

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R3-ES-2021-0061;
FF09E21000 FXES1111090FEDR 234]

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: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine threatened species status under the Endangered Species Act of 1973 (Act), as amended, for 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. We also designate critical habitat for both species. In total, approximately 261.4 river miles (420.7 kilometers) in Arkansas and Missouri fall within the boundaries of the critical habitat designation for western fanshell. In total, approximately 227.7 river miles (366.5 kilometers) in Arkansas fall within the boundaries of the critical habitat designation for “Ouachita” fanshell. In addition, we finalize a rule under the authority of section 4(d) of the Act that provides measures that are necessary and advisable to provide for the conservation of these species. This rule extends the Act’s protections to these species and their designated critical habitats.

DATES: This rule is effective July 27, 2023.

ADDRESSES: This final rule is available on the internet at <https://www.regulations.gov>, <https://www.fws.gov/species/western-fanshell-cyprogenia-aberti>, and <https://www.fws.gov/species/ouachita-fanshell-cyprogenia-sp-cf-aberti>. Comments and materials we received are available for public inspection at <https://www.regulations.gov> under Docket No. FWS-R3-ES-2021-0061.

Supporting materials we used in preparing this rule, such as the species status assessment report, are available at <https://www.fws.gov/species/western-fanshell-cyprogenia-aberti>, <https://www.fws.gov/species/ouachita-fanshell-cyprogenia-sp-cf-aberti>, and <https://www.regulations.gov> under Docket No. FWS-R3-ES-2021-0061.

www.regulations.gov under Docket No. FWS-R3-ES-2021-0061. For the critical habitat designation, the coordinates or plot points or both from which the maps are generated are included in the decision file for this critical habitat designation and are available at <https://www.regulations.gov> at Docket No. FWS-R3-ES-2021-0061, and on the Service’s websites at <https://www.fws.gov/species/western-fanshell-cyprogenia-aberti> for western fanshell and <https://www.fws.gov/species/ouachita-fanshell-cyprogenia-sp-cf-aberti> for “Ouachita” fanshell.

FOR FURTHER INFORMATION CONTACT: For information about the western fanshell, contact John Weber, Field Supervisor, U.S. Fish and Wildlife Service, Missouri Ecological Services Field Office, 101 Park DeVille 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 Road, Suite 300, Conway, AR 72032-8975; telephone 501-513-4473. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, a species warrants listing if it meets the definition of an endangered species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become endangered within the foreseeable future throughout all or a significant portion of its range). If we determine that a species warrants listing, we must list the species promptly and designate the species’ critical habitat to the maximum extent prudent and determinable. We have determined that the western fanshell and “Ouachita” fanshell meet the definition of threatened species; therefore, we are listing them as such and finalizing a designation of their critical habitat. Both listing a species as an endangered or threatened species and designating critical habitat can be completed only by issuing a rule through the Administrative Procedure Act rulemaking process (5 U.S.C. 551 *et seq.*).

What this document does. This rule lists the western fanshell and “Ouachita” fanshell as threatened species and issues regulations under section 4(d) of the Act (a “4(d) rule”) for the conservation of both species. This rule designates critical habitat for the western fanshell in 6 units totaling approximately 261.4 river miles (river mi) (420.7 kilometers (km)) within portions of 6 counties in Arkansas and 4 counties in Missouri. Additionally, this rule designates critical habitat for the “Ouachita” fanshell in 3 units totaling approximately 227.7 river mi (366.5 km) within portions of 12 counties in Arkansas.

The basis for our action. Under the Act, we may determine that a species is an endangered or threatened species based on 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 western fanshell and “Ouachita” fanshell are threatened due to the following threats: 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).

Section 4(a)(3) of the Act requires the Secretary of the Interior (Secretary), to the maximum extent prudent and determinable, to designate critical habitat concurrent with listing. 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. Also,

although this critical habitat designation was proposed when the regulatory definition of “habitat” (85 FR 81411; December 16, 2020) and the regulations at 50 CFR 17.90 concerning exclusions from critical habitat designation (85 FR 82376; December 18, 2020) were in place and in effect, those two regulations have been rescinded (87 FR 37757, June 24, 2022; 87 FR 43433, July 21, 2022) and no longer apply to any designations of critical habitat. Therefore, for this final rule designating critical habitat for the western fanshell and “Ouachita” fanshell, we apply the regulations at 50 CFR 424.19 and the 2016 joint (with the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration) Policy Regarding Implementation of Section 4(b)(2) of the Act (81 FR 7226; February 11, 2016).

Previous Federal Actions

Please refer to our March 3, 2022, proposed rule (87 FR 12338) for detailed descriptions of previous Federal actions concerning the western fanshell and “Ouachita” fanshell.

Peer Review

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 the western fanshell and “Ouachita” fanshell, including the impacts of past, present, and future factors (both negative and beneficial) affecting each 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 solicited independent scientific review of the information contained in the SSA report. As discussed in our March 3, 2022, proposed rule (87 FR 12338), we sent the SSA report to five independent peer reviewers and received two responses. The peer reviews can be found at <https://www.regulations.gov> under Docket No. FWS-R3-ES-2021-0061. In preparing the March 3, 2022, proposed rule, we incorporated the results of these reviews, as appropriate, into the SSA report, which was the foundation for the proposed rule and this final rule. A summary of the peer review comments and our responses can be found in the

Summary of Comments and Recommendations below.

Summary of Changes From the Proposed Rule

This final rule incorporates changes from our March 3, 2022, proposed rule (87 FR 12338) based on the comments that we received and respond to in this document, and this rule considers efforts in Arkansas and Kansas to conserve the western fanshell and “Ouachita” fanshell. We made minor, nonsubstantive changes to the SSA report in response to comments we received (e.g., we added information on and citations for forestry best management practices in the discussion of threats in the SSA report). The information we received during the comment period did not change our determination that the western fanshell and “Ouachita” fanshell are threatened species.

Substantive comments we received during the public comment period for the March 3, 2022, proposed rule (see Summary of Comments and Recommendations, below) include a request to exclude critical habitat from the State of Kansas because of overlap with existing State critical habitat designations. Subsequently, the Service approved an amendment, submitted by the State of Kansas, to include the western fanshell as a covered species under The Kansas Aquatic Species Conservation Agreement: A Programmatic Safe Harbor Agreement and Candidate Conservation Agreement with Assurances for Fourteen Aquatic Species in Kansas (hereafter, the “Kansas Agreement”) on December 13, 2022.

Based on our analysis, which incorporates the value of the Kansas Agreement plus two additional agreements in Arkansas, in this final rule, we are excluding proposed Unit WF 4 in Arkansas, and all proposed critical habitat in Kansas (including proposed Units WF 3 and WF 9, as well as a portion of proposed Unit WF 8) for the western fanshell, a net decrease of 98.5 river mi (158.4 km) from the proposed designation (see table 2, below). We are also excluding proposed Unit OF 2 and a portion of proposed Unit OF 4 in Arkansas for “Ouachita” fanshell, a net decrease of 66.8 river mi (107.4 km) from the proposed designation (see table 3, below). More information can be found below under Consideration of Impacts under Section 4(b)(2) of the Act, *Exclusions Based on Other Relevant Impacts*.

To minimize disruptions to surveys and research, we added to the 4(d) rule a temporary exception for purposeful

take that results from capture, handling, and release of western fanshell and “Ouachita” fanshell related to presence/absence surveys, studies to document habitat use, and population monitoring by individuals permitted to conduct these same activities for other species of mussels for a period of 6 months from this final rule’s effective date (see **DATES**, above). After the 6-month period, a permit pursuant to section 10(a)(1)(A) of the Act is required for the capture and handling of western fanshell and “Ouachita” fanshell.

Summary of Comments and Recommendations

In our March 3, 2022, proposed rule (87 FR 12338), we requested that all interested parties submit written comments on or before May 2, 2022. We also contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposed rule. Newspaper notices inviting general public comment were published in the following newspapers: Daily Journal (March 5, 2022), Joplin Globe (March 4, 2022), Wayne County Journal Banner (March 7, 2022), Daily American Republic (March 5, 2022), Arkansas Democratic Gazette (March 6, 2022), Examiner-Enterprise (March 8, 2022), Tulsa World (March 6, 2022), Independence Daily Reporter (March 5, 2022), The Morning Sun (March 8, 2022), The Eureka Herald (March 9, 2022), and The Galena Sentinel Times (March 9, 2022). We did not receive any requests for a public hearing. All substantive information received during the comment period has either been incorporated directly into this final rule or is addressed below.

Peer Reviewer Comments

As discussed in Peer Review above, we received comments from two peer reviewers on the draft SSA report. We reviewed all comments we received from the peer reviewers for substantive issues and new information regarding the information contained in the SSA report. The peer reviewers generally concurred with our methods and conclusions and provided support for thorough and descriptive narratives of assessed issues, additional information and citations, clarifications, and suggestions to improve the final SSA report. A theme from one reviewer indicated that the SSA under-represents available science, specifically related to the water quality, flow, and landscape conditions described in the SSA. We incorporated available species-specific and river-specific data into the SSA, including existing high stream

temperatures and expected rises in the future, the percent of forest along an occupied stream, and the density of road crossings. Otherwise, no substantive changes to our analyses and conclusions within the SSA report were deemed necessary, and peer reviewer comments are addressed in version 1.0 of the SSA report.

State Agency Comments

We received comments from agencies in two States: Kansas and Oklahoma.

(1) *Comment:* The Kansas Department of Wildlife and Parks (KDWP) suggested that overlapping Federal critical habitat with State-designated critical habitat would not provide additional net benefits to the species and requested that we exclude all areas of proposed critical habitat in Kansas that are currently designated as State critical habitat.

Our Response: The Service is not relieved of its statutory obligation to designate critical habitat based on the contention that it will not provide additional conservation benefit (see *Ctr. for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090 (D. Ariz. 2003)).

However, subsequent to their comment on the proposed rule, the KDWP submitted an application to amend the Kansas Agreement to include the western fanshell as a covered species. We approved the amendment on December 13, 2022. We have determined that the benefits of exclusion outweigh the benefits of inclusion of proposed critical habitat in the State of Kansas (including proposed Units WF 3 and WF 9, as well as a portion of proposed Unit WF 8) for western fanshell, and we are, therefore, excluding proposed critical habitat in Kansas from this final designation. See Consideration of Impacts under Section 4(b)(2) of the Act, below, for more information.

(2) *Comment:* The KDWP requested that the 4(d) rule include a requirement for consultation with KDWP for channel and bank restoration projects, if mussels are found during surveys, to obtain proper State permits.

Our Response: For channel and bank restoration projects, the 4(d) rule excepts take incidental to otherwise lawful activities. This means that to qualify under this exception, project proponents must satisfy all Federal, State, and local permitting requirements. Therefore, we have not made any changes to the 4(d) rule in response to this comment.

(3) *Comment:* The KDWP recommended that the 4(d) rule include a requirement to conduct surveys for species prior to commencing

transportation project activities and to relocate species in consultation with the Service and KDWP.

Our Response: The exception for incidental take for transportation projects in the 4(d) rule covers only those activities that avoid or do not include instream disturbance; transportation projects with instream disturbance are not covered by this exception. Therefore, requirements for surveys are not necessary in this exception, and we have made no changes to the 4(d) rule in response to this comment.

(4) *Comment:* The KDWP suggested that we add an exception to the 4(d) rule that all activities associated with conducting scientific presence/absence surveys, studies to document habitat use, population monitoring, evaluation of potential impacts to the species, and relocation efforts be exempt from Service permitting requirements, provided that the individual holds a valid scientific collecting permit for mussels from the appropriate State wildlife agency.

Our Response: During the public comment period, we specifically sought comments on inclusion of the suggested exception in the 4(d) rule. However, we have determined that permitting requirements and regulations vary by State and that including this exception in the 4(d) rule would not provide for the conservation of the species. Therefore, we are not including the suggested exception in this final 4(d) rule.

To allow time for us to process applications for amendments to existing permit holders, the final 4(d) rule does temporarily except purposeful take that results from capture, handling, and release of western fanshell and “Ouachita” fanshell related to presence/absence surveys, studies to document habitat use, and population monitoring by individuals permitted to conduct these same activities for other species of mussels for a period of 6 months from this final rule’s effective date (see **DATES**, above).

(5) *Comment:* The KDWP suggested that we include an exception in the 4(d) rule for the temporary collection of females for propagation when used in conjunction with approved species recovery efforts by State and Federal hatcheries, as well as an exception for holding offspring during these efforts, and the Oklahoma Department of Wildlife Conservation (ODWC) requested that we include an exception in the 4(d) rule for mussel community surveys that are conducted or sponsored by a State wildlife agency.

Our Response: This final 4(d) rule includes an exception for take, as set forth at 50 CFR 17.31(b). This provision allows any employee or agent of the Service, National Marine Fisheries Service, or State conservation agency that is operating a conservation program pursuant to the terms of a cooperative agreement with the Service in accordance with section 6(c) of the Act, who is designated by that agency for such purposes when acting in the course of official duties, to take those threatened species of wildlife that are covered by an approved cooperative agreement to carry out conservation programs. The temporary collection of females for propagation by State hatcheries, holding females and offspring for propagation for recovery purposes at State hatcheries, and surveys conducted by a State agency or an agent of the State are covered under this exception if the activity is included in the State’s cooperative agreement with the Service. Therefore, an additional exception in the 4(d) rule is not necessary, and we made no changes to the final rule in response to this comment.

(6) *Comment:* The ODWC stated that surveys for western fanshell in Oklahoma from 1989 onward have shown the species to be rare and lacking a self-sustaining population within the State of Oklahoma. The ODWC also indicated that a future mussel community project is planned for the Oklahoma portions of the Caney and Verdigris rivers, which will provide updated status information for western fanshell in those portions.

Our Response: The most recently documented occurrences of western fanshell in Oklahoma from 2006 are likely part of a population inhabiting Middle Verdigris River, including both sides of the Kansas-Oklahoma State line. Available data indicate that population is increasing in abundance and is successfully recruiting new juveniles. We look forward to updated information from Oklahoma.

Public Comments

(7) *Comment:* One commenter stated the scientific literature does not justify recognition of “Ouachita” fanshell as a distinct species, specifically referencing Kim and Roe (2021) findings that more work is necessary before the “genetically distinct clusters” are formally recognized, and the commenter expressed concern with the Service listing “Ouachita” fanshell as an undescribed species.

Our Response: We acknowledge that “Ouachita” fanshell has not been formally recognized by the scientific

community. However, there is compelling scientific evidence supporting its eventual recognition. Kim and Roe (2021, p. 10) found that *Cyprogenia* west of the Mississippi River, within the range of *C. aberti*, form two distinct lineages (Ozark and Ouachita regions) and both entities are distinct enough to warrant recognition as separate species. We acknowledge that more samples are needed from the Arkansas River drainage in Kansas because these samples formed a sister clade to the Ozark region *C. aberti* populations and were also a distinct group in the Bayesian clustering analysis (Kim and Roe 2021, p. 10). Because Fall and Verdigris rivers in the Arkansas River basin are the type localities for the names *Unio aberti* (Conrad 1850) and *Unio popenoi* (Call 1855), determining the affinities of the Fall and Verdigris River populations is essential to the correct name assignment for *C. aberti*. This is the primary reason cited by Kim and Roe (2021, p. 10) for waiting on taxonomic changes until additional geographic sampling occurs in the Arkansas River basin, specifically pertaining to *C. aberti* from the Ozark region and Arkansas River basin.

The process for naming a newly recognized species may sometimes take longer even though the science has been accepted. We acknowledge that questions remain surrounding the application of a specific name to “Ouachita” fanshell, as discussed above; however, this does not invalidate the scientific validity of “Ouachita” fanshell as a separate species. The Act requires us to use the best scientific and commercial data available, which indicate that the “Ouachita” fanshell is a separate species from western fanshell. Therefore, we are listing the “Ouachita” fanshell as it is currently described. We will update this mussel’s entry on the List of Endangered and Threatened Wildlife once a name has been formally established in the future.

(8) *Comment:* One commenter stated that the western fanshell is already listed and receives protections under State law in Kansas, including State critical habitat; therefore, listing the western fanshell as threatened is unnecessary for the conservation of the species.

Our Response: Under the Act, a species warrants listing if it meets the definition of an endangered species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become endangered within the foreseeable future throughout all or a significant portion of its range). In determining whether a species meets the Act’s

definition of an endangered or threatened species, under section 4(b)(1)(A) of the Act, we are required to make that determination based solely on the best scientific and commercial data available. Based on the best available scientific and commercial data, we have determined that western fanshell and “Ouachita” fanshell are threatened species due to the following threats: 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). Based on our analysis, we have determined that the western fanshell and “Ouachita” fanshell meet the Act’s definition of threatened species; therefore, we are listing them as such and finalizing a designation of their critical habitat. Under 16 U.S.C. 1531(b), the purposes of listing and designation of critical habitat under the Act for these mussel species and other listed species are to provide, in part, a means whereby the ecosystems upon which they depend may be conserved and to provide a program for the species’ conservation.

(9) *Comment:* One commenter suggested expanding the 4(d) rule to expressly include all conservation efforts beneficial to the species, such as scientific studies and monitoring, as well as an exception from take for conservation efforts (including propagation and holding of offspring until they can be stocked). The commenter suggested that without this expansion, conservation efforts would be complicated and neighboring landowners would be less willing to participate in conservation programs or to allow conservation efforts on their lands because of the risk of liability under the Act.

Our Response: Existing agreements between the Service and State wildlife agencies under section 6 of the Act already provide authorization for the States to perform surveys and conduct other conservation work on listed species. As noted above (see our response to (4) *Comment*), we have concluded that an exception to requirements for obtaining a permit for surveys under section 10(a)(1)(A) of the Act would not provide for the conservation of the species due to varying permitting requirements and regulations among States. Programs are available to private landowners for managing habitat for listed species; permits can also be obtained to protect private landowners from the take

prohibition when such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Private landowners may contact their local Service field office to obtain information about these programs and permits.

However, this final 4(d) rule does temporarily except purposeful take that results from capture, handling, and release of western fanshell and “Ouachita” fanshell related to presence/absence surveys, studies to document habitat use, and population monitoring by individuals permitted to conduct these same activities for other species of mussels for a period of 6 months from this final rule’s effective date (see **DATES**, above).

(10) *Comment:* One commenter expressed concern that listing could frustrate the KDWP and private landowners and complicate conservation measures taken by them for the conservation of the western fanshell and other aquatic species.

Our Response: We understand that listing the western fanshell may generate concern about the effect on conservation efforts. The KDWP applied for an amendment to include the western fanshell as a covered species under the Kansas Agreement, which we approved on December 13, 2022. Inclusion of the species in the Kansas Agreement will enhance engagement with private landowners to implement conservation actions for the species by providing assurances to landowners and removing regulatory uncertainty.

(11) *Comment:* One commenter stated that the areas proposed as critical habitat for western fanshell in Kansas overlap with critical habitat for State-listed species and, therefore, are redundant and unnecessary.

Our Response: The Service is not relieved of its statutory obligation to designate critical habitat based on the contention that it will not provide additional conservation benefit. In *Ctr. for Biological Diversity v. Norton*, 240 F. Supp. 2d 1090 (D. Ariz. 2003), the court held that the Act does not direct us to designate critical habitat only in those areas where “additional” special management considerations or protection are needed. See also *Cape Hatteras Access Preservation Alliance v. U.S. Dept. of Interior*, 731 F.Supp.2d (D.D.C. 2010). If any area provides the PBFs essential to the conservation of the species, even if that area is already well managed or protected, that area may still qualify as critical habitat under the statutory definition.

(12) *Comment:* One commenter stated that the proposed rule’s description of water quality threats is generic and fails

to point out which specific contaminants have led to mussel population declines in the proposed critical habitat units.

Our Response: The water quality parameters we considered are discussed in the *Species Needs*, “Water Quality,” and Physical or Biological Features Essential to the Conservation of the Species discussions in the proposed rule (see 87 FR 12338, March 3, 2022, pp. 12344, 12354) and in the same discussions (below) in this final rule. Specific contaminants and their toxicity levels are discussed in the SSA report (Service 2022, pp. 53–58). These contaminants include total ammonia nitrogen (TAN), nitrates and nitrites, cadmium, copper, zinc, and lead. Table 4.4 of the SSA report lists the toxicity levels of each contaminant, and table 4.6 shows the data by river (Service 2022, pp. 35, 41). Water quality data indicate the two fanshell mussels have been exposed to nitrates, nitrites, zinc, and copper at concentrations that cause acute toxicity and may be exposed to toxic levels of lead in the future (Service 2022, p. 55). However, our results indicated that TAN and cadmium were not stressors to either species now or in future scenarios (Service 2022, p. 36). Water quality data are available for each river within the species’ ranges but not for each critical habitat unit specifically.

(13) *Comment:* One commenter noted that ammonia nitrogen levels and low dissolved oxygen were not found to be threats and suggested the 4(d) rule should include an exception for take resulting from standard agricultural practices to allow neighboring landowners to continue their routine agricultural practices and incentivize partnerships between the landowner, State, and Service.

Our Response: Under section 4(d) of the Act, when we list a species as a threatened species, we issue such regulations as deemed necessary and advisable to provide for the conservation of the species. In species-specific 4(d) rules, we focus our efforts on incentivizing known beneficial actions for the species, as well as removing the regulatory burden on forms of take that are considered inconsequential to the conservation of the species. While the SSA report did not find TAN or low dissolved oxygen were threats to either species (Service 2022, p. 36), our analysis found nitrates, nitrites, and sedimentation with agricultural activities as partial sources are threats to both species (Service 2022,

pp. 40, 55–57). While we carefully considered this request, excepting incidental take from agricultural activities would not provide a clear conservation benefit to the western fanshell or “Ouachita” fanshell, and we did not include this exception in the final 4(d) rule.

We acknowledge that building partnerships and promoting cooperation of landowners are essential to understanding the status of species on non-Federal lands and may be necessary to implement recovery actions such as habitat restoration. For private landowners, we offer voluntary SHAs that can contribute to the recovery of species, habitat conservation plans (HCPs) that allow activities to proceed while minimizing effects to species, and funding through the Partners for Fish and Wildlife Program to help promote conservation actions.

(14) *Comment:* One commenter expressed concern that not many channel and bank restoration and transportation projects would qualify as projects that do not involve disturbing the water as stipulated in the proposed 4(d) rule.

Our Response: The purpose of the 4(d) rule is to incentivize positive conservation actions and streamline the regulatory process for minor impacts. To clarify, the exception in the 4(d) rule for channel and bank restoration does not require that projects do not disturb instream waters. The exception for transportation projects is for those projects that avoid instream disturbance in waters occupied by the western fanshell or “Ouachita” fanshell. We are not excepting take from transportation projects with instream disturbance because these project types may require incorporation of site-specific measures to avoid and minimize effects to the western fanshell or “Ouachita” fanshell.

(15) *Comment:* One commenter expressed concern that critical habitat may lead to severe restrictions to private property and restricting bank stabilization and channel maintenance activities in the critical habitat units will limit stream restoration activities benefiting the species.

Our Response: The designation of critical habitat will not impose any restrictions on non-Federal actions for private landowners, provided there is no Federal nexus. If there is a Federal nexus and the action of the Federal agency may affect the species or its designated critical habitat, then the Federal agency will need to consult

with the Service. However, the 4(d) rule provides, among others, an exception for take related to channel and bank restoration projects. Although the 4(d) rule does not alleviate a Federal agency’s obligation to consult under section 7 of the Act, this exception for channel and bank restoration projects will help to streamline future consultations.

I. Final 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 (Kim and Roe 2021, p. 10; Chong et al. 2016, pp. 2445–2449). There is uncertainty regarding what name is available for the Ouachita River drainage fanshell. Further taxonomic changes are pending additional geographic sampling to understand the correct name assignment (Kim and Roe 2021, p. 10), but this does not invalidate the distinctiveness of the Ouachita River basin *Cyprogenia* as a separate species.

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 2022, pp. 22–29; 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 2022, pp. 29–32; see figure 2, below).

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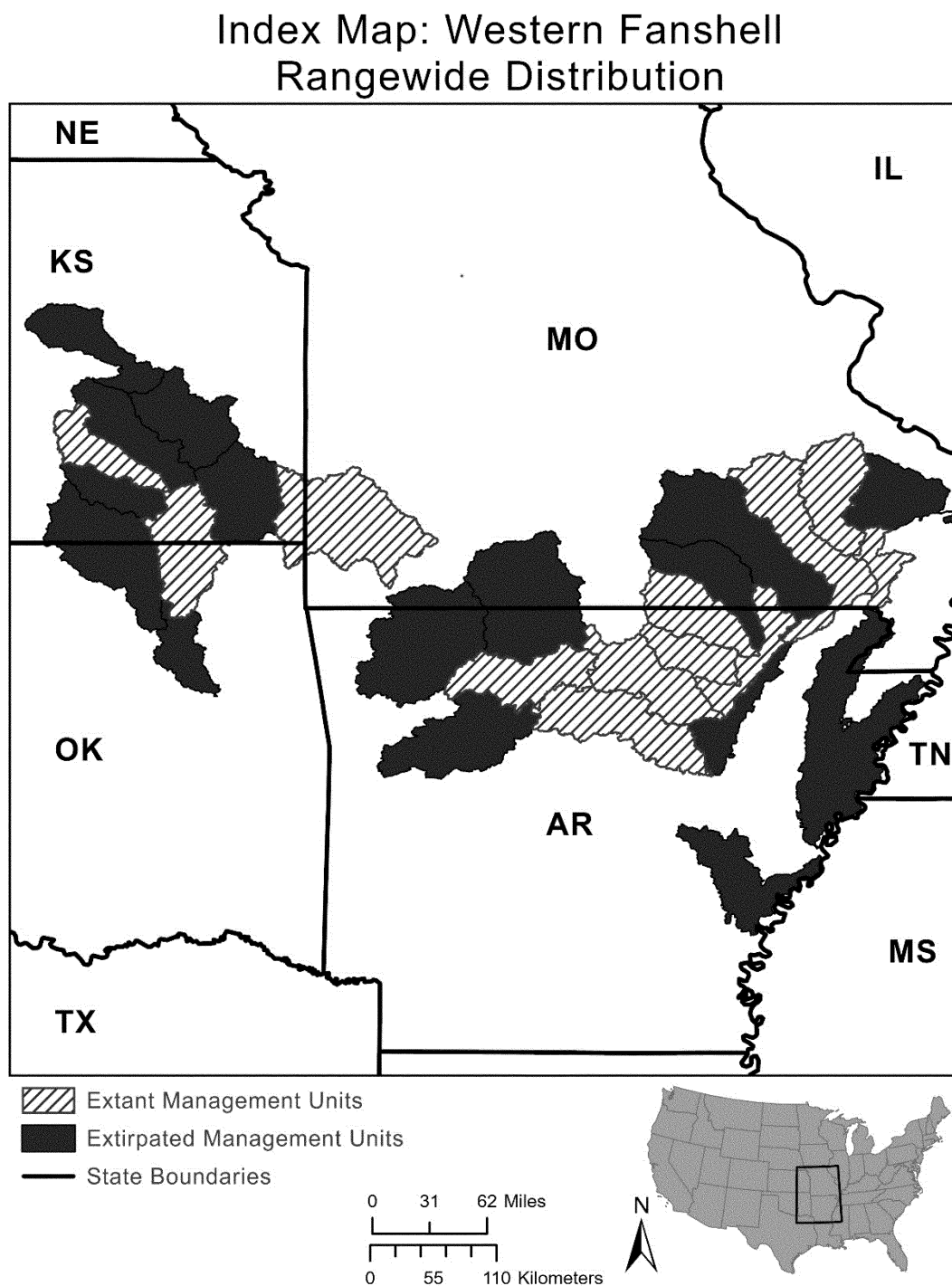


Figure 1. Distribution of the extant and extirpated management units of western fanshell in Arkansas, Kansas, Missouri, and Oklahoma.

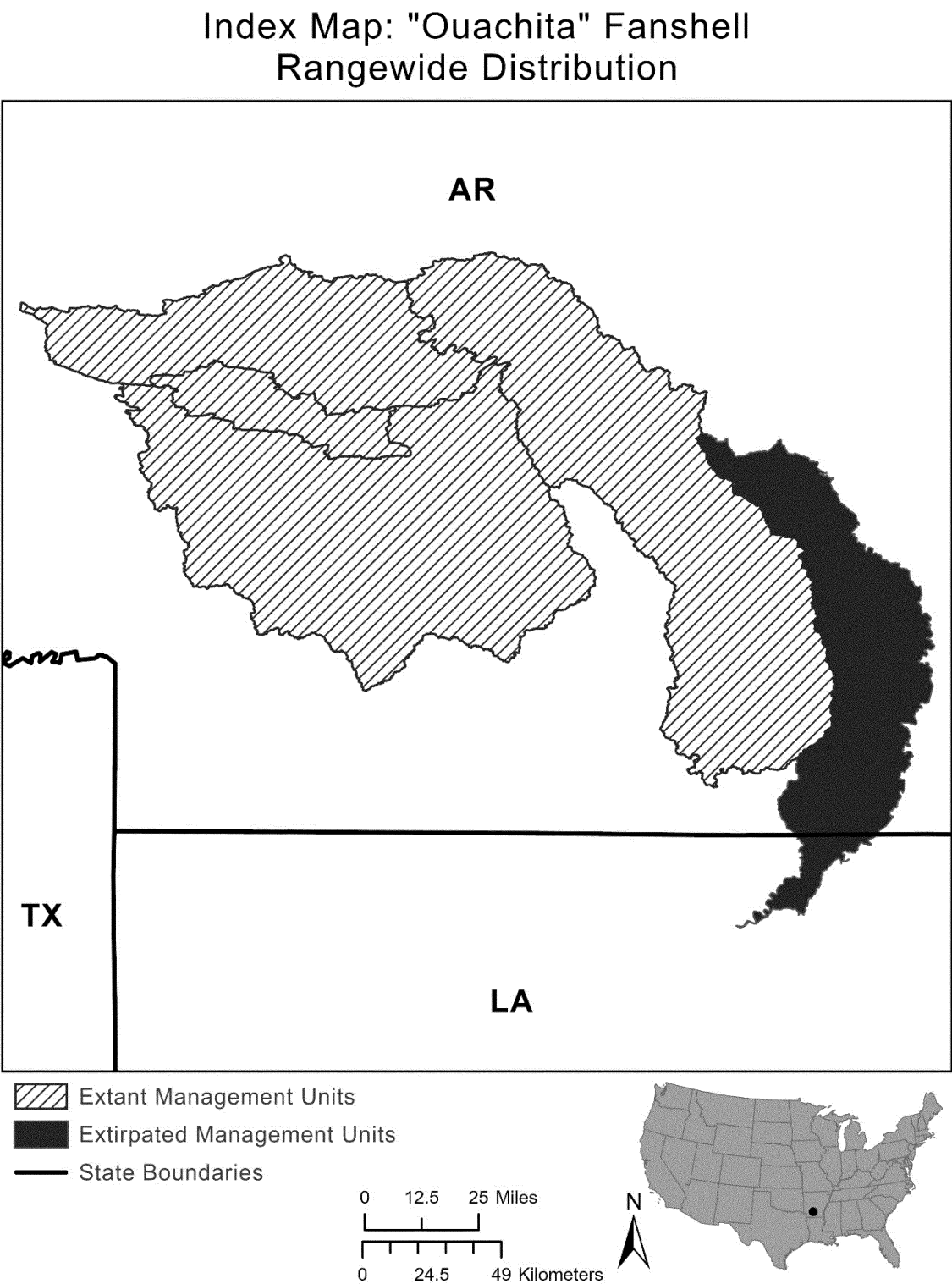


Figure 2. Distribution of the extant and extirpated management units of “Ouachita” fanshell in Arkansas and Louisiana.

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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 2022, pp. 9–16).

Regulatory and Analytical Framework Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations in title 50 of the Code of Federal Regulations set forth the procedures for determining whether a species is an endangered species or a threatened species, issuing protective regulations for threatened species, and designating critical habitat for endangered and threatened species. In 2019, jointly with the National Marine Fisheries Service, the Service issued a final rule that revised the regulations in 50 CFR part 424 regarding how we add, remove, and reclassify endangered and threatened species and the criteria for designating listed species’ critical habitat (84 FR 45020; August 27, 2019). On the same day, the Service also issued final regulations that, for species listed as threatened species after September 26, 2019, eliminated the Service’s general protective regulations automatically applying to threatened species the prohibitions that section 9 of the Act applies to endangered species (84 FR 44753; August 27, 2019).

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 species’ expected response 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 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 Services 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 the 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 both species, including an assessment of potential threats to the species. The SSA report does not represent our decision on whether either species should be listed 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.

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 is the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years), redundancy is the ability of the species to withstand catastrophic events (for example, droughts, large pollution events), and representation is the ability of the species to adapt to both near-term and long-term changes in its physical and biological environment (for example, climate conditions, pathogens). In general, species viability will increase with increases in resiliency, redundancy, and representation (Smith et al. 2018, p. 306). 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 the 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.

The following is a summary of the key results and conclusions from the SSA report for the western fanshell and "Ouachita" fanshell; the full SSA report can be found in Docket No. FWS-R3-ES-2021-0061 at <https://www.regulations.gov>.

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the western fanshell and "Ouachita" fanshell, 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 2022, pp. 9–16). 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 2022, p. 53). 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 2022, pp. 64–65). The primary threats are discussed below.

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 2022, p. 17). We defined a MU as currently extant if it contains live or recent dead individuals observed in surveys from 2000 to the present (Service 2022, p. 22).

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 2022, p. 41) and may be exposed to toxic levels of lead in the future (Service 2022, appendix I–D–I–E). Metals from mine water runoff (for example, the 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 2022, 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 mussels' 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).

Most sediment transport occurs during floods (Clark and Mangham 2019, pp. 6–7; Kondolf 1997, p. 533). An 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 2022, 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 from 12 to 77 percent in western fanshell MUs (Service 2022, 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 from 17 to 68 percent in western fanshell MUs and decreased in all MUs for both species from 2011 to 2016 (Service 2022, 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 report (Service 2022, pp. 22–32). 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

In Kansas, 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 KDWP regarding potential permit requirements. In addition, Kansas manages the take and possession of mussels for personal use and prohibits the personal take of any mussel species listed as endangered or threatened by Kansas or the Federal Government. 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 that State’s Act 898 of the 90th General Assembly in 2015, 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

We described current (and future) conditions 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 2022, pp. 17–21). In the absence of species-specific genetic information, we used contiguous hydrologic units at the HUC–4 level to assess the species’ genetic, ecological, and geographical diversity (representation), and we used the number of populations and MUs to describe the species’ redundancy.

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 2022, pp. 37–46). The habitat conditions across the 11 extant populations are medium to high (Service 2022, p. 42).

“Ouachita” Fanshell

The “Ouachita” fanshell currently occurs in four MUs within portions of the Ouachita River basin (HUC–4) in Arkansas. One MU 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 2022, pp. 47–49). The habitat conditions across the four extant populations are medium to high (Service 2022, p. 50).

Future Conditions

We forecasted the western fanshell’s and “Ouachita” fanshell’s responses to plausible future scenarios of varying 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 the plausible upper and lower bounds of the 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. We projected these two scenarios 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 2022, pp. 67–72).

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. Neither species loses

any areas of representation although redundancy is reduced within the representation units (HUC–4 river basins) for both species. However, we do not expect reduced adaptive capacity of either species to future environmental change in the next 40 years.

While our projections under Scenario 2 do not anticipate additional extirpations (and therefore further loss of redundancy) 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. However, we do not expect reduced adaptive capacity of either species to future environmental change in the next 40 years.

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 relevant 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 Status for the Western Fanshell and “Ouachita” Fanshell

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 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 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.

In conducting our status assessment of the western fanshell and “Ouachita” fanshell, we evaluated all identified threats under the Act’s section 4(a)(1) factors and assessed how the cumulative impact of all threats acts on the viability of the species as a whole. That is, all the anticipated effects from both habitat-based and direct mortality-based threats are examined in total and then evaluated in the context of what those combined negative effects will mean to the current and future condition of the western fanshell and “Ouachita” fanshell. However, for the majority of potential threats, the effect on the western fanshell and “Ouachita” fanshell (e.g., total losses of individual mussels or their habitat) cannot be quantified with available information. Instead, we use the best available information to gauge the magnitude of each individual threat on the western fanshell and “Ouachita” fanshell, and then assess how those effects combined (and may be ameliorated by any existing regulatory mechanisms or conservation efforts) will impact the western fanshell’s or “Ouachita” fanshell’s current and future viability.

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/MUs from historical conditions. However, the species still ranges over three of 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. Representation is maintained with 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, after assessing the best available information, we conclude that the species is not currently 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: 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*, 435 F. Supp. 3d 69 (D.D.C. 2020) (*Everson*), vacated the provision 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” (Final Policy; 79 FR 37578; July 1, 2014) that provided if the

Services determine that a species is threatened throughout all of its range, the Services will not analyze whether the species is endangered in a significant portion 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 *Everson*, we now consider whether there are any significant portions of the species’ range where the species is in danger of extinction now (i.e., endangered). In undertaking this analysis for the 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 may be endangered.

We evaluated the range of the western fanshell to determine if the species is in danger of extinction now in any portion of its range. The range of a species can theoretically be divided into portions in an infinite number of ways. We focused our analysis on portions of the species’ range that may meet the definition of an endangered species. For the western fanshell, we considered whether the threats or their effects on the species are greater in any biologically meaningful portion of the species’ range than in other portions such that the species is in danger of extinction now in that portion.

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 with the exception of the Spring River MU, which has low water quality and low landscape conditions. However, overall habitat for the Spring River MU is medium condition. Based on this assessment, we found that threats are

acting similarly within the occupied river basins across the species' range. We found no locations where threats are more concentrated in any portion of the western fanshell's range at a biologically meaningful scale. There are no threats that are having greater impacts on the species in any one area. Therefore, there is no biologically meaningful portion that has a different status from the overall rangewide status. 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 does not conflict with the courts' holdings in *Desert Survivors v. U.S. Department of the Interior*, 321 F. Supp. 3d 1011, 1070–74 (N.D. Cal. 2018) and *Center for Biological Diversity v. Jewell*, 248 F. Supp. 3d 946, 959 (D. Ariz. 2017) because, in reaching this conclusion, we did not apply the aspects of the Final Policy, including the definition of “significant” that those court decisions held to be invalid.

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 are listing 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 Act's 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, maintaining the species' representation. 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 currently 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: 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 may be endangered. For the “Ouachita” fanshell, we considered whether the threats or their effects on the species are greater in any biologically meaningful portion of the species' range than in other portions such that the species is in danger of extinction now in that portion.

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 with no habitat factors in low condition. Based on this assessment, we found that threats are acting similarly across the species' range. We found no locations where threats are more concentrated in any portion of the “Ouachita” fanshell's range at a biologically meaningful scale. There are no threats that are having greater impacts on the species in any one area. Therefore, there is no biologically meaningful portion that has a different status from the overall rangewide status. 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 does not conflict with the courts' holdings in *Desert Survivors v. U.S. Department of the Interior*, 321 F. Supp. 3d 1011, 1070–74 (N.D. Cal. 2018) and *Center for Biological Diversity v. Jewell*, 248 F. Supp. 3d 946, 959 (D. Ariz. 2017) because, in reaching this conclusion, we did not apply the aspects of the Final Policy, including the definition of “significant” that those court decisions held to be invalid.

“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 are listing 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 as a listed species, planning and implementation of 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 goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

The recovery planning process begins with development of a recovery outline made available to the public soon after a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions while a recovery plan is being developed. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) may be established to develop and implement recovery plans. The recovery planning process involves the identification of actions that are necessary to halt and reverse the species' decline by addressing the threats to its survival and recovery. The recovery plan 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 methods 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. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes

available. The recovery outline, draft recovery plan, final recovery plan, and any revisions will be available on our website as they are completed (<https://www.fws.gov/program/endangered-species>), 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 (e.g., 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.

Once these species are 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 will be eligible for Federal funds to implement management actions that promote the protection or recovery of the western fanshell or "Ouachita" fanshell or both species. Information on our grant programs that are available to aid species recovery can be found at: <https://www.fws.gov/service/financial-assistance>.

Please let us know if you are interested in participating in recovery efforts for the western fanshell or "Ouachita" fanshell. 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 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)(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 any endangered or threatened 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 may include, but are not limited to, management and any other landscape-altering activities on Federal lands administered 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 (33 U.S.C. 1251 *et seq.*) 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, and 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, HCPs, and SHAs; 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 listing on proposed and ongoing activities within the range of the listed species. The discussion below regarding protective regulations under

section 4(d) of the Act complies with our policy.

II. Final 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 *Alsea 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 [her] with regard to the permitted activities for those species. [She] may, for example, permit taking, but not importation of such species, or

[s]he 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 our authority under section 4(d), we have developed a 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 water quality degradation, changes to flow, and impoundments, which are expected to be exacerbated by continued urbanization and effects of climate change.

The provisions of this 4(d) rule will promote conservation of the western fanshell and “Ouachita” fanshell by encouraging management of the landscape in ways that meet both land management considerations and conservation needs of the western fanshell and “Ouachita” fanshell. The provisions of this rule are one of many tools that the Service will use to promote the conservation of the western fanshell and “Ouachita” fanshell.

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.

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 4(d) Rule

The protective regulations for western fanshell and “Ouachita” fanshell incorporate prohibitions from section 9(a)(1) of the Act to address the threats to the species. In particular, this 4(d) rule will provide for the conservation of the western fanshell and “Ouachita” fanshell by prohibiting the following activities, unless they fall within specific exceptions or are otherwise authorized or permitted: Importing or exporting; take; possession and other acts with unlawfully taken specimens; delivering, receiving, carrying, 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, 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 water quality degradation, changes to flow, and impoundments, which are expected to be exacerbated by continued urbanization and effects of climate change.

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. Regulating take will help preserve the species’ remaining populations, slow their rate of decline, and decrease synergistic, negative effects from other stressors. Therefore, we prohibit take of the western fanshell and “Ouachita” fanshell, except for take resulting from those actions and activities specifically excepted by the 4(d) rule.

The 4(d) rule provides for the conservation of the species by allowing exceptions, including certain standard exceptions, to take prohibitions caused by actions and activities that, while they may have some minimal level of disturbance to the western fanshell and “Ouachita” fanshell, will not have a negative impact (*i.e.*, will have only de minimis impacts) on the species’ conservation. The exceptions to these prohibitions include incidental take associated with (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. This exception also includes a requirement for 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.

In addition, as discussed above under Summary of Changes from the Proposed Rule, the 4(d) rule temporarily excepts purposeful take that results from capture, handling, and release of western fanshell and “Ouachita” fanshell related to presence/absence surveys, studies to document habitat use, and population monitoring by individuals permitted to conduct these same activities for other species of mussels for a period of 6 months from this final rule’s effective date (see **DATES**, above). This provision will allow time for us to process applications for amendments to existing permit holders.

We may issue permits to carry out otherwise prohibited activities, including those described above, involving threatened wildlife under certain circumstances. Regulations governing permits 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 propagation or survival, 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.

We recognize the special and unique relationship with our State natural resource agency partners in contributing to the 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 us in implementing all aspects of the Act. In this regard, section 6 of the Act provides that we must 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 us in accordance with section 6(c) of the Act, who is designated by his or her agency for such purposes, is 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 4(d) rule changes in any way the recovery planning provisions of section 4(f) of the Act, the consultation requirements under section

7 of the Act, or our ability 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 us and other Federal agencies, where appropriate.

III. Critical Habitat for the Western Fanshell and “Ouachita” Fanshell

Background

Section 4(a)(3) of the Act requires that, to the maximum extent prudent and determinable, we designate a species’ critical habitat concurrently with listing the species. 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 (*i.e.*, 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 (*e.g.*, migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals).

This critical habitat designation was proposed when the regulations defining “habitat” (85 FR 81411; December 16, 2020) and governing the 4(b)(2) exclusion process for the Service (85 FR 82376; December 18, 2020) were in place and in effect. However, those two regulations have been rescinded (87 FR 37757; June 24, 2022, and 87 FR 43433; July 21, 2022) and no longer apply to any designations of critical habitat. Therefore, for this final rule designating critical habitat for the western fanshell and “Ouachita” fanshell, we apply the regulations at 424.19 and the 2016 Joint Policy on 4(b)(2) exclusions (81 FR 7226; February 11, 2016).

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, habitat restoration, 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 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) which are 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).

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.

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 other 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.

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 the 4(d) rule. 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, HCPs, or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

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 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 for 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 reports; 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>Water Quality: 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 and 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>Water Quantity: Flowing water in sufficient quantity to support the life-history requirements of mussels and their fish hosts.</p>	<p>Allen et al. 2007, pp. 80–85; Augspurger et al. 2003, p. 2569; Bringolf et al. 2007a, p. 2094; 2007b, p. 2086; Cope et al. 2008, p. 455; Fuller 1974, pp. 240–246; Gillis et al. 2008, pp. 140–141; Gray et al. 2002, pp. 155–156; Kolpin et al. 2002, pp. 1208–1210; Spooner and Vaughn 2008, p. 311; Steingraeber et al. 2007, p. 297; Wang et al. 2007a, 2007b, 2010, 2013, entire.</p>
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. 	<p>Galbraith and Vaughn 2009, p. 46; Allen and Vaughn 2010, p. 390; Peterson et al. 2011, p. 115; Daraio et al. 2010, p. 838.</p> <p>Haag 2012, pp. 38–39; Galbraith and Vaughn 2009, pp. 45–46; Barnhart et al. 2008, p. 372.</p>
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. 	<p>Allen and Vaughn 2010, pp. 384–385; Haag 2012, pp. 26–42; Eckert 2003, pp. 18–19, 33.</p>

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 2022, pp. 9–16), which is available on <https://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 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. For the western fanshell, this includes logperch (*Percina caprodes*), rainbow darter (*Etheostoma caeruleum*), slenderhead darter (*Percina phoxocephala*), fantail darter (*Etheostoma flabellare*), or orangebelly darter (*Etheostoma radiosum*). For the “Ouachita” fanshell, this includes logperch (*Percina caprodes*), slenderhead darter (*Percina phoxocephala*), 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 which are 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 designating 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 are not designating any areas outside the geographical area occupied by the western fanshell or “Ouachita” fanshell because we have not identified any unoccupied areas that meet the definition of critical habitat. We have determined that occupied areas are sufficient to conserve these species.

Methodology Used For Selection of 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 present (Service 2022, p. 22).

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 we 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 these critical habitat designations include information from State agencies throughout the species’ ranges and numerous survey reports on streams throughout the species’ ranges (Service 2022, 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 2022, 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 critical habitat 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 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 (see Final Critical Habitat Designation, below).

(2) “Ouachita” fanshell—Little Missouri River, Ouachita River, and Saline River (see Final Critical Habitat Designation, below).

Critical Habitat Maps

When determining critical habitat boundaries, we made every effort to avoid including 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 rule have been excluded by text in the rule and are not designated as critical habitat. Therefore, a Federal action involving these lands will not trigger section 7 consultation under the Act with respect to critical habitat and the requirement of no adverse modification unless the specific action will affect the physical or biological features in the adjacent critical habitat.

We are designating as critical habitat stream reaches that we have determined are occupied at the time of listing (*i.e.*, 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. Six units for the western fanshell and three units for the “Ouachita” fanshell are designated based on the presence of the physical or biological features that 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 or “Ouachita” fanshell’s particular use of that habitat.

The 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 Regulation Promulgation. We include more detailed information on the boundaries of the critical habitat designation in the discussion of individual units below. We will make the coordinates or plot points or both on which each map is

based available to the public on <https://www.regulations.gov> at Docket No. FWS–R3–ES–2021–0061, and on our internet sites at <https://www.fws.gov/species/western-fanshell-cyprogenia-aberti> for western fanshell and <https://www.fws.gov/species/ouachita-fanshell-cyprogenia-sp-cf-aberti> for “Ouachita” fanshell.

Final Critical Habitat Designation

We are designating a total of 261.4 river miles (river mi) (420.7 kilometers (km)) in 6 units as critical habitat for the western fanshell and a total of 227.7 river mi (366.5 km) in 3 units as critical habitat for the “Ouachita” fanshell. All units are occupied by their respective species. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for the western fanshell and “Ouachita” fanshell. The six areas designated as critical habitat for the western fanshell are: Upper Black River (Unit WF 1), Lower Black/Strawberry River (Unit WF 2), St. Francis River (Unit WF 5), South Fork Spring River (Unit WF 6), Spring River (AR) (Unit WF 7), and Spring River (MO) (Unit WF 8). The three areas designated as critical habitat for the “Ouachita” fanshell are: Little Missouri River (Unit OF 1), Ouachita River (Unit OF 3), and Saline River (Unit OF 4). For both the western fanshell and “Ouachita” fanshell, unit numbers are not sequential because of exclusions we are making in this final rule; see *Exclusions Based on Other Relevant Impacts*, below, for more information. Tables 2 and 3 show the critical habitat units and the approximate river miles of each unit.

TABLE 2—CRITICAL HABITAT UNITS FOR THE 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 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)	Private	8.5 (13.7)
Totals	Public	37.2 (59.7)
	Private	224.2 (361)
	Total	261.4 (420.7)

Note: River miles may not sum due to rounding.

TABLE 3—CRITICAL HABITAT UNITS FOR THE “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)
OF 3. Ouachita River	Private	53.5 (86.1)
OF 4. Saline River	Public (State)	0.5 (0.8)
	Private	150.8 (242.7)
Totals	Public	0.5 (0.8)
	Private	227.2 (365.7)
	Total	227.7 (366.5)

Note: River miles 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. Unit WF 1 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. This unit does not 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. Unit WF 2 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 the adjacent riparian areas of 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 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. Unit WF 5 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. Unit WF 5 entirely overlaps 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 in Fulton County. Unit WF 6 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. This unit does not 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. Unit WF 7 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. Unit WF 7 entirely overlaps 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)

Unit WF 8 consists of 8.5 river mi (13.7 km) of Spring River in Jasper County, Missouri, from the mouth of North Fork Spring River east of Asbury, Jasper County, Missouri, extending downstream to the Kansas State line, then from where it re-enters Missouri to the mouth of Center Creek west of Carl Junction, Jasper County, Missouri. Unit WF 8 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 8 is occupied by the species and contains one or more of the physical or biological features essential to the species' conservation. Unit WF 8 entirely overlaps 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).

In our March 3, 2022, proposed rule, we proposed Unit WF 8 as including 15 river mi (24.1 km) of Spring River in Jasper County, Missouri, and Cherokee County, Kansas. The Kansas Agreement covers 6.5 river miles (10.5 km) of the proposed Unit WF 8, and we have excluded that portion of the proposed unit from this final designation (see *Exclusions Based on Other Relevant Impacts*, below).

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. Unit OF 1 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. This unit does not 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 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 Fraie Creek southeast of Arkadelphia, Clark County, downstream to the mouth of Ecure Fabre Bayou north of Camden, Ouachita County. Unit OF 3 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 151.3 river mi (243.5 km) of Saline River in Ashley, Bradley, Cleveland, Dallas, Drew, and Grant Counties, Arkansas, from U.S. Highway 270 east of Poyen, Grant County, downstream to the mouth of Mill Creek north of Stillions, Ashley County. Unit OF 4 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 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 74.2 river mi (119.4 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).

In our March 3, 2022, proposed rule, we proposed Unit OF 4 as including 185.3 river mi (298.2 km) of Saline River in Ashley, Bradley, Cleveland, Dallas, Drew, Grant, and Saline Counties,

Arkansas. The Headwaters Agreement covers 34.1 river miles (54.9 km) of the proposed Unit OF 4, and we have excluded that portion of the proposed unit from this final designation (see *Exclusions Based on Other Relevant Impacts*, below).

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. 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 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: (a) if the amount or extent of taking specified in the incidental take statement is exceeded; (b) 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; (c) 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 written concurrence; or (d) if a new species is listed or critical habitat designated that may be affected by the identified action. The reinitiation requirement applies only to actions that remain subject to some discretionary Federal involvement or control. As provided in 50 CFR 402.16, the requirement to reinitiate consultations for new species listings or critical habitat designation does not apply to certain agency actions (e.g., land management plans issued by the Bureau of Land Management in certain circumstances).

Application of the “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 we 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)); or (4) significantly alter streambed 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 Improvement Act of 1997 (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. There are no DoD lands with a completed INRMP within the 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 critical habitat based on economic impacts, impacts on national security, or any other relevant impacts. Exclusion decisions are governed by the regulations at 50 CFR 424.19 and the Policy Regarding Implementation of Section 4(b)(2) of the Endangered Species Act (2016 Policy; 81 FR 7226, February 11, 2016)—both of which were developed jointly with National Marine Fisheries Service (NMFS). We also refer to a 2008 Department of the Interior Solicitor’s opinion entitled, “The Secretary’s Authority to Exclude Areas from a Critical Habitat Designation under Section 4(b)(2) of the Endangered Species Act” (M–37016). We explain each decision to exclude areas, as well as decisions not to exclude, to demonstrate that the decision is reasonable.

The Secretary may exclude any particular area if she determines that the benefits of such exclusion outweigh the benefits of including such area as part of the critical habitat, unless she determines, based on the best scientific data available, that the failure to designate such area as critical habitat will 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 deciding whether to exclude any areas—taking into consideration each category of impacts and our analyses of the relevant impacts.

Exclusions Based on 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. In order to consider economic impacts, we prepared an incremental effects memorandum (IEM) and screening analysis which, together with our narrative and interpretation of effects, we consider our economic analysis of the critical habitat designation and related factors (Service 2021, entire). The analysis, dated March 19, 2021, was made available for public review from March 3, 2022, through May 2, 2022 (87 FR 12338; March 3, 2022). The economic analysis addressed probable economic impacts of critical habitat designation for the western fanshell and “Ouachita” fanshell. Following the close of the comment period, we reviewed and evaluated all information submitted during the comment period that may pertain to our consideration of the probable incremental economic impacts of this critical habitat designation. Additional information relevant to the probable incremental economic impacts of critical habitat designation for the western fanshell and “Ouachita” fanshell is summarized below and available in the screening analysis for the species (Industrial Economics, Inc. 2021, entire), available at <https://www.regulations.gov>.

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 designation of critical habitat for the western fanshell and “Ouachita” fanshell, first we identified, in the IEM dated February 1, 2021 (Service 2021, entire), 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 activities 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, the designation of critical habitat affects activities conducted, funded, permitted, or authorized by Federal agencies only. In areas where the western fanshell or “Ouachita” fanshell are present, Federal agencies are required to consult with the Service under section 7 of the Act on activities they fund, permit, or implement that may affect the species. Consultations to avoid the destruction or adverse modification of critical habitat will be incorporated into the existing consultation process.

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 (*i.e.*, difference between the jeopardy and adverse modification standards) for the western fanshell’s and “Ouachita” fanshell’s critical habitat. Because we are designating critical habitat for the western fanshell and “Ouachita” fanshell concurrently with listing the species, 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 will result solely from the designation of critical habitat; this is particularly difficult where there is no unoccupied critical habitat and, thus, there will be consultations for all areas based on the species’ presence in those areas. 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 designation of critical habitat.

The final critical habitat designation for the western fanshell includes six units, all of which are occupied by the species. Ownership of riparian lands adjacent to the units includes 224.2 river mi (361 km; 86 percent) in private ownership and 37.2 river mi (59.7 km; 14 percent) in public (Federal or State government) ownership. The final critical habitat designation for the “Ouachita” fanshell includes three units, all of which are occupied by the species. Ownership of riparian lands adjacent to the units includes 227.2 river mi (365.7 km; 99.8 percent) in private ownership and 0.5 river mi (0.8 km; 0.2 percent) in public (State government) ownership.

Total incremental costs of critical habitat designation for the western fanshell are not expected to exceed \$48,000 (2021 dollars) per year (Industrial Economics, Inc. 2021, p. 18). With the exclusion of proposed Units WF 3, 4, and 9 and the Kansas portion of proposed Unit WF 8, we anticipate these costs will be even lower. Total incremental costs of critical habitat designation for the “Ouachita” fanshell are not expected to exceed \$30,000 (2021 dollars) per year (Industrial Economics, Inc. 2021, p. 18). With the exclusion of proposed Unit OF 2 and a portion of proposed Unit OF 4, we anticipate these costs will also be lower. The costs are reflective of: (1) All 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 designations receive baseline protection from the presence of critical habitat for co-occurring listed mussel species with similar habitat needs in 54 percent of the western fanshell’s designated critical habitat and in 43 percent of the “Ouachita” fanshell’s designated critical habitat. Because consultation will 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 will likely be primarily limited to additional administrative efforts to consider adverse modification for these two species in section 7

consultations (Industrial Economics, Inc. 2021, p. 12).

Based on the consultation history regarding historical projects and activities overlapping the 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 six units. Based on the consultation history regarding historical projects and activities overlapping the 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 three 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 Unit 2 and “Ouachita” fanshell Unit 4. However, even assuming consultation activity increases substantially, incremental administrative costs are still likely to remain well under \$100 million per year (Industrial Economics, Inc. 2021, p. 18).

We solicited data and comments from the public regarding the economic analysis, as well as all aspects of the March 3, 2022, proposed rule (87 FR 12338). We did not receive any additional information on economic impacts during the public comment period to determine whether any specific areas should be excluded from the final critical habitat designation under authority of the Act’s section 4(b)(2) and our implementing regulations at 50 CFR 424.19.

As discussed above, we considered the economic impacts of the critical habitat designation, and the Secretary is not exercising her discretion to exclude any areas from this designation of critical habitat for the western fanshell and “Ouachita” fanshell based on economic impacts.

A copy of the IEM and screening analysis with supporting documents may be obtained by contacting the Missouri Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**) or by downloading from the internet at <https://www.regulations.gov>.

Exclusions Based on Impacts on National Security and Homeland Security

In preparing this rule, we determined that there are no lands within the designated critical habitat for western fanshell or “Ouachita” fanshell that are

owned or managed by the DoD or Department of Homeland Security; therefore, we anticipate no impact on national security or homeland security. We did not receive any additional information during the public comment period for the proposed designation regarding impacts of the designation on national security or homeland security that would support excluding any specific areas from the final critical habitat designation under authority of section 4(b)(2) of the Act and our implementing regulations at 50 CFR 424.19, as well as the 2016 Policy.

Exclusions Based on 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 as discussed above. 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, SHAs, or CCAAs, or whether there are non-permitted conservation agreements and partnerships that would be encouraged 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, social, or other impacts that might occur because of the designation.

When identifying the benefits of inclusion for an area, we consider the additional regulatory benefits that area would receive due to the protection from destruction or adverse modification as a result of actions with a Federal nexus, the educational benefits of mapping essential habitat for recovery of the listed species, and any benefits that may result from a designation due to State or Federal laws that may apply to critical habitat.

In the case of western fanshell and “Ouachita” fanshell, the benefits of critical habitat include public awareness of the presence of the species and the importance of habitat protection, and, where a Federal nexus exists, increased habitat protection for western fanshell and “Ouachita” fanshell due to protection from destruction or adverse modification of critical habitat.

When identifying the benefits of exclusion, we consider, among other things, whether exclusion of a specific area is likely to result in conservation, or in the continuation, strengthening, or

encouragement of partnerships. Additionally, continued implementation of an ongoing management plan that provides equal to or more conservation than a critical habitat designation would reduce the benefits of including that specific area in the critical habitat designation.

We evaluate the existence of a conservation plan when considering the benefits of inclusion. We consider a variety of factors, including, but not limited to, whether the plan is finalized; how it provides for the conservation of the essential physical or biological features; whether there is a reasonable expectation that the conservation management strategies and actions contained in a management plan will be implemented into the future; whether the conservation strategies in the plan are likely to be effective; and whether the plan contains a monitoring program or adaptive management to ensure that the conservation measures are effective and can be adapted in the future in response to new information.

After identifying the benefits of inclusion and the benefits of exclusion, we carefully weigh the two sides to evaluate whether the benefits of exclusion outweigh those of inclusion. If our analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, we then determine whether exclusion would result in extinction of the species. If exclusion of an area from critical habitat will result in extinction, we will not exclude it from the designation.

Based on the information provided by entities seeking exclusion, as well as any additional public comments we received, and the best scientific data available, we evaluated whether certain lands in the proposed critical habitat Units WF 3, WF 4, WF 8, WF 9, OF 2, and OF 4 are appropriate for exclusion from this final designation under section 4(b)(2) of the Act. If our analysis indicates that the benefits of excluding lands from the final designation outweigh the benefits of designating those lands as critical habitat, then the Secretary may exercise her discretion to exclude the lands from the final designation. In the paragraphs below, we provide a detailed balancing analysis of the areas being excluded under section 4(b)(2) of the Act.

Private or Other Non-Federal Conservation Plans Related to Permits Under Section 10 of the Act

HCPs for incidental take permits under section 10(a)(1)(B) of the Act provide for partnerships with non-Federal entities to minimize and mitigate impacts to listed species and

their habitat. In some cases, HCP permittees agree to do more for the conservation of the species and their habitats on private lands than designation of critical habitat would provide alone. We place great value on the partnerships that are developed during the preparation and implementation of HCPs.

CCAAs and SHAs are voluntary agreements designed to conserve candidate and listed species, respectively, on non-Federal lands. In exchange for actions that contribute to the conservation of species on non-Federal lands, participating property owners are covered by an “enhancement of survival” permit under section 10(a)(1)(A) of the Act, which authorizes incidental take of the covered species that may result from implementation of conservation actions, specific land uses, and, in the case of SHAs, the option to return to a baseline condition under the agreements. We also provide enrollees assurances that we will not impose further land-, water-, or resource-use restrictions, or require additional commitments of land, water, or finances, beyond those agreed to in the agreements.

When we undertake a discretionary section 4(b)(2) exclusion analysis, we will always consider areas covered by an approved CCAA/SHA/HCP, and we anticipate consistently excluding such areas if incidental take caused by the activities in those areas is covered by the permit under section 10 of the Act and the CCAA/SHA/HCP meets all of the following three factors (see the 2016 Policy for additional details):

a. The permittee is properly implementing the CCAA/SHA/HCP and is expected to continue to do so for the term of the agreement. A CCAA/SHA/HCP is properly implemented if the permittee is, and has been, fully implementing the commitments and provisions in the CCAA/SHA/HCP, implementing agreement, and permit.

b. The species for which critical habitat is being designated is a covered species in the CCAA/SHA/HCP, or very similar in its habitat requirements to a covered species. The recognition that we extend to such an agreement depends on the degree to which the conservation measures undertaken in the CCAA/SHA/HCP would also protect the habitat features of the similar species.

c. The CCAA/SHA/HCP specifically addresses the habitat of the species for which critical habitat is being designated and meets the conservation needs of the species in the planning area.

The Kansas Aquatic Species Conservation Agreement: A Programmatic Safe Harbor Agreement and Candidate Conservation Agreement With Assurances for Fourteen Aquatic Species in Kansas (“Kansas Agreement”)

In 2021, the Secretary of the KDWP signed the Kansas Agreement, and on December 13, 2022, the Service approved an amendment to this agreement, submitted by the State of Kansas, to include western fanshell as a covered species. The Kansas Agreement was part of an application for an enhancement-of-survival permit under section 10(a)(1)(A) of the Act. The Kansas Agreement facilitates the introduction, reintroduction, augmentation, and translocation, and conserves the habitat, of imperiled native aquatic species in the State of Kansas. The Kansas Agreement, a programmatic SHA and CCAA, is between the KDWP and the Service (collectively, “the Parties”).

The Kansas Agreement covers all eligible, non-Federal lands in the State of Kansas for all eligible non-Federal landowners who wish to participate in the Kansas Agreement (“cooperators”). Non-Federal lands are those lands owned by non-Federal landowners which include, but are not limited to, State, Tribal, regional, or local governments; private or nonprofit organizations; or private citizens. By entering into this agreement, the Parties are using the Service’s SHA and CCAA programs to further the conservation of the Nation’s fish and wildlife. Both components of the Kansas Agreement and their associated permits target non-Federal lands in Kansas, whose owners or land managers are willing to engage in habitat management actions to benefit the species covered by the agreement (the “covered species”).

The duration of the Kansas Agreement is 50 years from its effective date. Each participating landowner, or cooperator, will enroll in the SHA, CCAA, or both through a landowner management agreement (“landowner agreement”). Once the landowner agreement is signed, KDWP will issue the cooperator a certificate of inclusion (COI). The duration of the landowner agreements entered into under the Kansas Agreement and the associated COI will be for the remaining duration of the permit unless another time period is agreed upon by the Parties and the cooperator.

The conservation goals of the Kansas Agreement are to increase the resiliency, redundancy, and representation of the covered species’ populations through

reintroductions and to protect, enhance, and expand habitat availability (stream bed and banks). Under the Kansas Agreement, cooperators will maintain habitat available to the covered species and will assist with habitat conservation for the remainder of the term of the Kansas Agreement. Cooperators will facilitate the ability to reintroduce and augment populations and manage enrolled lands, as agreed to in their landowner agreement, in a manner that maintains existing habitat and improves and restores habitat for the covered species.

Expected outcomes of implementing the Kansas Agreement include the protection, enhancement, and restoration of instream habitat; improved water quality; reduced erosion and sedimentation; improved riparian habitat; and improved land use practices on enrolled lands during the term of the Kansas Agreement. The Kansas Agreement covers activities that will maintain existing or baseline riparian habitat, ensure the connectivity of covered species, and adhere to best management practices to protect water quantity and quality. Cooperators are encouraged to include habitat management actions on enrolled lands that will enhance the habitat beyond the documented baseline or existing conditions. These activities could include establishment and enhancement of stream buffers; installation and maintenance of erosion and pollution control measures; cessation, reduction, or modification of land use practices, such as pesticide application, animal or vehicle activity in streamside areas, or ground disturbance; capture and treatment of stormwater or other runoff to improve water quality, and fish passage improvement projects. The Kansas Agreement includes the plains minnow, Topeka shiner, and Neosho madtom within the range of western fanshell and although these are not host fish for western fanshell, improvements to their habitat and populations would also benefit western fanshell host fish. Implementation of these activities would maintain and/or improve the physical or biological features of adequate flow, suitable substrate and connected instream habitat, water and sediment quality, and the presence and abundance of host fish. The reintroduction activities included in the Kansas Agreement will increase the probability that covered species will expand their range, survive, and recruit new cohorts in reintroduced areas.

Under the Kansas Agreement, the criteria for eligible landowners with land neighboring western fanshell

habitat is: “Mainstem of waterbody where reintroduction occurs extending onto adjoining parcels, plus direct tributaries containing suitable habitat. Eligible property must also support suitable habitat for mainstem and direct tributaries (*i.e.*, perennial flows and the presence of host fish species).” The Kansas Agreement in its entirety can be found at: https://ecos.fws.gov/ecp/report/conservation-plan?plan_id=4829.

The Amended Programmatic Safe Harbor Agreement and Programmatic Candidate Conservation Agreement With Assurances for the Speckled Pocketbook, Yellowcheek Darter, Rabbitsfoot, and Nineteen Other Aquatic Species of Greatest Conservation Need in the Upper Little Red River Watershed, Arkansas (the “Upper Little Red River Agreement”)

In 2015, the Arkansas Game and Fish Commission (AGFC) and three other parties signed the Upper Little Red River Agreement, which includes western fanshell as a covered species. The Upper Little Red River Agreement was part of an application for an enhancement-of-survival permit under section 10(a)(1)(A) of the Act. The agreement facilitates the conservation of habitat for 22 imperiled aquatic species in the upper Little Red River watershed in the State of Arkansas. The Upper Little Red River Agreement, a programmatic SHA and a CCAA, is between the AGFC, the Service, The Nature Conservancy, and Natural Resources Conservation Service (NRCS) (collectively, “the Parties”).

The Upper Little Red River Agreement covers all eligible, non-Federal lands in the upper Little Red River watershed for all eligible non-Federal landowners (“cooperators”) who wish to participate in this agreement. Non-Federal lands are those lands owned by non-Federal landowners which include, but are not limited to, State, Tribal, regional, or local governments; private or nonprofit organizations; or private citizens. By entering into the Upper Little Red River Agreement, the Parties are using the Service’s SHA and CCAA programs to further the conservation of the Nation’s fish and wildlife. Both components of this agreement and their associated permits target non-Federal lands in the upper Little Red River watershed in Arkansas, whose owners or land managers are willing to engage in habitat management actions to benefit the species covered by the agreement (the “covered species”).

The duration of the Upper Little Red River Agreement is 29 years from its effective date, and the permit for the

Upper Little Red River Agreement expires on January 1, 2044. Each participating landowner, or cooperator, will enroll in the SHA, CCAA, or both through a property owner management agreement (POMA). Once the POMA is signed, the enrolling Party will issue the cooperator a certificate of inclusion (COI). The duration of the POMAs entered into under the Upper Little Red River Agreement and the associated COI will be for the remaining duration of the permit unless another time period is agreed upon by the Parties and cooperator.

The conservation goals of the Upper Little Red River Agreement are to protect, enhance, and expand habitat availability (stream bed and banks); reduce sediment and pollutant runoff, thereby enhancing water quality and instream habitat (water and stream bed); and allow for subsequent natural population expansion or, if necessary, reintroduction of the covered species in the upper Little Red River watershed. Under the Upper Little Red River Agreement, cooperators will maintain habitat available to the covered species and will assist with habitat conservation for the remainder of the term of the Upper Little Red River Agreement. Cooperators will manage their enrolled lands in a manner that maintains existing habitat and improves and restores habitat for the covered species.

Expected outcomes of implementing the Upper Little Red River Agreement include the protection, enhancement, and restoration of instream habitat; improved water quality; reduced erosion and sedimentation; improved riparian habitat; and improved land use practices on enrolled lands during the term of this agreement. Implementation of these activities would maintain and/or improve the physical or biological features of suitable substrate and connected instream habitat and water and sediment quality. The conservation activities included in the Upper Little Red River Agreement will increase the probability that covered species will expand their range, survive, and recruit new cohorts. A copy of the Upper Little Red River Agreement may be obtained by contacting the Arkansas Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Programmatic Safe Harbor Agreement and Candidate Conservation Agreement With Assurances for the Arkansas Fatmucket, Pink Mucket, Spectaclecase, Rabbitsfoot, Harperella, and Twenty Other Aquatic Species of Greatest Conservation Need in the Upper Saline, Caddo, and Ouachita River (Headwaters) Watersheds, Arkansas (the “Headwaters Agreement”)

In 2016, the AGFC and three other parties signed the Headwaters Agreement, which includes the “Ouachita” fanshell, which at the time was known as the western fanshell, as a covered species. The Headwaters Agreement was part of an application for an enhancement-of-survival permit under section 10(a)(1)(A) of the Act. The Headwaters Agreement facilitates the conservation of habitat of 25 imperiled aquatic species in the upper Saline, Caddo, and Ouachita River watersheds that occur in Saline, Grant, Garland, Hot Spring, Clark, Pike, Montgomery, and Polk Counties in the State of Arkansas. The Headwaters Agreement, a programmatic SHA and a CCAA, is between the AGFC, the Service, The Nature Conservancy, and Natural Resources Conservation Service (NRCS) (collectively, “the Parties”).

The Headwaters Agreement is structured identically to the aforementioned Upper Little Red River Agreement. The duration of the Headwaters Agreement is 35 years from its effective date, and the permit for the Headwaters Agreement expires on September 12, 2051. Each participating landowner, or cooperator, will enroll in the SHA, CCAA, or both, through a property owner management agreement (POMA). Once the POMA is signed, the enrolling Party will issue the cooperator a certificate of inclusion (COI). The duration of the POMAs entered into under the Headwaters Agreement and the associated COI will be for the remaining duration of the permit unless another time period is agreed upon by the Parties and cooperator.

Expected outcomes of implementing the Headwaters Agreement include the protection, enhancement, and restoration of instream habitat; improved water quality; reduced erosion and sedimentation; improved riparian habitat; and improved land use practices on enrolled lands during the term of this agreement. Implementation of these activities would maintain and/or improve the physical or biological features of suitable substrate and connected instream habitat and water and sediment quality. The conservation activities included in the Headwaters Agreement will increase the probability

that covered species will expand their range, survive, and recruit new cohorts. A copy of the Headwaters Agreement may be obtained by contacting the Arkansas Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Benefits of Inclusion

The principal benefit of including an area in critical habitat designation is the requirement of Federal agencies to ensure that actions that they fund, authorize, or carry out are not likely to result in the destruction or adverse modification of any designated critical habitat, which is the regulatory standard of section 7(a)(2) of the Act under which consultation is completed. In areas where a listed species occurs, Federal agencies must consult with the Service on actions that may affect a listed species and refrain from actions that are likely to jeopardize the continued existence of such species. The analysis of effects to critical habitat is a separate and different analysis from that of the effects to the species. Therefore, the difference in outcomes of these two analyses represents the regulatory benefit of critical habitat. Because all of the proposed critical habitat units for western fanshell and “Ouachita” fanshell are occupied by the species, there would be consultations for all areas based on the species’ presence in those areas. As discussed above under *Exclusions Based on Economic Impacts*, we found limited distinction between baseline conservation efforts and incremental impacts of the designation of critical habitat for this species. Therefore, critical habitat designation may provide a limited regulatory benefit for the western fanshell and “Ouachita” fanshell on lands covered under the three agreements described above when there is a Federal nexus present for a project that might adversely modify critical habitat.

Another possible benefit of including lands in critical habitat is public education regarding the special management considerations required and potential conservation value of an area that may help focus conservation efforts on areas of high conservation value for certain species. We consider any information about the western fanshell and “Ouachita” fanshell and their habitats that reaches a wide audience, including parties engaged in conservation activities, to be valuable. Designation of critical habitat would provide educational benefits by informing Federal agencies and the public about the presence of listed species for all units.

In summary, we find that the benefits of inclusion of approximately 64.4 river mi (103.6 km) of waterways in proposed Units WF 3, WF 8, and WF 9 in the State of Kansas and approximately 100.9 river mi (162.4 km) of waterways in proposed Unit WF 4 and proposed Units OF 2 and OF 4 in the State of Arkansas are: (1) A regulatory benefit when there is a Federal nexus present for a project that might adversely modify critical habitat; and (2) educational benefits for the western fanshell, “Ouachita” fanshell, and their habitats.

Benefits of Exclusion

The benefits of excluding approximately 64.4 river mi (103.6 km) of Kansas waterways and approximately 100.9 river mi (162.4 km) of Arkansas waterways under the three SHA and CCAA agreements from the designation of critical habitat for the western fanshell and “Ouachita” fanshell are substantial and include: (1) Continuance and strengthening of our effective working relationship with private landowners to promote voluntary, proactive conservation of the western fanshell, “Ouachita” fanshell, and their habitats; (2) allowance for continued meaningful collaboration and cooperation in working toward species recovery, including conservation benefits that might not otherwise occur; (3) inclusion of a monitoring program to ensure the conservation measures are effective; and (4) encouragement to develop additional conservation easements and other conservation and management plans in the future for other federally listed and sensitive species.

Some landowners may perceive critical habitat as an unfair and unnecessary regulatory burden. According to some, the designation of critical habitat on (or adjacent to) private lands may reduce the likelihood that landowners will support and carry out conservation actions (Main et al. 1999, pp. 1,263–1,265; Bean 2002, p. 412). The magnitude of this negative outcome is greatly amplified in situations where active management measures (such as reintroduction, fire management, and control of invasive species) are necessary for species conservation (Bean 2002, pp. 412–414). We find that the exclusion of these specific areas of non-federally owned lands from the critical habitat designation for western fanshell and “Ouachita” fanshell can contribute to species recovery and provide a superior level of conservation than critical habitat can provide alone. We find that, where consistent with the discretion provided by the Act, it is necessary to

implement policies that provide positive incentives to private landowners to voluntarily conserve natural resources and that remove or reduce disincentives to conservation (Wilcove et al. 1996, pp. 1–15; Bean 2002, entire).

Additionally, partnerships with non-Federal landowners are vital to the conservation of listed species, especially on non-Federal lands; therefore, the Service is committed to supporting and encouraging such partnerships through the recognition of positive conservation contributions. In the case considered here, excluding these areas from critical habitat will help foster the partnerships the landowners and land managers in question have developed with Federal and State agencies and local conservation organizations, will encourage the continued implementation of voluntary conservation actions for the benefit of the western fanshell and “Ouachita” fanshell and their habitats on these lands, and may also serve as a model and aid in fostering future cooperative relationships with other parties here and in other locations for the benefit of other endangered or threatened species. Therefore, we consider the positive effect of excluding from critical habitat areas managed by active conservation partners to be a significant benefit of exclusion.

Benefits of Exclusion Outweigh the Benefits of Inclusion

We evaluated the exclusion of approximately 165.3 river mi (266 km) of waterways adjacent to private land within the areas covered by the Kansas Agreement, Upper Little Red River Agreement, and Headwaters Agreement from our designation of critical habitat, and we determined the benefits of excluding these lands outweigh the benefits of including them as critical habitat for the western fanshell and “Ouachita” fanshell.

We conclude that the additional regulatory and educational benefits of including these lands as critical habitat are relatively small because of the limited distinction between actions to avoid jeopardy and adverse modification. These benefits are further reduced by the existence of these three agreements, which include habitat conservation that addresses the special management considerations.

Furthermore, the potential educational and informational benefits of critical habitat designation on areas containing the physical and biological features essential to the conservation of the western fanshell and “Ouachita” fanshell would be minimal because the

landowners and land managers under consideration have demonstrated their knowledge of the species and its habitat needs in the process of developing their partnerships with the Service.

In contrast, the benefits derived from excluding the subject areas and enhancing our partnership with these landowners and land managers is significant. Because voluntary conservation efforts for the benefit of listed species on non-Federal lands are so valuable, the Service considers the maintenance and encouragement of conservation partnerships to be a significant benefit of exclusion. The development and maintenance of effective working partnerships with non-Federal landowners for the conservation of listed species is particularly important in areas such as Arkansas and Kansas, States with relatively little Federal landownership but many species of conservation concern. Excluding these areas from critical habitat will help foster the partnerships the landowners and land managers in question have developed with Federal and State agencies and local conservation organizations and will encourage the continued implementation of voluntary conservation actions for the benefit of the western fanshell and “Ouachita” fanshell and their habitats on these lands. The current active conservation efforts on some of these areas contribute to our knowledge of the species through monitoring and scientific research. In addition, these partnerships not only provide a benefit for the conservation of these species but may also serve as a model and aid in fostering future cooperative relationships with other parties in these areas of Arkansas and Kansas and in other locations for the benefit of other endangered or threatened species.

We find that excluding areas from critical habitat that are receiving both long-term conservation and management for the purpose of protecting the habitat that supports the western fanshell and “Ouachita” fanshell will preserve our partnership with the private landowners in the States of Arkansas and Kansas and will encourage future collaboration towards conservation and recovery of listed species. The partnership benefits are significant and outweigh the small potential regulatory, educational, and ancillary benefits of including the land in the final critical habitat designation for the western fanshell and “Ouachita” fanshell. Therefore, the agreements provide greater protection of habitat for the western fanshell and “Ouachita” fanshell than could be gained through

the project-by-project analysis resulting from a critical habitat designation.

Exclusion Will Not Result in Extinction of the Species

We determined that the exclusion of approximately 165.3 river mi (266 km) of waterways within the boundaries of the States of Arkansas and Kansas covered by the Kansas Agreement, Upper Little Red River Agreement, and Headwaters Agreement will not result in extinction of the western fanshell or “Ouachita” fanshell. Protections afforded to the western fanshell and “Ouachita” fanshell and their habitats by these three agreements provide assurances that these species will not go extinct as a result of excluding these lands from the critical habitat designation.

An important consideration as we evaluate these exclusions and their potential effect on the species in question is that critical habitat does not carry with it a regulatory requirement to restore or actively manage habitat for the benefit of listed species; the regulatory effect of critical habitat is only the avoidance of destruction or adverse modification of critical habitat should an action with a Federal nexus occur. It is, therefore, advantageous for the conservation of these species to support the proactive efforts of non-Federal landowners who are contributing to the enhancement of essential habitat features for listed species through exclusion. The jeopardy standard of section 7 of the Act will also provide protection in these occupied areas when there is a Federal nexus.

Summary of Exclusions

As discussed above, based on the information provided by entities seeking exclusion, as well as any additional public comments received, we evaluated whether certain lands in the proposed critical habitat were appropriate for exclusion from this final designation pursuant to section 4(b)(2) of the Act. We are excluding the following areas from critical habitat designation for the “Ouachita” fanshell and western fanshell: Unit OF 2, the upper portion of Unit OF 4, Unit WF 3, Unit WF 4, the Kansas portion of Unit WF 8, and Unit WF 9. Tables 4 and 5, below, provide approximate areas that meet the definition of critical habitat but which we are excluding under section 4(b)(2) of the Act from this final critical habitat designation.

TABLE 4—AREAS EXCLUDED BY CRITICAL HABITAT UNIT FOR THE WESTERN FANSHELL

Proposed critical habitat unit	Proposed critical habitat (river mi (km))	Area excluded (river mi (km))	Final critical habitat (river mi (km))
WF 3: Fall River	45.5 (73.2)	45.5 (73.2)	0
WF 4: Middle Fork Little Red River	34.1 (54.9)	34.1 (54.9)	0
WF 8: Spring River	15 (24.1)	6.5 (10.5)	8.5 (13.7)
WF 9: Verdigris River	12.4 (20)	12.4 (20)	0

TABLE 5—AREAS EXCLUDED BY CRITICAL HABITAT UNIT FOR THE “OUACHITA” FANSHELL

Proposed critical habitat unit	Proposed critical habitat (river mi (km))	Area excluded (river mi (km))	Final critical habitat (river mi (km))
OF 2: Ouachita Headwaters	32.7 (52.6)	32.7 (52.6)	0
OF 4: Saline River	185.3 (298.2)	34.1 (54.9)	151.3 (243.5)

Required Determinations

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 14094 reaffirms the principles of E.O. 12866 and E.O. 13563 and states that regulatory analysis should facilitate agency efforts to develop regulations that serve the public interest, advance statutory objectives, and are consistent with E.O. 12866, E.O. 13563, and the Presidential Memorandum of January 20, 2021 (Modernizing Regulatory Review). Regulatory analysis, as practicable and appropriate, shall recognize distributive impacts and equity, to the extent permitted by law. 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 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 (*i.e.*, 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 if 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 will be directly regulated by this designation. There is no requirement under the RFA to evaluate the potential impacts to entities not directly regulated. Moreover, Federal agencies are not small entities. Therefore, because no small entities will be directly regulated by this rulemaking, we certify that this critical habitat designation will not have a significant economic impact on a substantial number of small entities.

During the development of this final rule, we reviewed and evaluated all information submitted during the comment period on the proposed rule (87 FR 12338; March 3, 2022) that may pertain to our consideration of the probable incremental economic impacts of this critical habitat designation. Based on this information, we affirm our certification that this critical habitat designation will not have a significant economic impact on a substantial number of small entities, and a 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 critical habitat designations (e.g., dams, pipelines) and may potentially be affected. We determined that consultations, technical assistance, and requests for species lists may be necessary in some instances. However, in our economic analysis, we did not find that these critical habitat designations will 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 findings:

(1) This final rule will 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 final rule will 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. Therefore, 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 the 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 and concludes that this designation of critical habitat for the western fanshell and “Ouachita” fanshell does not pose significant takings implications for lands within or affected by the designation.

Federalism—Executive Order 13132

In accordance with E.O. 13132 (Federalism), this final 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 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 final 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 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) will 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 will not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We are designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, this rule identifies the physical or biological features essential to the conservation of the species. The areas of designated critical habitat are presented on maps, and the 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.)

Regulations adopted pursuant to section 4(a) of the Act are exempt from the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) and do not require an environmental analysis under NEPA. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This includes listing, delisting, and reclassification rules, as well as critical habitat designations and species-specific protective regulations promulgated concurrently with a decision to list or reclassify a species as threatened. The courts have upheld this position (e.g., *Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995) (critical habitat); *Center for Biological Diversity v. U.S. Fish and Wildlife Service*, 2005 WL 2000928 (N.D. Cal. Aug. 19, 2005) (concurrent 4(d) rule)).

However, when any of the areas that meet the definition of “critical habitat” for the species are in States within the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, such as that of the western fanshell, we undertake a NEPA analysis for that critical habitat designation consistent with the Tenth Circuit’s ruling in *Catron County Board*

of Commissioners v. U.S. Fish and Wildlife Service, 75 F.3d 1429 (10th Cir. 1996). However, with the exclusion of all critical habitat within the State of Kansas, which is within the Tenth Circuit, we have not prepared an environmental analysis pursuant to NEPA.

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 federally recognized Tribes on a government-to-government basis. In accordance with Secretary’s 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 identified no Tribal interests that will be affected by this rule.

References Cited

A complete list of all references cited is available on the internet at <https://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 final 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, Plants, Reporting and recordkeeping requirements, Transportation, Wildlife.

Regulation Promulgation

Accordingly, we 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

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

alphabetical order under CLAMS to read as follows:

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

■ 2. In § 17.11, in paragraph (h), amend the List of Endangered and Threatened Wildlife by adding entries for “Fanshell, ‘Ouachita’” and “Fanshell, western” in

§ 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	88 FR [Insert Federal Register page where the document begins], June 27, 2023; 50 CFR 17.45(f); ^{4d} 50 CFR 17.95(f). ^{CH}
Fanshell, western	<i>Cyprogenia aberti</i>	Wherever found	T	88 FR [Insert Federal Register page where the document begins], June 27, 2023; 50 CFR 17.45(f); ^{4d} 50 CFR 17.95(f). ^{CH}
* * * * *				

■ 3. Amend § 17.45 by adding reserved paragraphs (c) through (e) and paragraph (f) to read as follows:

§ 17.45 Special rules—snails and clams.

* * * * *

(c)–(e) [Reserved]

(f) “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 (f)(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) Purposeful take that results from capture, handling, and release related to presence/absence surveys, studies to document habitat use, and population monitoring by individuals permitted to conduct these same activities for other species of mussels until January 25, 2024.

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

■ 4. In § 17.95, amend paragraph (f) by adding entries for “‘Ouachita’ Fanshell (*Cyprogenia cf. aberti*)” and “Western Fanshell (*Cyprogenia aberti*)”

immediately following the entry for “Appalachian Elktoe (*Alasmodonta 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, Nevada, and Ouachita 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 July 27, 2023.

(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

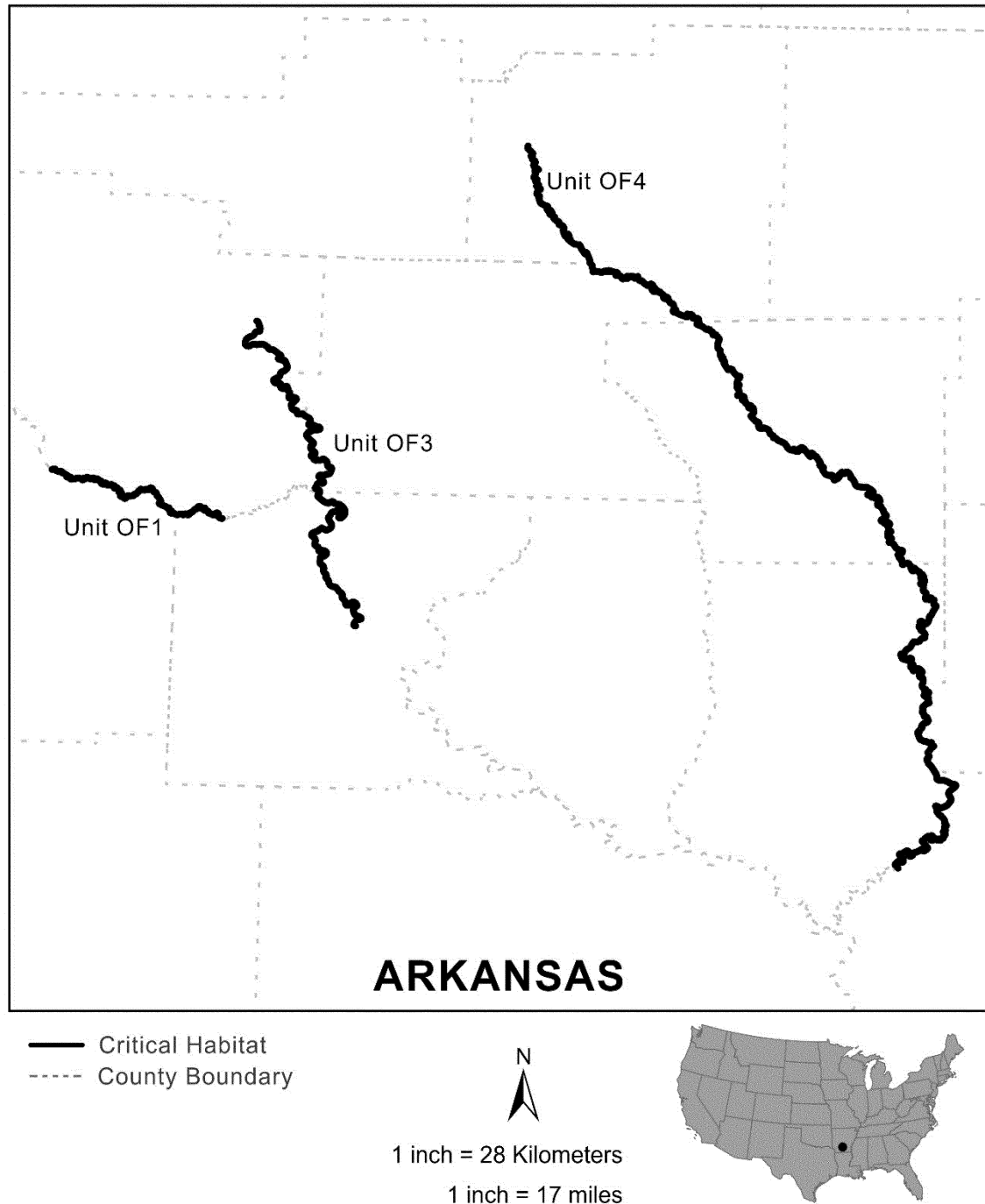
upstream and downstream limits were delineated at the nearest road crossing or stream confluence of each occupied reach. Data layers defining map units were created with U.S. Geological Survey National Hydrography Dataset (NHD) Medium Flowline data. ArcGIS was also used to calculate river kilometers 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/species/ouachita-fanshell-cyprogenia-sp-cf-aberti>, at <https://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) Index map for “Ouachita” fanshell critical habitat units follows:

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Figure 1 to “Ouachita” Fanshell (*Cyprogenia* cf. *aberti*) paragraph (5)

Index Map: "Ouachita" Fanshell Critical Habitat Units



(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

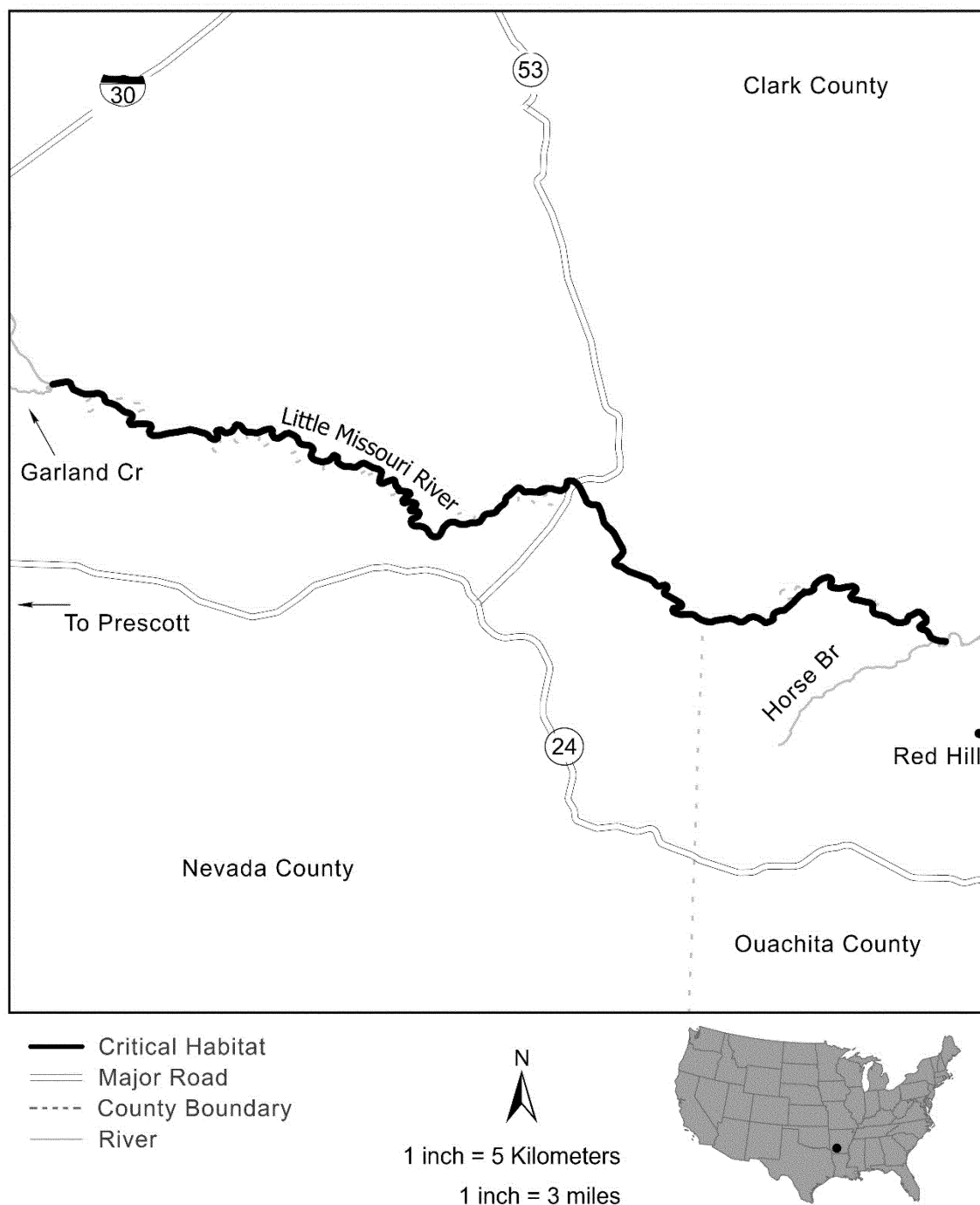
the mouth of Garland Creek northeast of Prescott, Nevada County, downstream to the mouth of Horse Branch north of Red Hill, Ouachita County. Unit OF 1 includes the river channel up to the ordinary high water mark. Approximately 100 percent of the

riparian lands that border the unit are in private ownership.

(ii) Map of Unit OF 1 follows:

Figure 2 to "Ouachita" Fanshell (*Cyprogenia cf. aberti*) paragraph (6)(ii)

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



(7) Unit OF 2 has been excluded from this critical habitat designation.

(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,

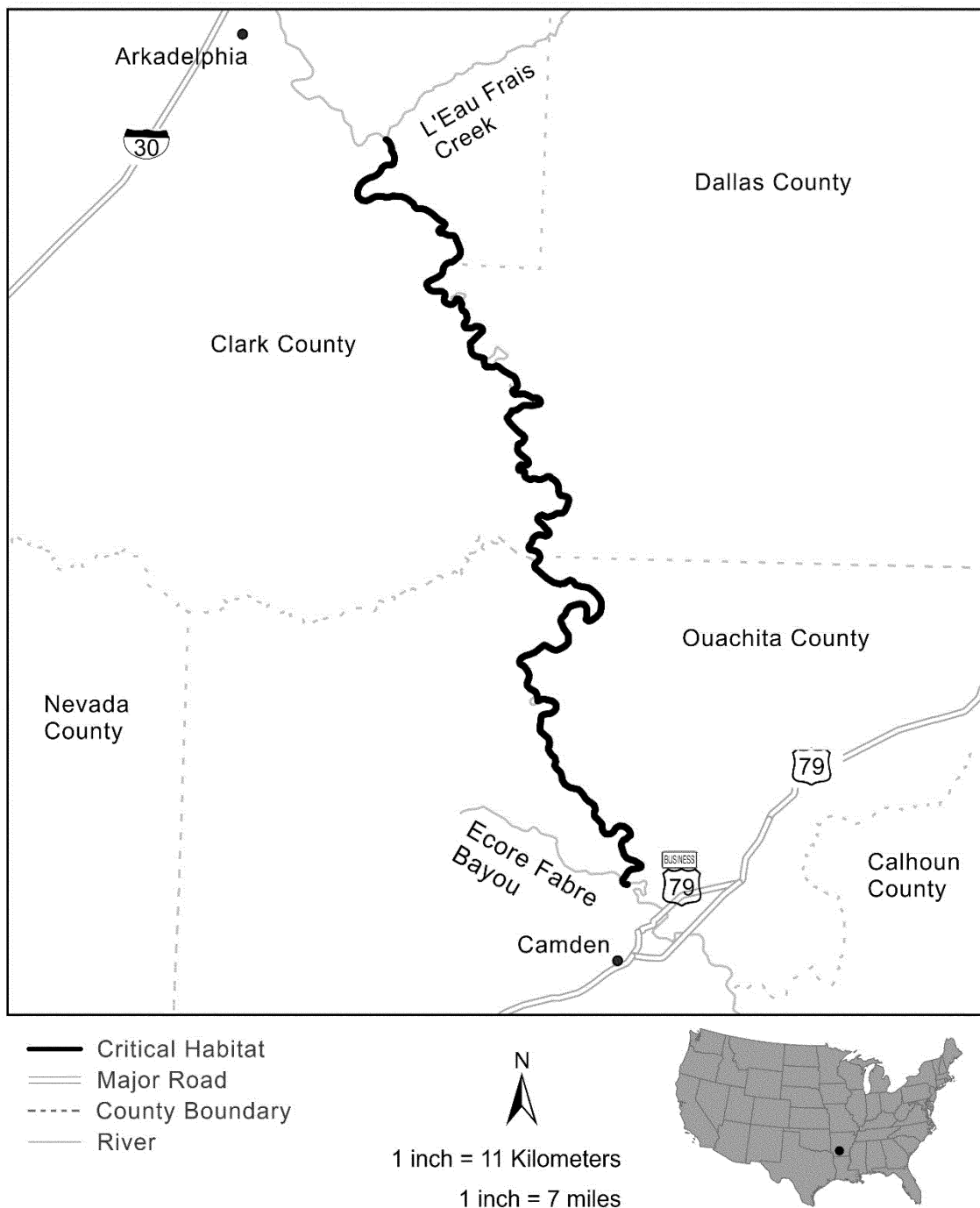
Arkansas, from the mouth of L'Eau Fraie Creek southeast of Arkadelphia, Clark County, downstream to the mouth of Ecore Fabre Bayou north of Camden, Ouachita County. Unit OF 3 includes the river channel up to the ordinary high water mark. Approximately 100 percent of the riparian lands that border

the unit are in private ownership. There is a Wetlands Reserve Program easement within the unit.

(ii) Map of Unit OF 3 follows:

Figure 3 to "Ouachita" Fanshell (*Cyprogenia cf. aberti*) paragraph (8)(ii)

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



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

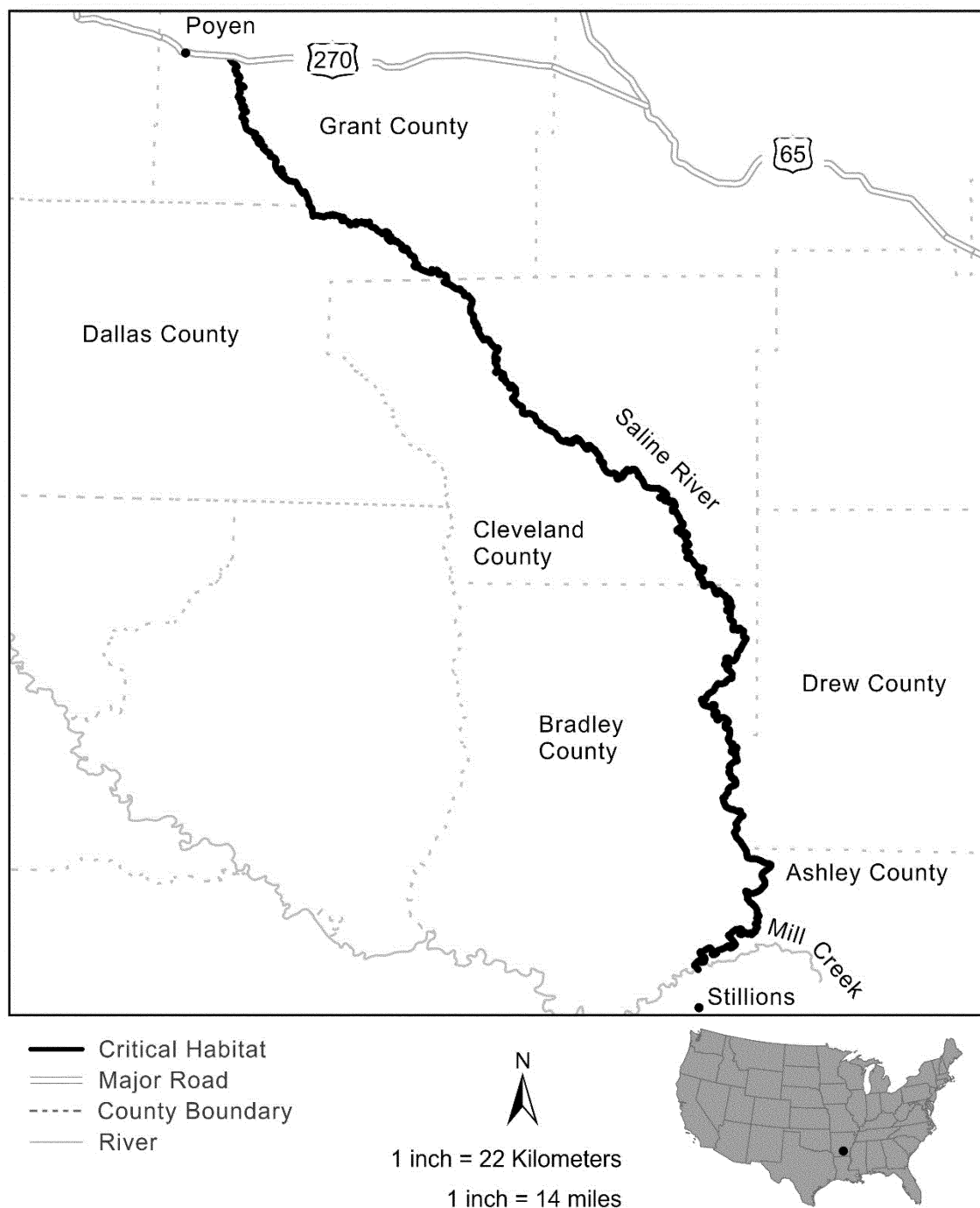
(i) Unit OF 4 consists of 151.3 river mi (243.5 km) of Saline River in Ashley, Bradley, Cleveland, Dallas, Drew, and Grant Counties, Arkansas, from U.S. Highway 270 east of Poyen, Grant

County, downstream to the mouth of Mill Creek north of Stillions, Ashley County. Unit OF 4 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: Figure 4 to "Ouachita" Fanshell (*Cyprogenia cf. aberti*) paragraph (9)(ii)

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



Western Fanshell (*Cyprogenia aberti*)

(1) Critical habitat units are depicted for Fulton, Independence, Jackson, Lawrence, Randolph, and Sharp Counties, Arkansas, 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 July 27, 2023.

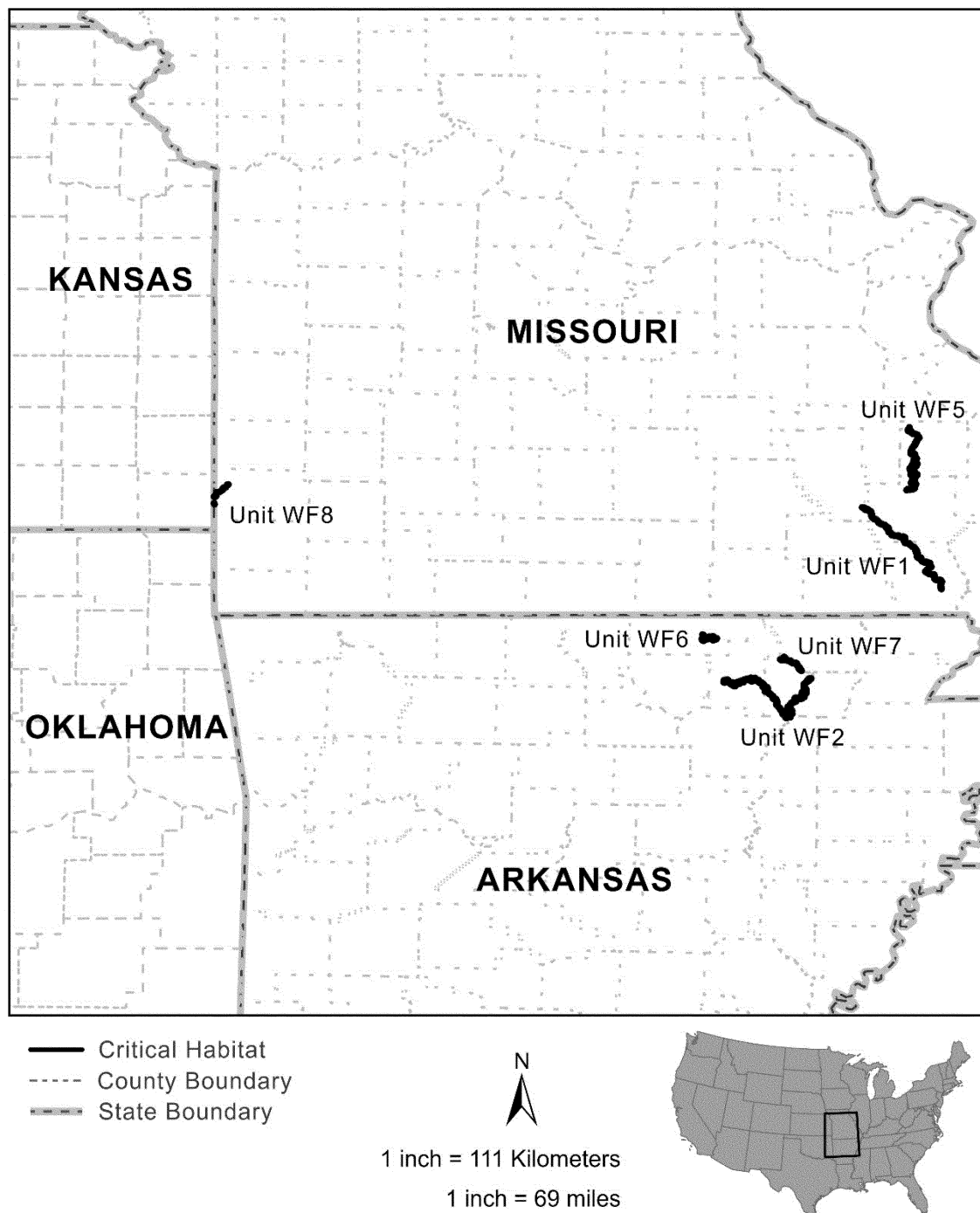
(4) Data layers defining map units were created by overlaying Natural Heritage Element Occurrence data and U.S. Geological Survey hydrologic data for stream reaches using ESRI ArcGIS mapping software. Critical habitat unit upstream and downstream limits were delineated at the nearest road crossing or 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 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/species/western-fanshell-cyprogenia-aberti>, at <https://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) Index map for western fanshell critical habitat units follows:

Figure 1 to Western Fanshell (*Cyprogenia aberti*) paragraph (5)

Index Map: Western Fanshell Critical Habitat Units



(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. Unit WF 1 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

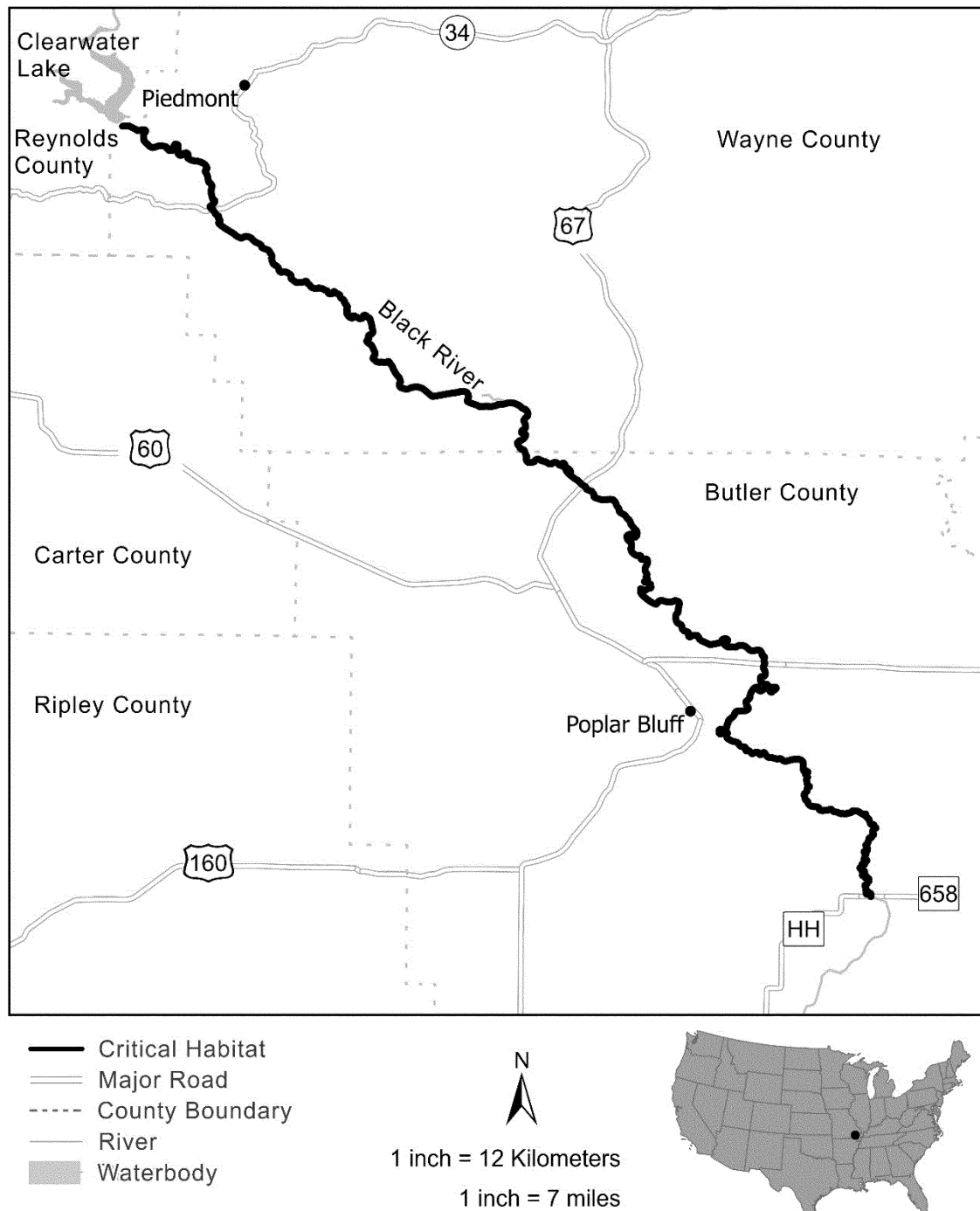
ownership in this unit are State lands associated with Missouri Department of Conservation's (MDC) Bradley A. Hammer Memorial Conservation Area, Dan River Access, Hilliard Access, and Stephen J. Sun Conservation Area. Eleven miles are Federal land associated with the U.S. Forest Service's (USFS) Mark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

Army Corps of Engineers' Clearwater
Recreation Area.

Figure 2 to Western Fanshell
(*Cyprogenia aberti*) paragraph (6)(ii)

(ii) Map of Unit WF 1 follows:

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



(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. Unit WF 2 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.

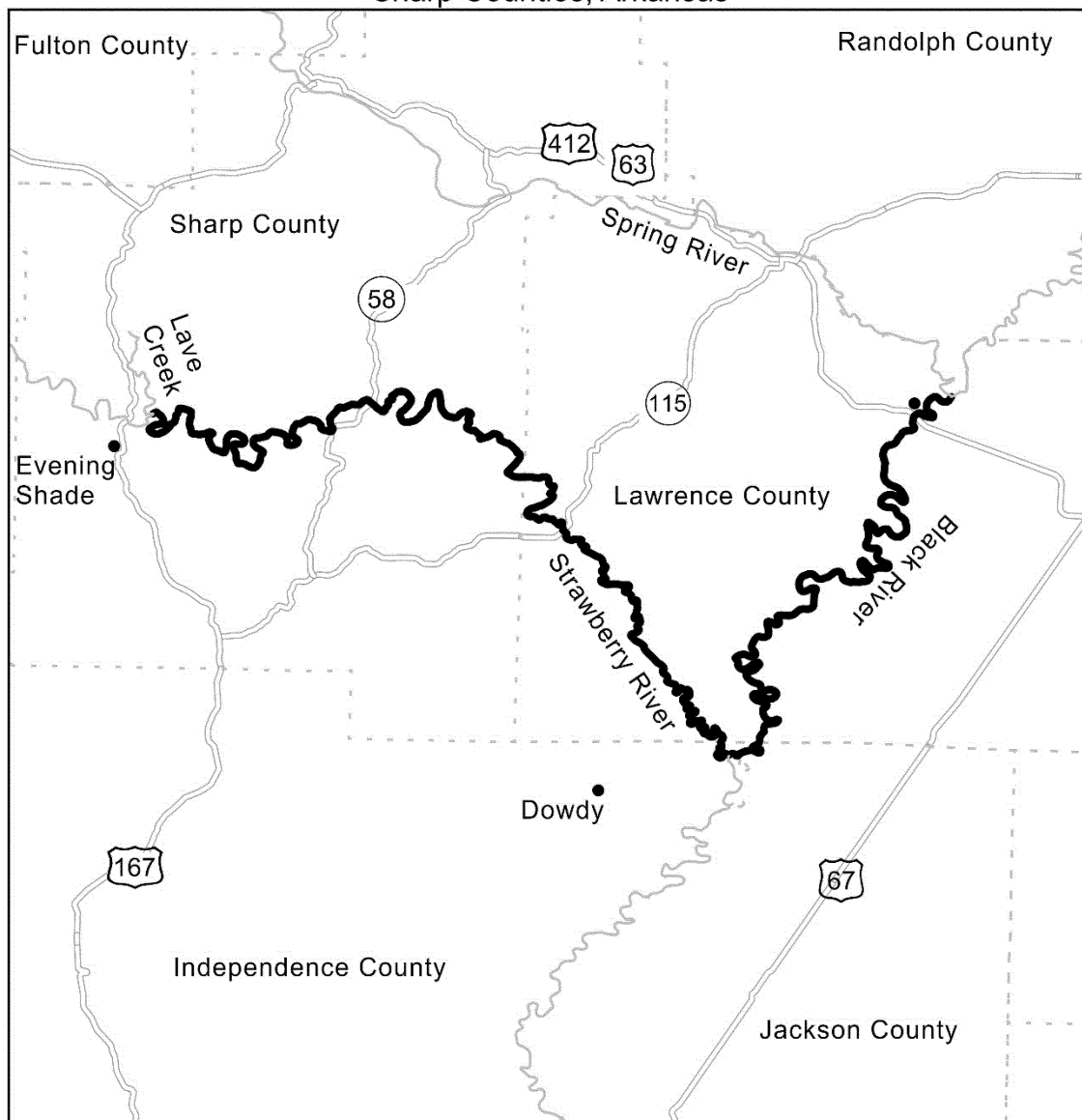
Riparian lands that border the unit include approximately 100.4 river mi (161.6 km; 90 percent) in private ownership and 10.9 river mi (17.5 km; 10 percent) in public (State) ownership. The public land ownership in this unit is associated with Arkansas Game and Fish Commission's Shirey Bay Rainey

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:

Figure 3 to Western Fanshell (*Cyprogenia aberti*) paragraph (7)(ii)

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



- Critical Habitat
- == Major Road
- - - County Boundary
- River



1 inch = 13 Kilometers

1 inch = 8 miles



(8) Units WF 3 and WF 4 have been excluded from this critical habitat designation.

(9) 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. Unit WF 5 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

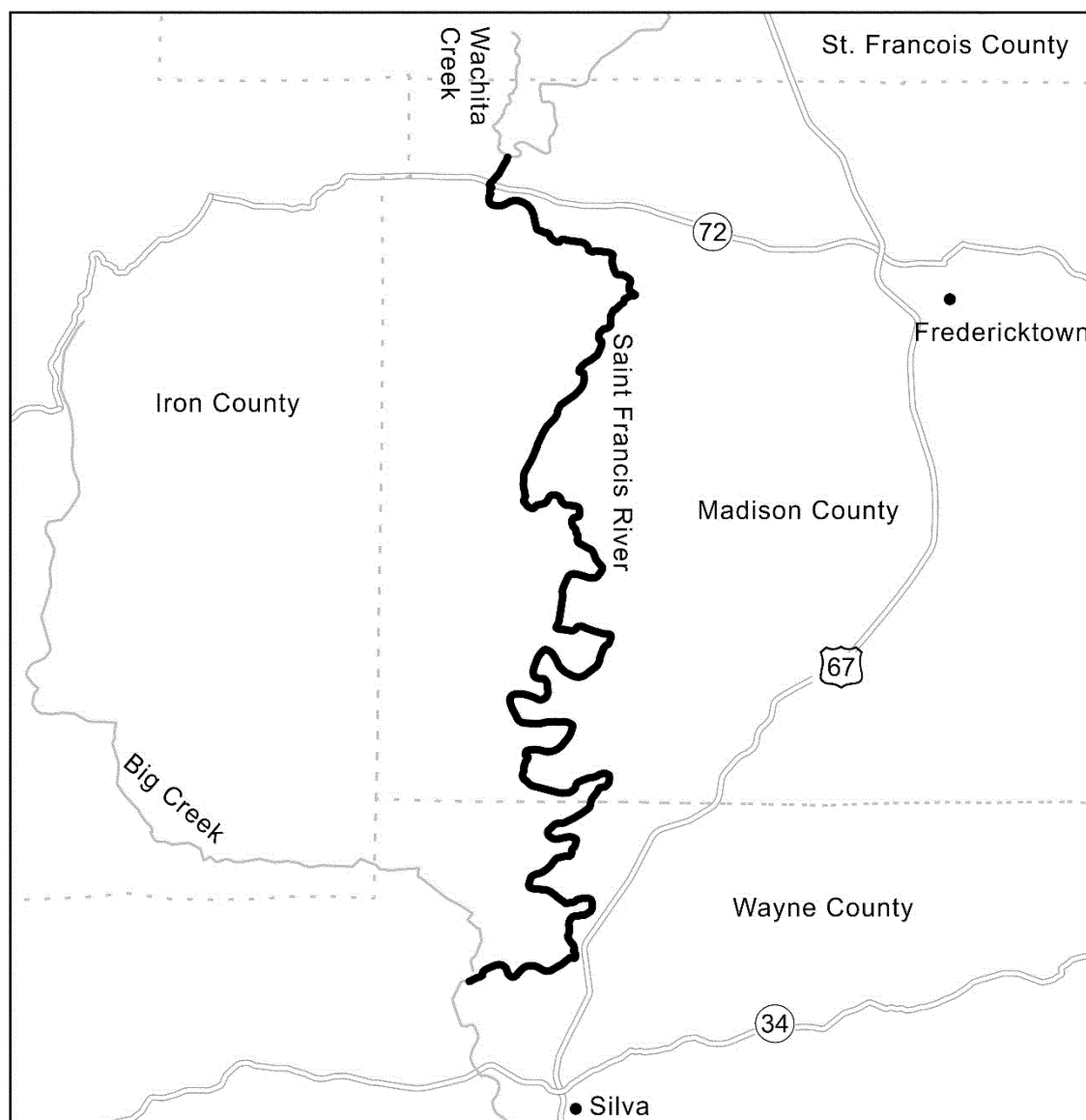
of the public ownership in this unit are State lands associated with MDC's Coldwater Conservation Area, Mill Stream Gardens, and Roselle Access. Ten miles are Federal land associated with the USFS's Mark Twain National Forest.

(ii) Map of Unit WF 5 follows:

Figure 4 to Western Fanshell

(*Cyprogenia aberti*) paragraph (9)(ii)

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

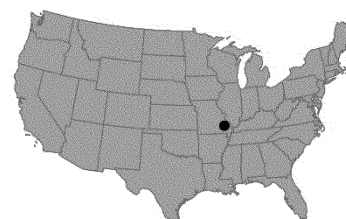


- Critical Habitat
- Major Road
- - - County Boundary
- River



1 inch = 9 Kilometers

1 inch = 6 miles



(10) 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,

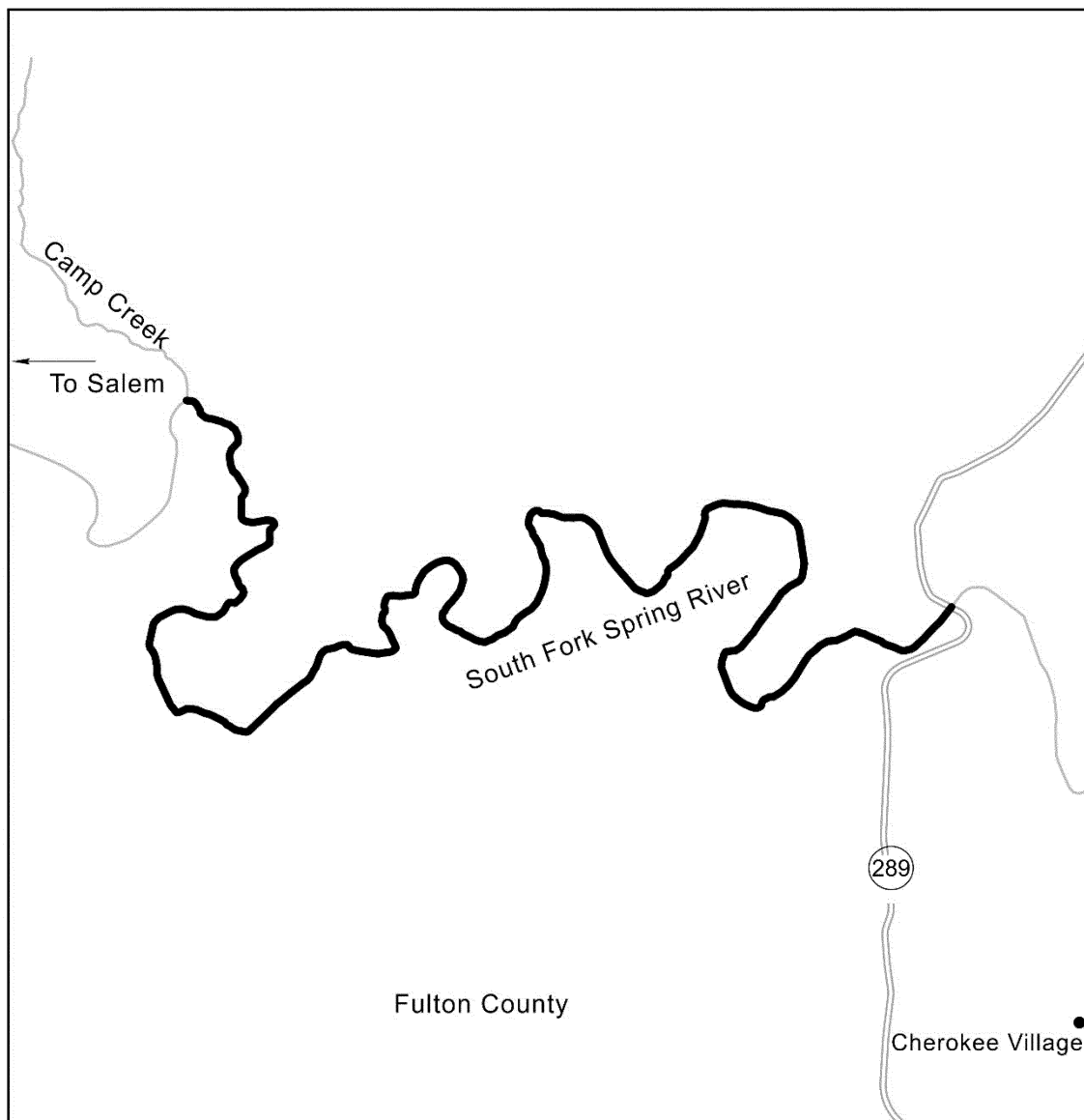
Fulton County, extending downstream to the Arkansas Highway 289 crossing northwest of Cherokee Village, Fulton County. Unit WF 6 includes the river channel up to the ordinary high water mark. Approximately 100 percent of the

riparian lands that border the unit are in private ownership.

(ii) Map of Unit WF 6 follows:

Figure 5 to Western Fanshell (*Cyprogenia aberti*) paragraph (10)(ii)

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

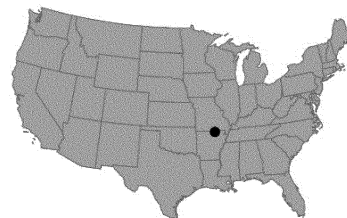


— Critical Habitat
 == Major Road
 — River



1 inch = 2 Kilometers

1 inch = 1 miles



(11) 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

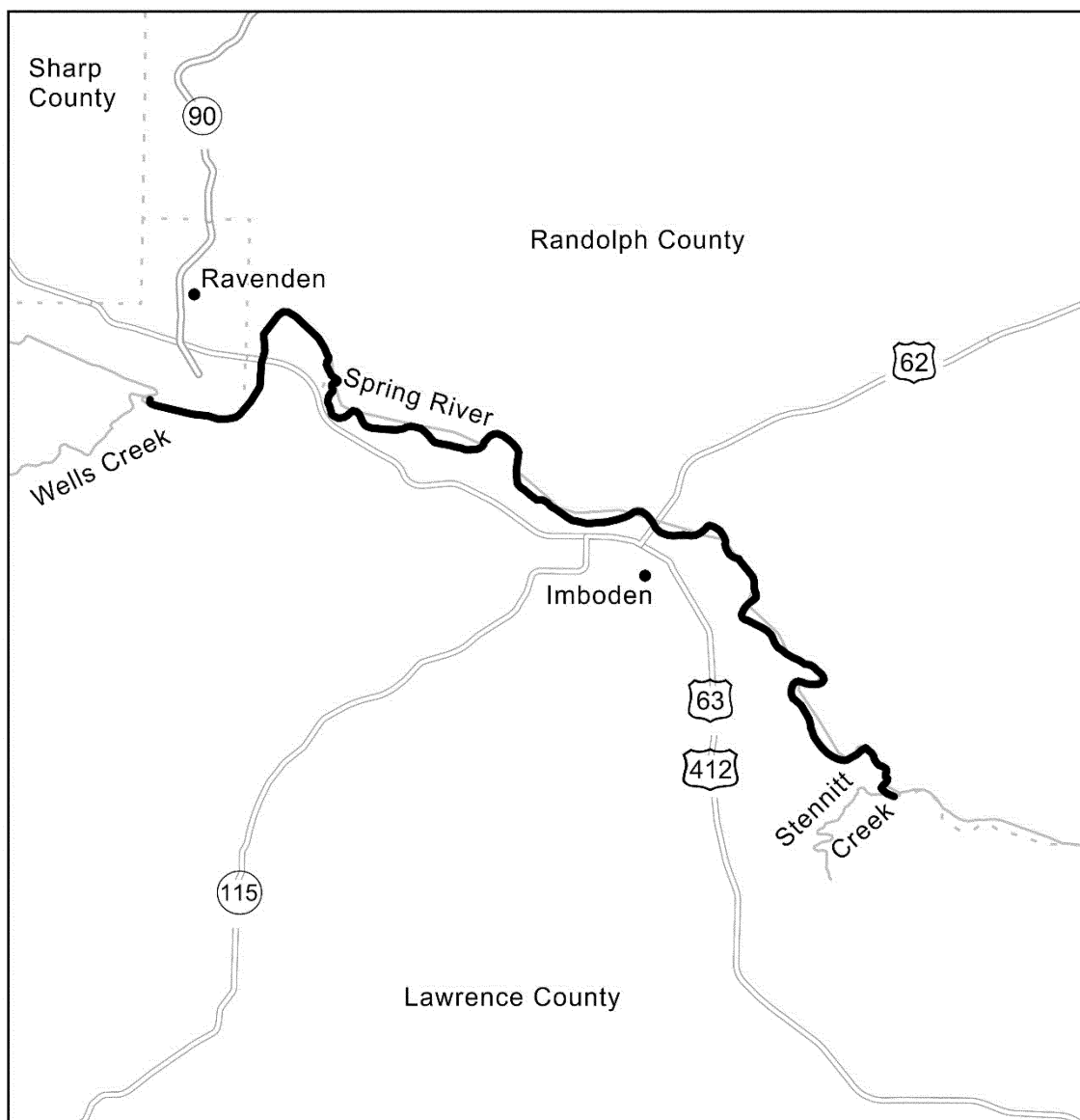
the mouth of Wells Creek at Ravenden, extending downstream to the mouth of Stennitt Creek southeast of Imboden, Lawrence County. Unit WF 7 includes the river channel up to the ordinary high water mark. Approximately 100

percent of the riparian lands that border the unit are in private ownership.

(ii) Map of Unit WF 7 follows:

Figure 6 to Western Fanshell (*Cyprogenia aberti*) paragraph (11)(ii)

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



— Critical Habitat
 == Major Road
 ---- County Boundary
 — River

N

 1 inch = 4 Kilometers
 1 inch = 2 miles



(12) Unit WF 8: Spring River (MO); Jasper County, Missouri.

(i) Unit WF 8 consists of 8.5 river mi (13.7 km) of Spring River in Jasper

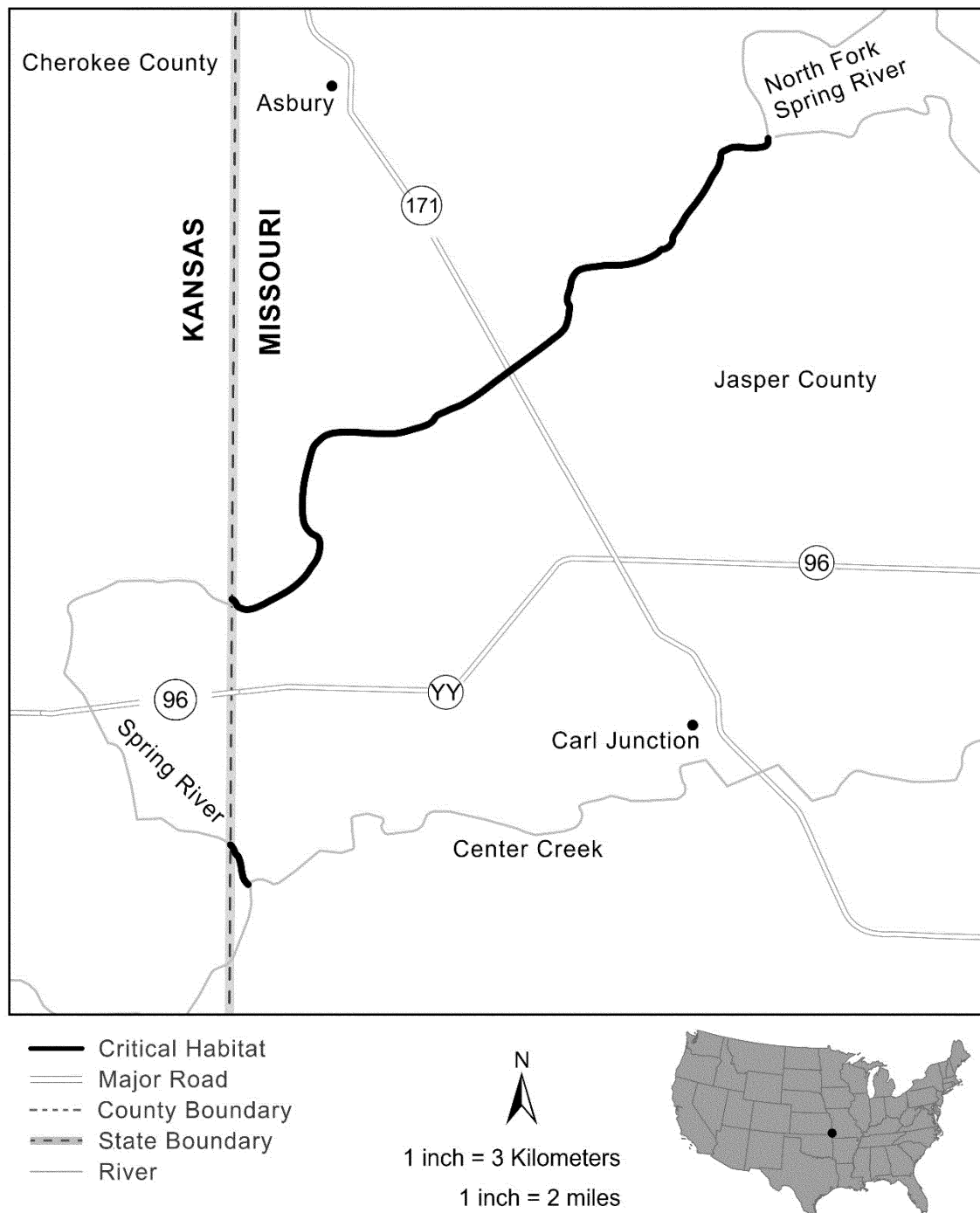
County, Missouri, from the mouth of North Fork Spring River east of Asbury,

Jasper County, Missouri, extending downstream to the Kansas State line, then from where it reenters Missouri to the mouth of Center Creek west of Carl Junction, Jasper County, Missouri. Unit

WF 8 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 8 follows: Figure 7 to Western Fanshell (*Cyprogenia aberti*) paragraph (12)(ii)

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



(13) Unit WF 9 has been excluded
from this critical habitat designation.

* * * * *

Martha Williams,

Director, U.S. Fish and Wildlife Service.

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