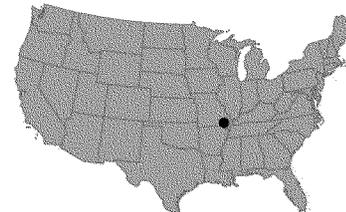
(ii) Map of Unit WF 1 follows:

Critical Habitat for Western Fanshell WF1 Upper Black River; Butler and Wayne Counties, Missouri



- Critical Habitat
- Major Road
- County Boundary
- State Boundary
- River
- Waterbody

1 inch = 12 Kilometers
 1 inch = 8 miles



(7) *Unit WF 2: Lower Black/ Strawberry River; Independence, Jackson, Lawrence, and Sharp Counties, Arkansas.*

(i) Unit WF 2 consists of 111.3 river mi (179.1 km) of Black River and

Strawberry River in Independence, Jackson, Lawrence, and Sharp Counties in Arkansas, and includes the river channel up to the ordinary high water mark. Black River makes up 54.6 river mi (87.9 km) from the mouth of Spring

River northeast of Black Rock, extending downstream to the mouth of Strawberry River northeast of Dowdy, Independence County. Strawberry River makes up 56.7 river mi (91.2 km) from the mouth of Lave Creek north of

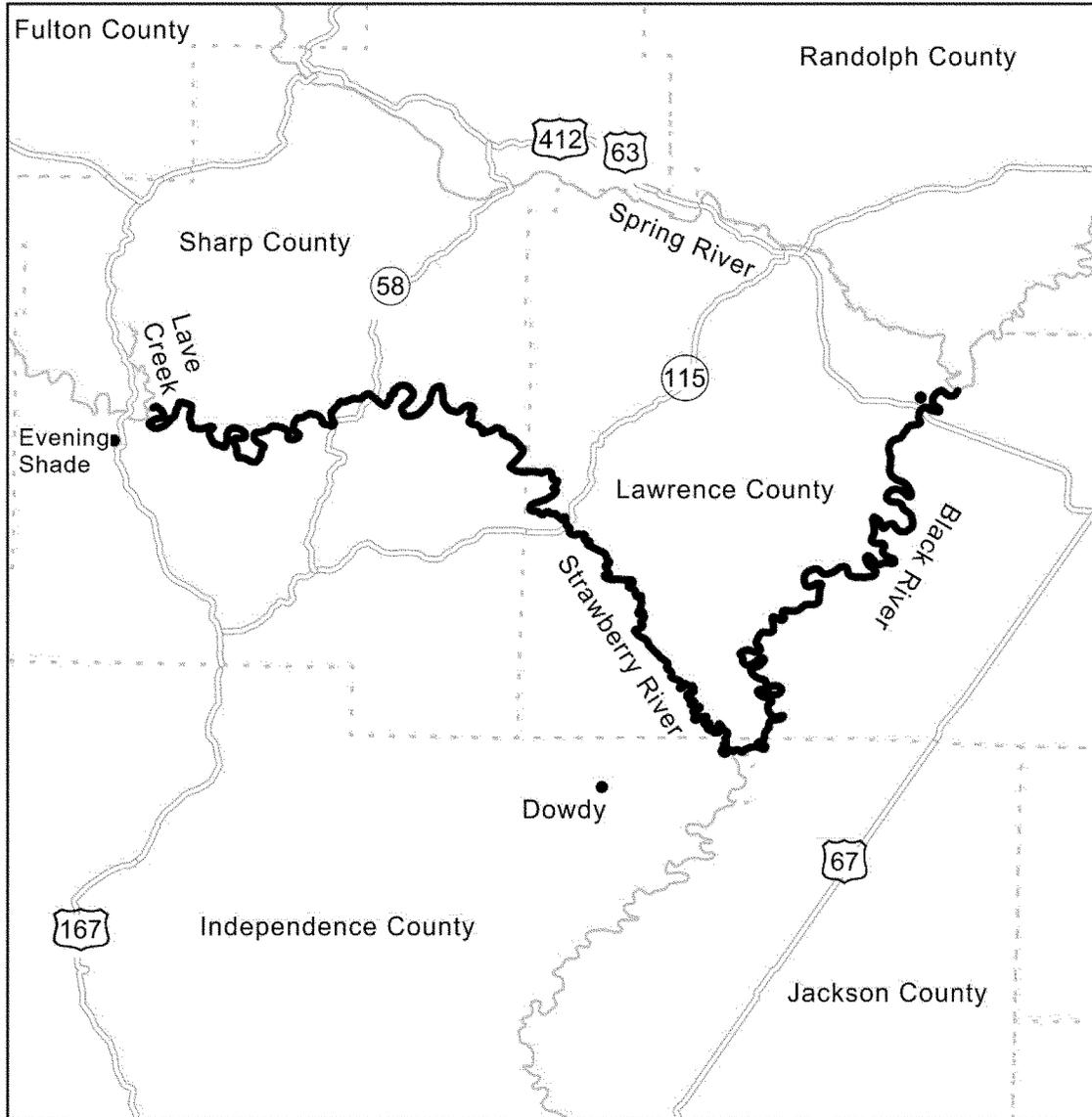
Evening Shade, Sharp County, extending downstream to the confluence with Black River northeast of Dowdy, Independence County. Riparian lands that border the unit include approximately 100.4 river mi

(161.6 km; 90 percent) in private ownership and 10.9 river mi (17.5 km; 10 percent) in public (State) ownership. The public land ownership in this unit is associated with Arkansas Game and Fish Commission's Shirey Bay Rainey

Brake Wildlife Management Area on Black River. The Nature Conservancy's Strawberry River Preserve and Ranch on Strawberry River is also in this unit.

(ii) Map of Unit WF 2 follows:

**Critical Habitat for Western Fanshell
WF2 Lower Black/Strawberry River; Independence, Jackson, Lawrence, and Sharp Counties, Arkansas**



- Critical Habitat
- Major Road
- County Boundary
- State Boundary
- River
- Waterbody

N

 1 inch = 13 Kilometers
 1 inch = 8 miles



(8) *Unit WF 3*: Fall River; Greenwood and Wilson Counties, Kansas.

(i) *Unit WF 3* consists of 45.5 river mi (73.2 km) of Fall River in Greenwood

and Wilson Counties, Kansas, from the Greenwood County Road 33/Merchants

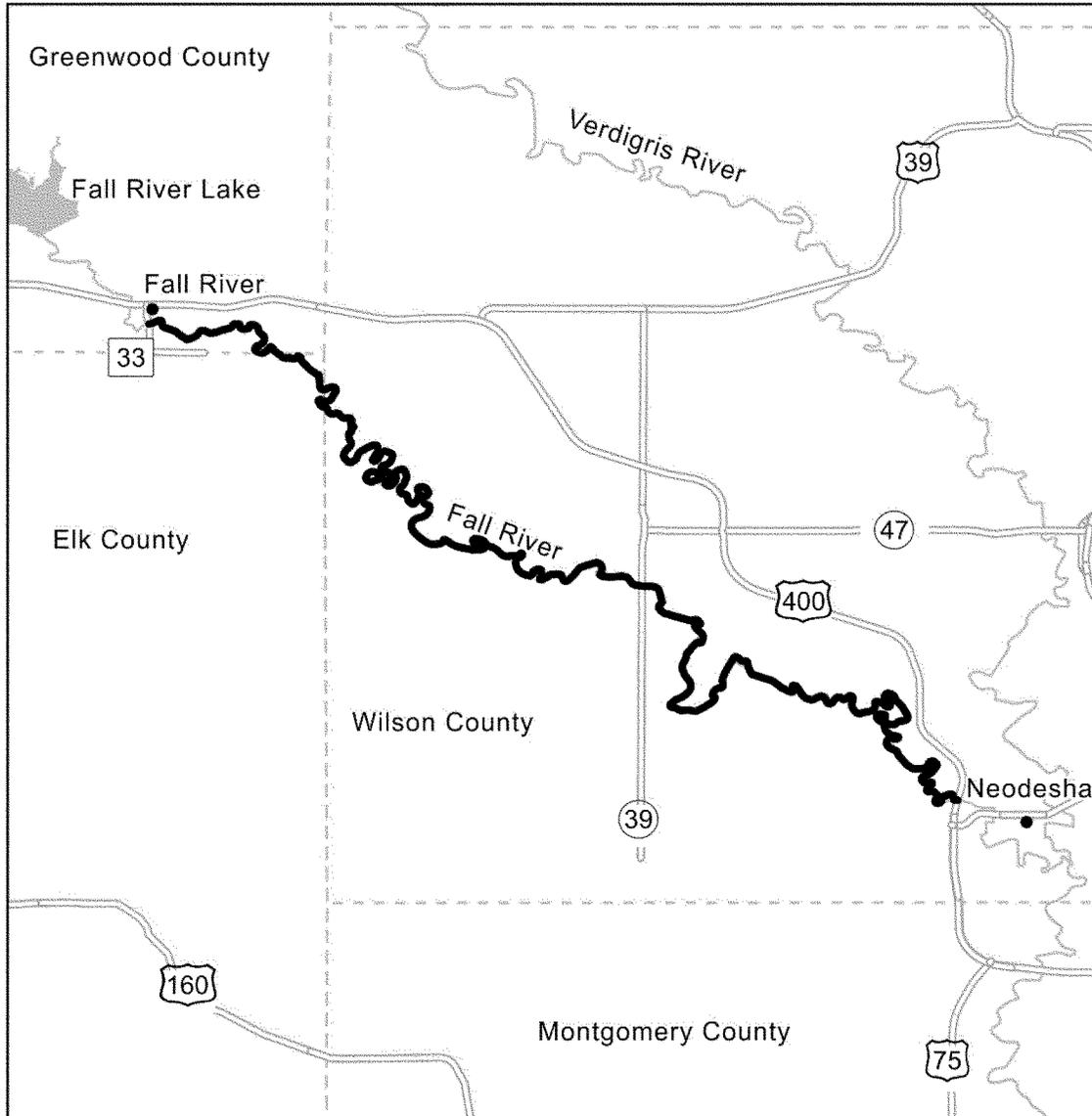
Avenue crossing at Fall River, Greenwood County, extending downstream to the U.S. Route 400 crossing west of Neodesha, Wilson

County, and includes the river channel up to the ordinary high water mark. Approximately 100 percent of the

riparian lands that border the unit are in private ownership.

(ii) Map of Unit WF 3 follows:

Critical Habitat for Western Fanshell WF3 Fall River; Greenwood and Wilson Counties, Kansas

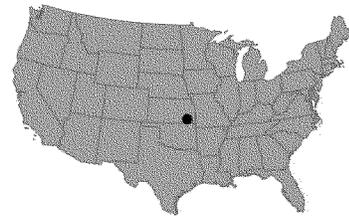


- Critical Habitat
- Major Road
- County Boundary
- State Boundary
- River
- Waterbody



1 inch = 8 Kilometers

1 inch = 5 miles



(9) *Unit WF 4*: Middle Fork Little Red River; Cleburne, Stone, and Van Buren Counties, Arkansas.

(i) *Unit WF 4* consists of 34.1 river mi (54.8 km) of the Middle Fork Little Red River in Cleburne, Stone, and Van Buren Counties, Arkansas, from the

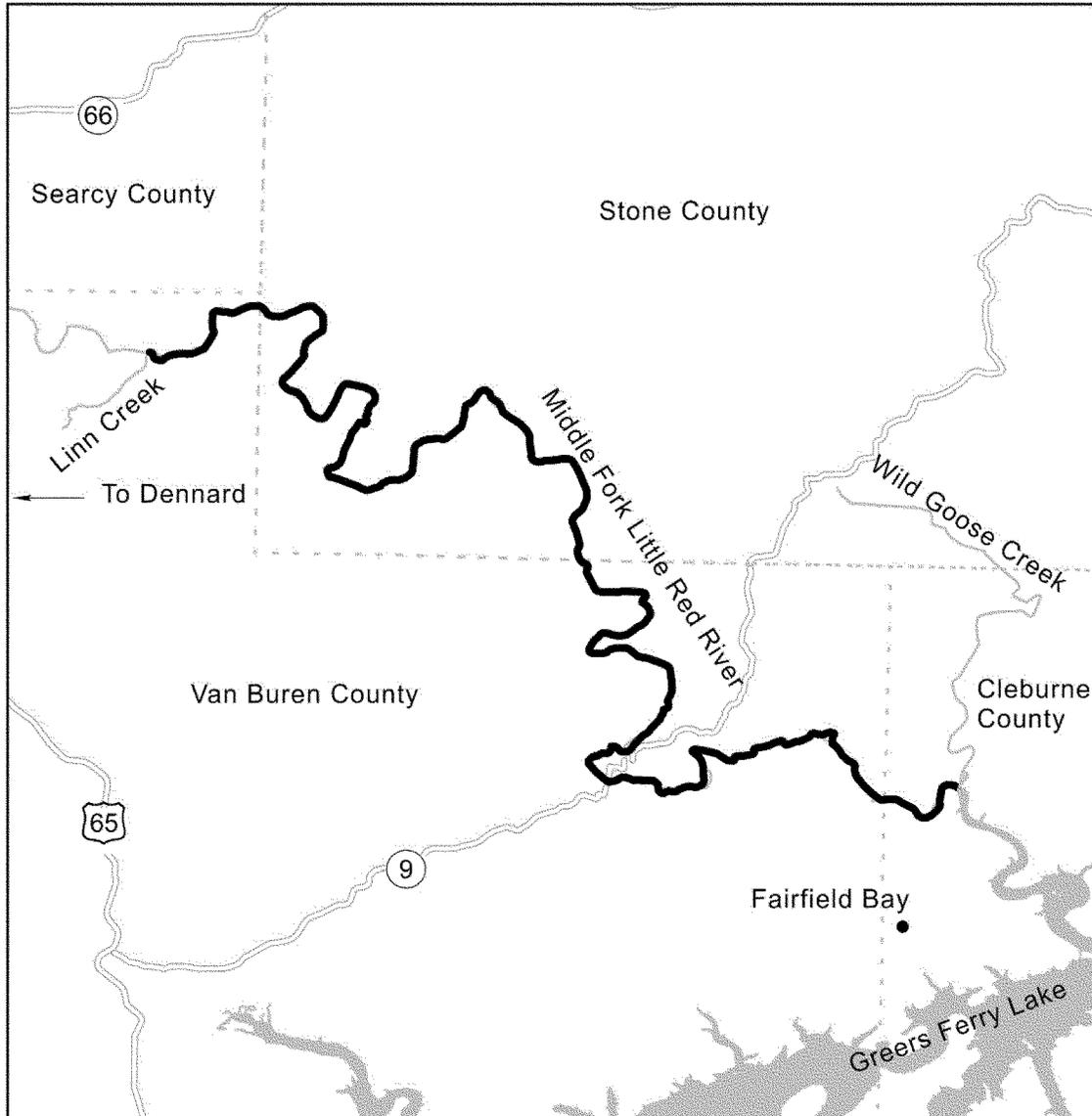
mouth of Linn Creek east of Dennard, Van Buren County, extending downstream to the mouth of Wild Goose Creek north of Fairfield Bay, Cleburne

and Van Buren counties, and includes the river channel up to the ordinary high water mark. Riparian lands that border the unit include approximately

30.6 river mi (49.2 km; 90 percent) in private ownership and 3.5 river mi (5.6 km; 10 percent) in public (Federal) ownership. All of the public land

ownership in this unit is Federal land associated with the USACE's Greers Ferry Recreation Area.
(ii) Map of Unit WF 4 follows:

**Critical Habitat for Western Fanshell
WF4 Middle Fork Little Red River; Cleburne, Stone, and Van Buren Counties,
Arkansas**



(10) *Unit WF 5*: St. Francis River; Madison and Wayne Counties, Missouri.
(i) *Unit WF 5* consists of 49.3 river mi (79.3 km) of St. Francis River in

Madison and Wayne Counties, Missouri, extending from the mouth of Wachita Creek west of Fredericktown, Madison County, downstream to the mouth of Big

Creek northwest of Silva, Wayne County, and includes the river channel up to the ordinary high water mark. Riparian lands that border the unit

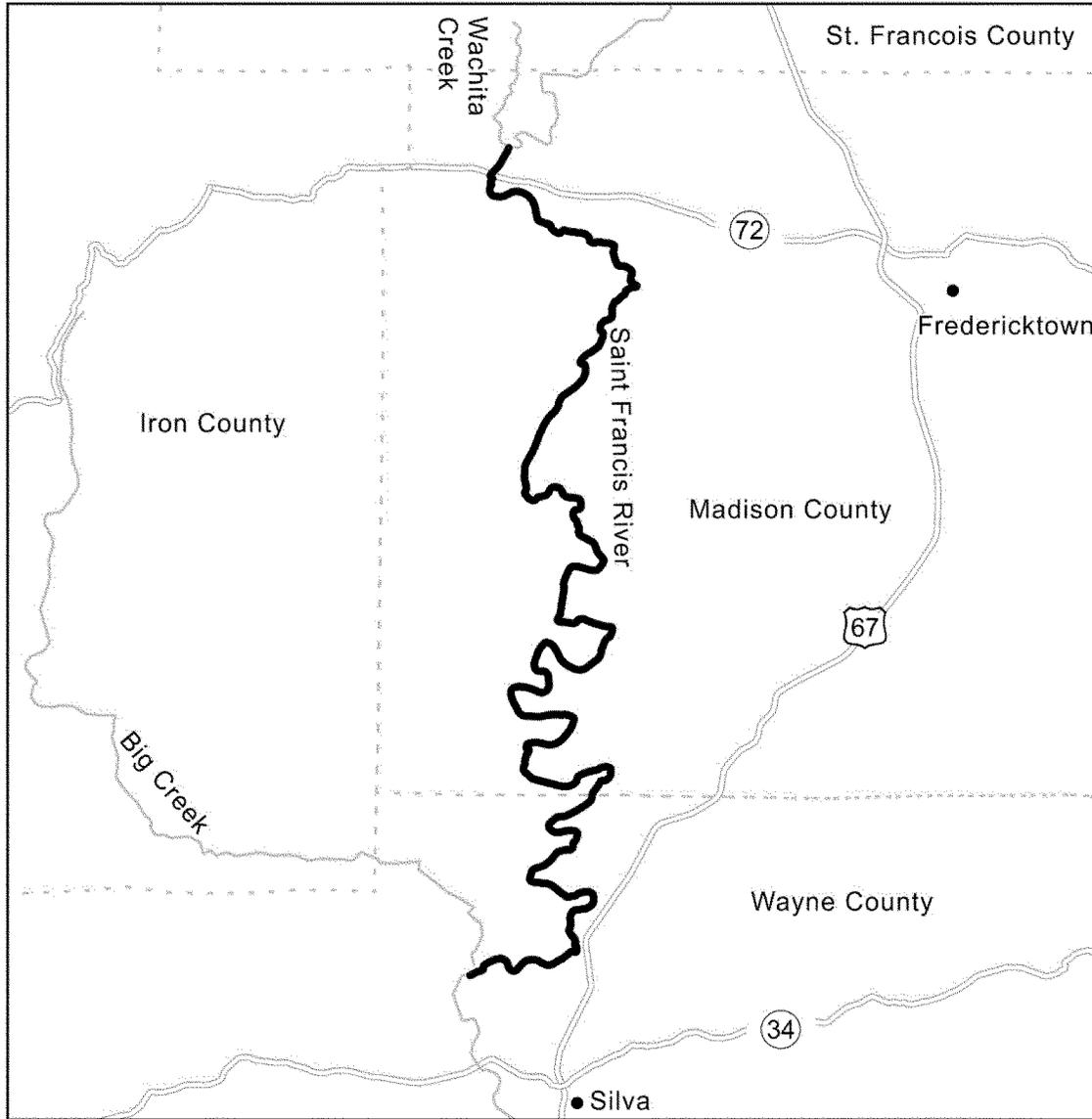
include approximately 36.7 river mi (59.1 km; 74 percent) in private ownership and 12.6 river mi (20.2 km; 26 percent) in public (Federal or State) ownership. Approximately 2.4 river mi

of the public ownership in this unit are State lands associated with MDC's Coldwater Conservation Area, Mill Stream Gardens, and Roselle Access. Ten miles are Federal land associated

with the USFS's Mark Twain National Forest.

(ii) Map of Unit WF 5 follows:

Critical Habitat for Western Fanshell WF5 St. Francis River; Madison and Wayne Counties, Missouri



- Critical Habitat
- Major Road
- County Boundary
- State Boundary
- River
- Waterbody

N

 1 inch = 9 Kilometers
 1 inch = 6 miles



(11) *Unit WF 6*: South Fork Spring River; Fulton County, Arkansas.

(i) *Unit WF 6* consists of 13.4 river mi (21.6 km) of South Fork Spring River in Fulton County, Arkansas, from the

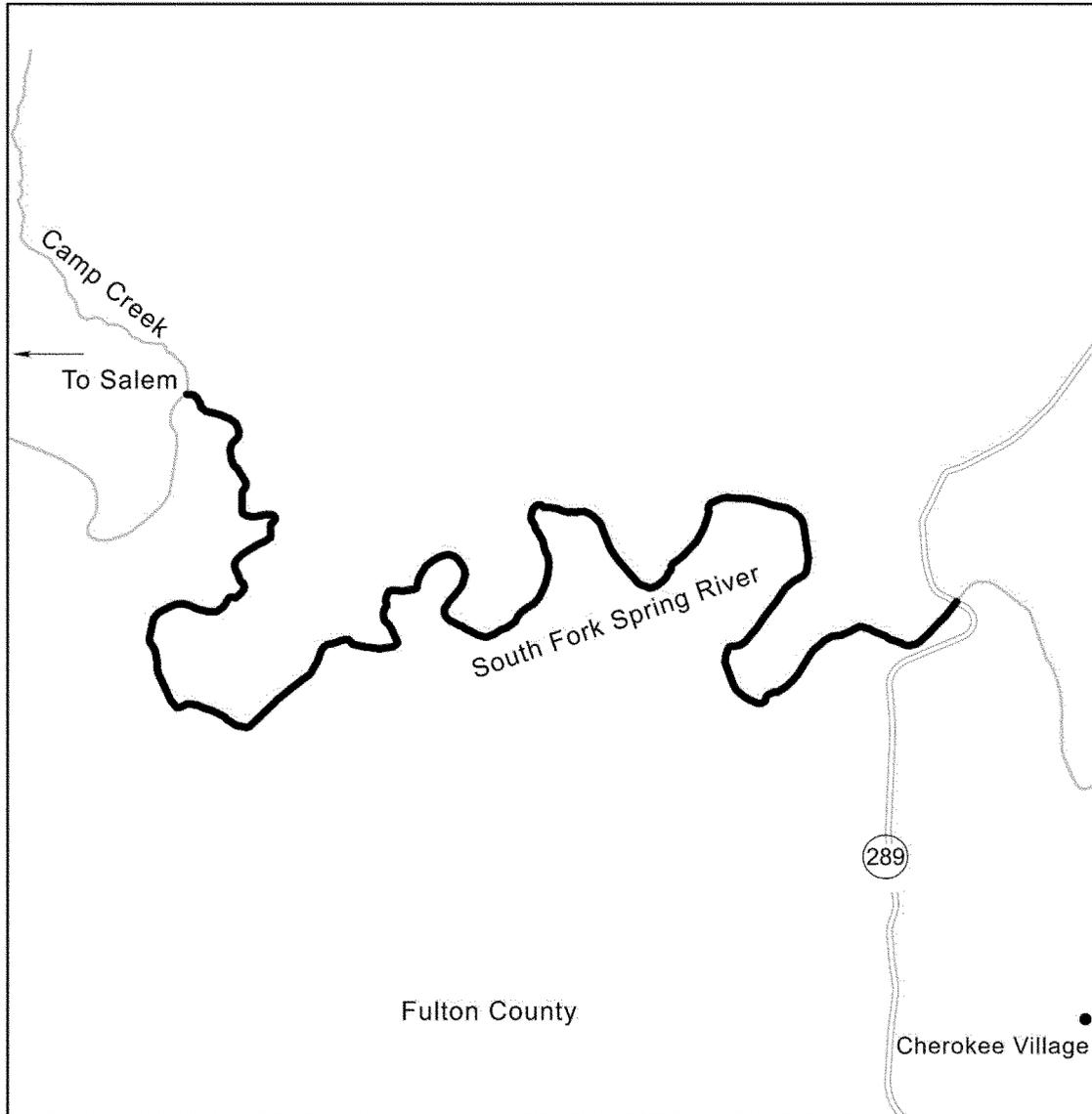
mouth of Camp Creek east of Salem, Fulton County, extending downstream to the Arkansas Highway 289 crossing

northwest of Cherokee Village, Fulton and Sharp Counties, and includes the river channel up to the ordinary high

water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership.

(ii) Map of Unit WF 6 follows:

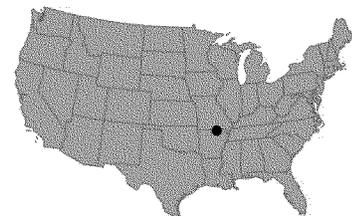
**Critical Habitat for Western Fanshell
WF6 South Fork Spring River; Fulton County, Arkansas**



- Critical Habitat
- Major Road
- - - County Boundary
- - - State Boundary
- River
- Waterbody

N

 1 inch = 2 Kilometers
 1 inch = 1 miles



(12) *Unit WF 7: Spring River (AR);* Lawrence and Randolph Counties, Arkansas.

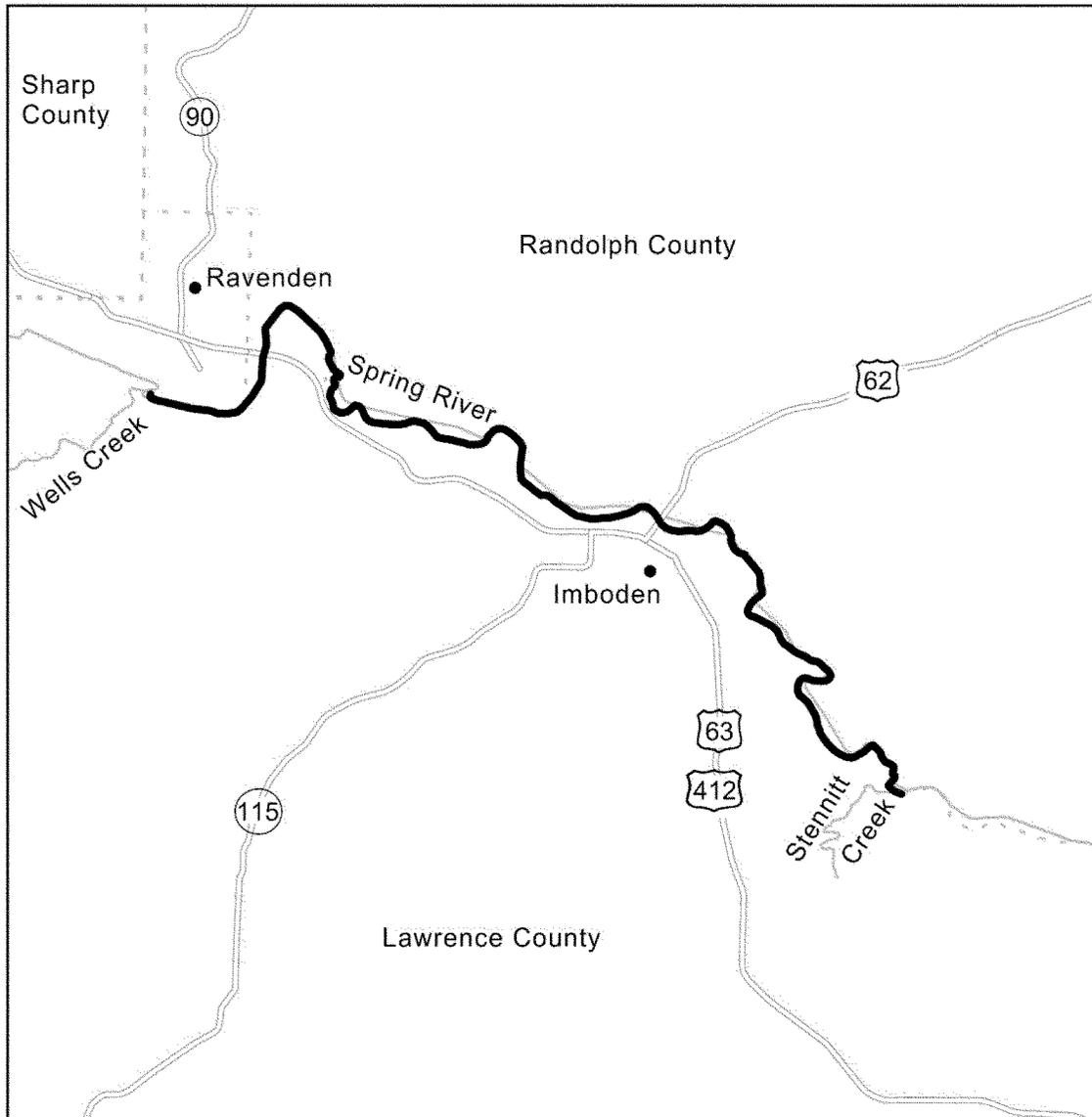
(i) Unit WF 7 consists of 14.2 river mi (22.9 km) of Spring River in Lawrence

and Randolph Counties, Arkansas, from the mouth of Wells Creek at Ravenden, extending downstream to the mouth of Stennitt Creek southeast of Imboden, Lawrence County, and includes the

river channel up to the ordinary high water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership.

(ii) Map of Unit WF 7 follows:

Critical Habitat for Western Fanshell
 WF7 Spring River (AR); Lawrence and Randolph Counties, Arkansas



- Critical Habitat
- Major Road
- - - County Boundary
- State Boundary
- River
- Waterbody

N

 1 inch = 4 Kilometers
 1 inch = 2 miles



(13) *Unit WF 8: Spring River (MO/KS); Jasper County, Missouri, and Cherokee County, Kansas.*

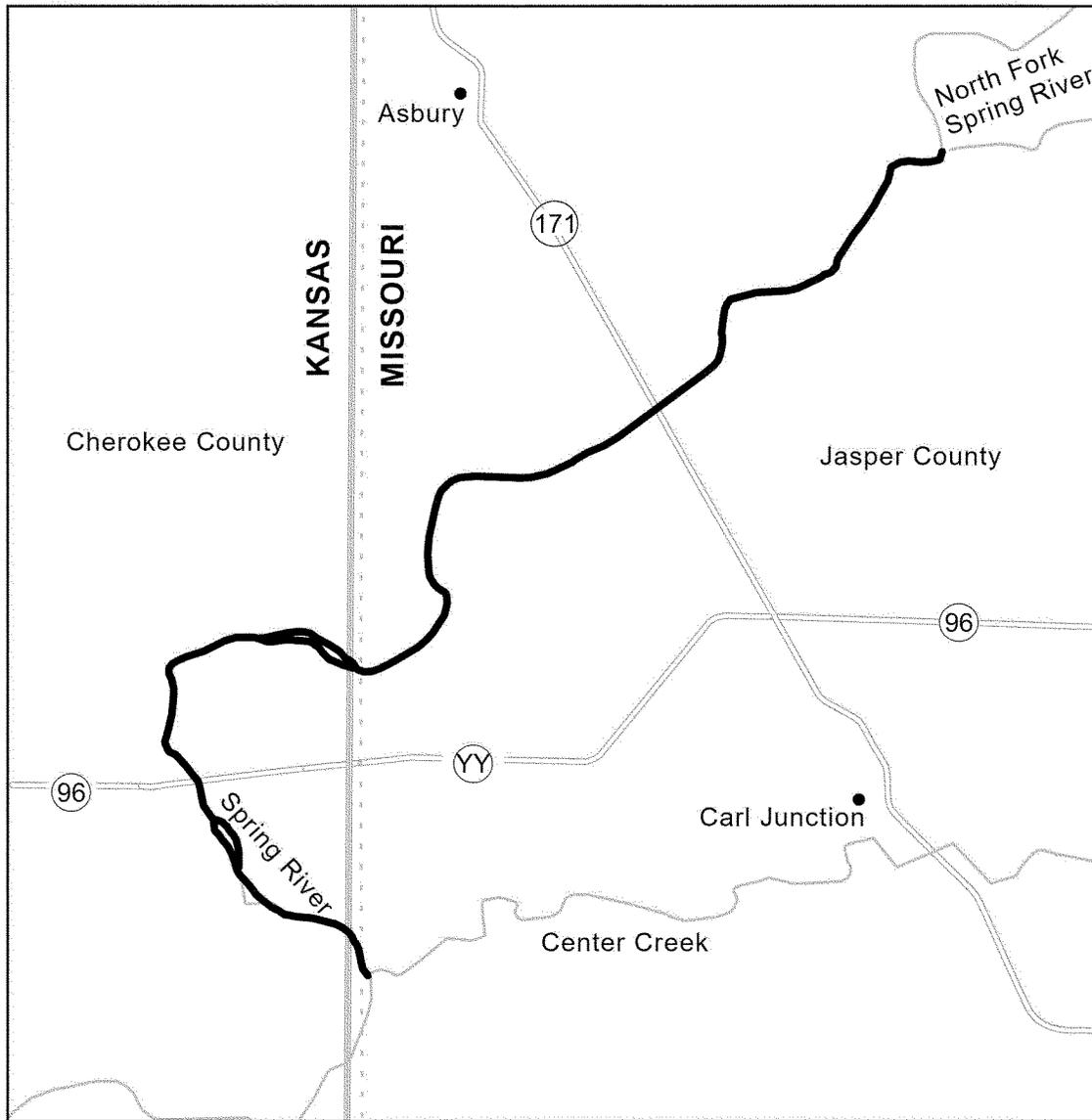
(i) Unit WF 8 consists of 15 river mi (24.1 km) of Spring River in Jasper County, Missouri, and Cherokee County, Kansas, from the mouth of North Fork Spring River east of Asbury, Jasper

County, Missouri, extending downstream through Cherokee County, Kansas, to the mouth of Center Creek west of Carl Junction, Jasper County, Missouri, and includes the river channel up to the ordinary high water mark. Riparian lands that border the unit include approximately 14.0 river mi

(22.5 km; 94 percent) in private ownership and 1.0 river mi (1.6 km; 6 percent) in public (State) ownership. The public ownership of this unit is State land associated with the Kansas Department of Wildlife, Parks and Tourism's Spring River Wildlife Area.

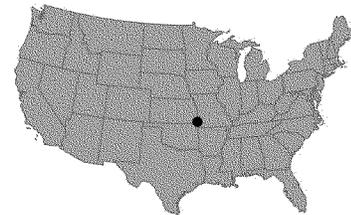
(ii) Map of Unit WF 8 follows:

Critical Habitat for Western Fanshell
 WF8 Spring River (MO/KS); Jasper County, Missouri; Cherokee County,
 Kansas



- Critical Habitat
- Major Road
- - - County Boundary
- - - State Boundary
- River
- Waterbody


 1 inch = 3 Kilometers
 1 inch = 2 miles



(14) *Unit WF 9*: Verdigris River; Montgomery and Wilson Counties, Kansas.

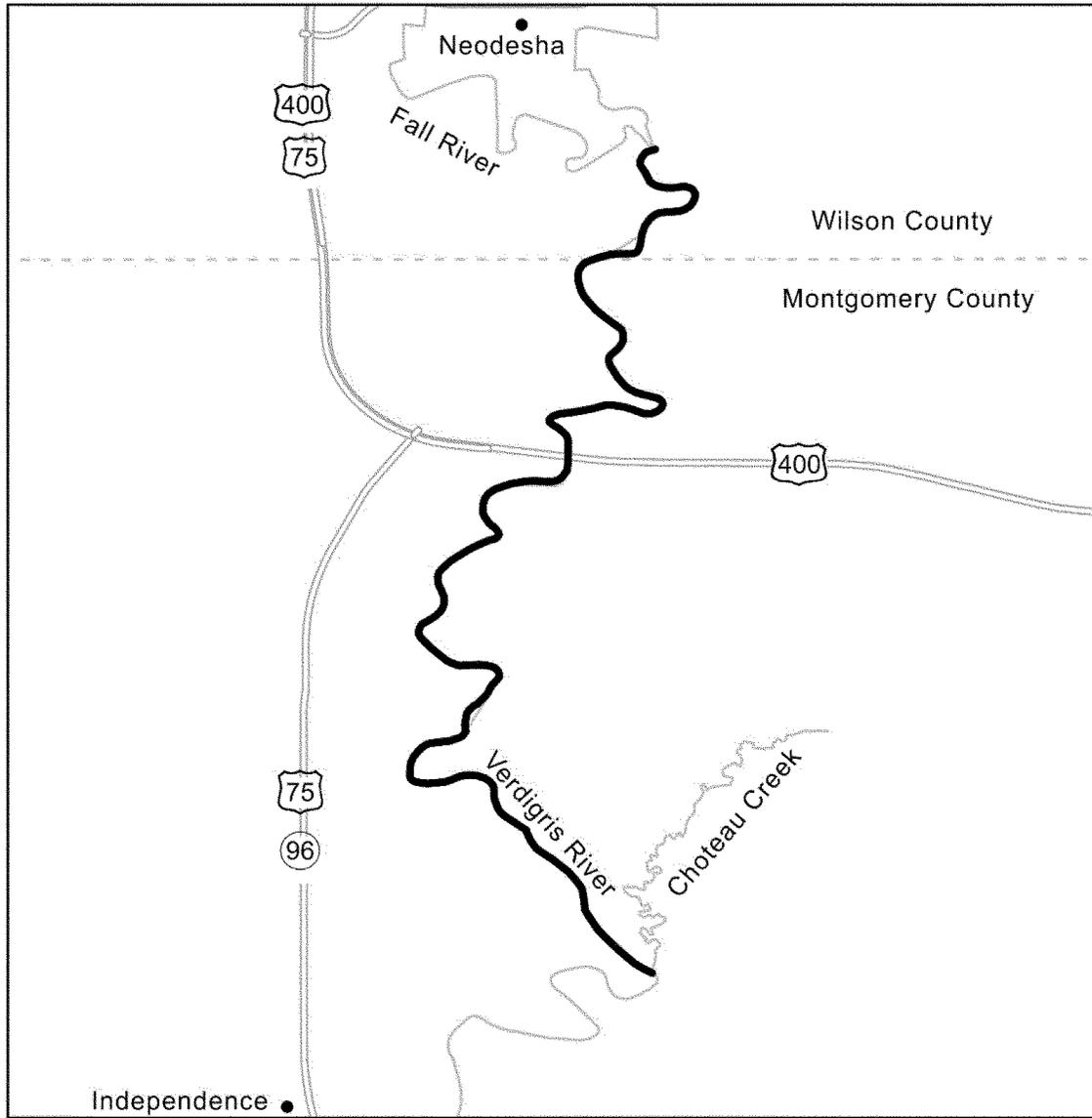
(i) Unit WF 9 consists of 12.4 river mi (20 km) of Verdigris River in Montgomery and Wilson Counties,

Kansas, from the mouth of Fall River south of Neodesha, Wilson County, extending downstream to the mouth of Choteau Creek northeast of Independence, Montgomery County, and includes the river channel up to the

ordinary high water mark. Approximately 100 percent of the riparian lands that border the unit are in private ownership.

(ii) Map of Unit WF 9 follows:

Critical Habitat for Western Fanshell
WF9 Verdigris River; Montgomery and Wilson Counties, Kansas



- Critical Habitat
- Major Road
- County Boundary
- State Boundary
- River
- Waterbody

1 inch = 3 Kilometers
 1 inch = 2 miles



* * * * *

Martha Williams,
*Principal Deputy Director, Exercising the
 Delegated Authority of the Director, U.S. Fish
 and Wildlife Service.*

[FR Doc. 2022-02994 Filed 3-2-22; 8:45 am]

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