

TIER 3 CATEGORICAL EXCLUSION

ARDOT JOB NUMBER 012318

FAP NUMBER NHPP-2653(1)

MIDDLE FORK SALINE RIVER & DRY RUN CREEK STRS. & APPRS. (S)

ROUTE 7, SECTIONS 10 & 11

GARLAND & PERRY COUNTIES

Submitted Pursuant to 42 U.S.C. 4332(2)

by the

U.S. Department of Transportation

Federal Highway Administration

and the

Arkansas Department of Transportation

April 2019

4/1/2019

Date of Approval



Randal Looney
Environmental Coordinator
Federal Highway Administration

The Environmental Division reviewed the referenced project and has determined it falls within the definition of the Tier 3 Categorical Exclusion as defined by the ARDOT/FHWA Memorandum of Agreement on the processing of Categorical Exclusions. The following information is included for your review and, if acceptable, approval as the environmental documentation for this project.

The proposed project would replace two bridges on Highway 7 over the Middle Fork of the Saline River in Garland County (Site 1) and Dry Run Creek in Perry County (Site 2), both within the boundary of the Ouachita National Forest. Total length of the project is approximately 0.5 mile. A project location map is enclosed.

The existing roadway consists of two 11' wide paved travel lanes with 2' wide gravel shoulders at Site 1 and 2' wide paved shoulders at Site 2. Existing right of way width averages 132'.

Proposed improvements retain the two 11' wide paved travel lanes, but increase the shoulder width to 6' (2' paved). The average proposed right of way width will be 187' at Site 1 and 132' at Site 2. Approximately 2.3 acres of additional permanent easement and 0.5 acre of temporary construction easement will be required for this project.

To maintain traffic during construction, the Middle Fork Saline River bridge (Site 1) will be replaced using a temporary detour located 60' east (downstream) of the existing bridge while the new bridge is constructed on the existing alignment. The Dry Run Creek bridge (Site 2) will be replaced approximately 80' east (upstream) of the existing bridge. Both bridges will be replaced with new bridges featuring aesthetic treatments context-sensitive to the rural National Forest setting.

Design data for this project is as follows:

Design Year	Average Daily Traffic	Percent Trucks	Design Speed
2019	Site 1: 1,200 vpd Site 2: 1,100 vpd	Site 1: 12 Site 2: 10	55 mph
2039	Site 1: 1,500 vpd Site 2: 1,200 vpd		

There are no relocations, hazardous materials, public water supply, prime farmland, wetlands, or cultural resources impacts associated with this project. There are no environmental justice issues involved with this project. State Historic Preservation Officer clearance is enclosed.

Noise predictions were made for this project using the FHWA Traffic Noise Model Version 2.5. The predicted noise levels beyond the project's proposed right of way limits are below applicable noise impact criteria; therefore, noise impacts are not anticipated. In compliance with federal guidelines, local authorities will not require notification.

The proposed project would require the acquisition of U.S. Forest Service (USFS) lands. Approximately 0.8 acre of permanent easement and 0.4 acre of temporary construction easement will be required at Site 1. Site 2 will require 1.5 acre of permanent easement and 0.1 acre of temporary construction easements. All of this land is Ouachita National Forest property. Timber will be cut for the construction of the proposed project and utility relocation. A timber count and sale will be completed before any trees are cut. Only native vegetation will be planted on USFS lands.

The official species list obtained through the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation website identifies the following federally-listed species as being potentially present in the project area: Missouri bladderpod (*Physaris filiformis*), harperella (*Ptilimnium nodosum*), Pink Mucket (*Lampsilis abrupta*), Scaleshell (*Leptodea leptodon*), Arkansas Fatmucket (*Lampsilis powellii*), Rabbitsfoot (*Theliderma cylindrica*), northern long-eared bat (*Myotis septentrionalis*), Piping Plover (*Charadrius melodus*), Red-Cockaded Woodpecker (*Picoides borealis*), and rattlesnake-master borer moth (*Papaipema eryngii*). A determination of 'no effect' was made for the Missouri bladderpod, Pink Mucket, Scaleshell, Piping Plover, and Red-Cockaded Woodpecker. A determination of 'may affect, but not likely to adversely affect' was made for harperella, the Arkansas Fatmucket, and the Rabbitsfoot mussel. The rattlesnake-master borer moth is a candidate species, and consultation with the USFWS is not required on candidate species. The USFWS concurred with these effect determinations. A Biological Evaluation (BE) was prepared for the USFS which found that impacts to sensitive species will not cause a trend to federal listing or a loss of viability. The USFS concurred with the BE. The BE, USFWS concurrence, and official species list are enclosed.

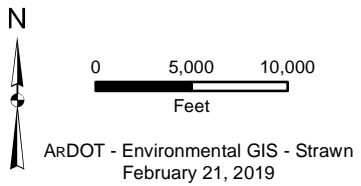
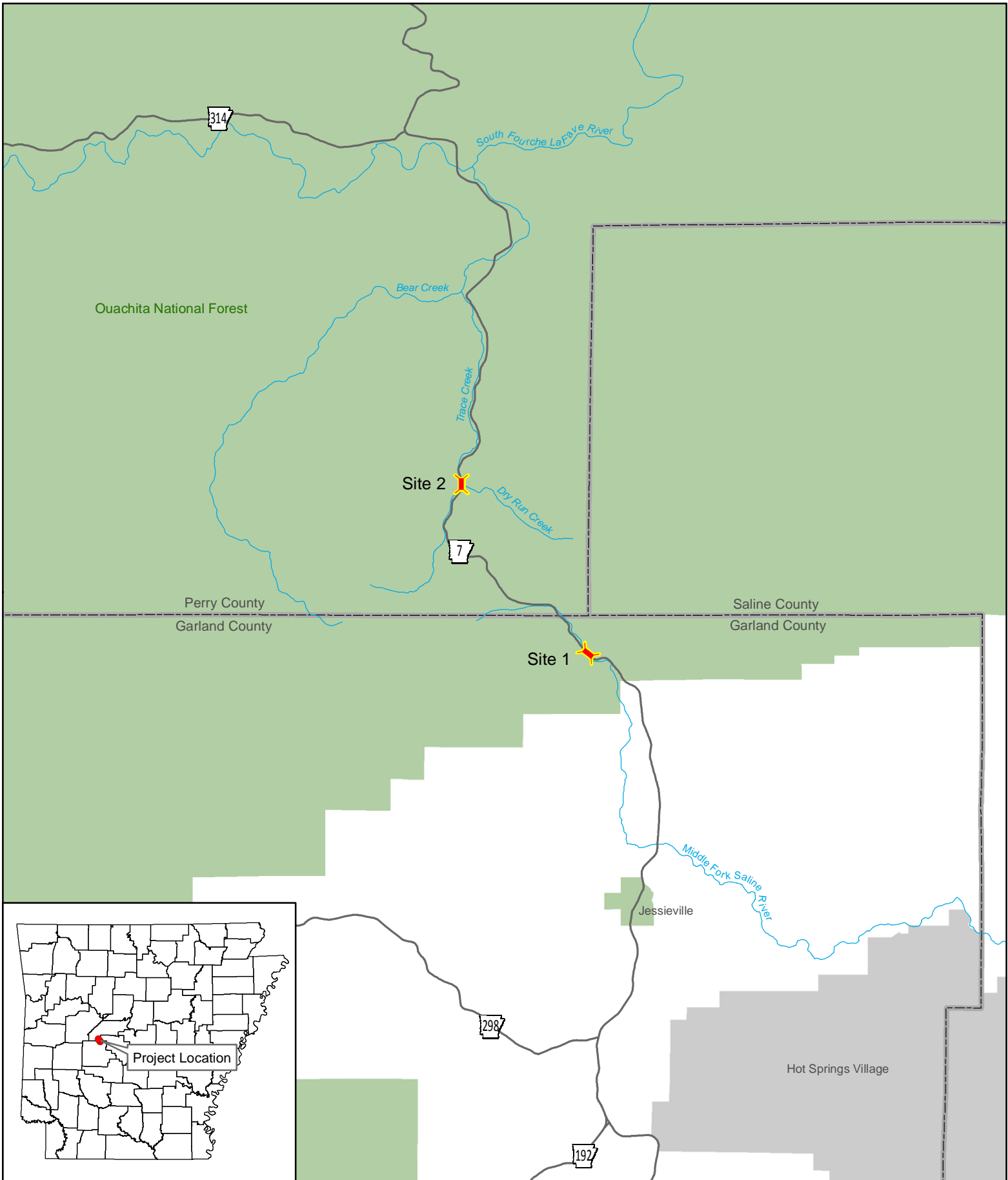
The Final 4(d) Rule applies to this project's activities that have the potential to affect northern long-eared bats. The Final 4(d) Rule exempts the incidental take of northern long-eared bats from take prohibitions in the Endangered Species Act. The exemptions apply as long as the activities do not occur within 0.25 mile of a known hibernaculum or within 150 feet of a known occupied maternity roost from June 1 to July 31. No known hibernaculum or maternity roosts exist within the project limits; therefore, the project can proceed without restrictions. All offsite locations will require coordination with USFWS if any tree clearing is involved. The northern long-eared bat consultation form is enclosed.

Total permanent stream impacts are estimated at less than 0.1 acre for bridge pier construction at both Site 1 and Site 2. Temporary stream impacts due to detours and necessary work roads are estimated at less than 0.1 acre at both sites. Construction of the proposed project should be allowed under the terms of Nationwide 14 Section 404 Permit for Linear Transportation Projects as defined in the Federal Register 82(4):1860-2008.

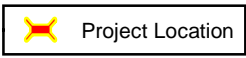
The Middle Fork of the Saline River is listed on the Nationwide Rivers Inventory (NRI). NRI rivers are potential candidates for inclusion in the National Wild and Scenic River System. The National Park Service maintains the NRI list and assists federal agencies in ensuring that they avoid or mitigate adverse effects to NRI rivers. The Highway 7 bridge over the Middle Fork of the Saline River is on property owned by the U.S. Forest Service, who is also the administering agency for the National Wild and Scenic Rivers Act in the State of Arkansas. The Ouachita National Forest was informed and involved throughout the project development process, has reviewed the project design and environmental analyses, and concurs that the project will not have a significant impact to the Middle Fork of the Saline River or remove it from eligibility for inclusion in the National Wild and Scenic Rivers System. The project will not significantly impact the Middle Fork of the Saline River's Outstandingly Remarkable Values, which include: fish and wildlife, geologic, and scenic.

Garland County participates in the National Flood Insurance Program. Site 1 lies within the Zone A Special Flood Hazard Area. The final project design will be reviewed to confirm that the design is adequate and that the potential risk to life and property are minimized. Adjacent properties should not be impacted nor have a greater flood risk than existed before construction of the project. None of the encroachments will constitute a substantial floodplain encroachment or a risk to property or life. There are no floodplains mapped at Site 2 in Perry County.

This project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxic (MSAT) concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the no-build alternative.



Job 012318
Middle Fork Saline River & Dry Run Creek
Strs. & Apprs. (Hwy. 7)
Garland & Perry Counties





THE DEPARTMENT OF ARKANSAS
HERITAGE

Asa Hutchinson
Governor

Stacy Hurst
Director

Arkansas Arts Council

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Arkansas Historic
Preservation Program

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Arkansas Natural
Heritage Commission

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Arkansas State Archives

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Delta Cultural Center

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Historic Arkansas Museum

*

Mosaic Templars
Cultural Center

*

Old State House Museum

March 7, 2019

Mr. John Fleming
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

RE: Garland and Perry Counties — General
Section 106 Review — FHWA
Response Letter: Middle Fork Saline River & Dry Run Creek Strs. & Apprs.
(S), Route 7, Sections 10 & 11, Garland and Perry Counties
ARDOT Job Number 012318
AHPP Tracking Number 103236

Dear Mr. Fleming:

The staff of the Arkansas Historic Preservation Program (AHPP) reviewed the Project Identification Form for the above-referenced project.

The AHPP will update our records to indicate the National Register of Historic Places status of Property 1A, the New Deal marker (A.F.P./A-7-C), as eligible under Criterion A. We concur with the plan to issue a Restraining Provision Special Condition to protect the marker that currently lies outside the construction corridor.

The proposed undertaking is the replacement of Bridge 01116 (Site 2) on Arkansas Highway 7 in Perry County. Based on the information provided, the AHPP concurs that the methods and conclusions outlined in this Project Identification Form are sufficient to warrant a finding of No Historic Properties Affected for the proposed undertaking pursuant to 36 CFR § 800(d)(1).

Tribes that have expressed an interest in the area include the Caddo Nation (Ms. Tamara Francis), the Cherokee Nation (Ms. Elizabeth Toombs), the Chickasaw Nation (Ms. Karen Brunso), the Choctaw Nation of Oklahoma (Mr. Daniel Ragle), the Muscogee (Creek) Nation (Ms. Corain Lowe-Zepeda), the Osage Nation (Dr. Andrea Hunter), the Quapaw Nation (Mr. Everett Bandy), and the Shawnee Tribe of Oklahoma (Ms. Tonya Tipton). We recommend consultation in accordance with 36 CFR § 800.2(c)(2).



ARKANSAS HISTORIC
PRESERVATION PROGRAM



1100 North Street
Little Rock, AR 72201

(501) 324-9880
fax: (501) 324-9184

info@arkansaspreservation.org
www.arkansaspreservation.com

An Equal Opportunity Employer

Thank you for the opportunity to review this Project Identification Form.
Please refer to the AHPP Tracking Number listed above in all correspondence.
If you have any questions, please call Eric Mills of my staff at 501-324-9784
or email eric.mills@arkansas.gov.

Sincerely,



Scott Kaufman
Director, AHPP

cc: Mr. Randall Looney, Federal Highway Administration
Ms. Tamara Francis, Caddo Nation
Ms. Elizabeth Toombs, Cherokee Nation
Ms. Karen Brunso, Chickasaw Nation
Mr. Daniel Ragle, Choctaw Nation of Oklahoma
Ms. Corain Lowe-Zepeda, Muscogee (Creek) Nation
Dr. Andrea Hunter, Osage Nation
Mr. Everett Bandy, Quapaw Nation
Ms. Tonya Tipton, Shawnee Tribe of Oklahoma
Dr. Ann Early, Arkansas Archeological Survey



THE DEPARTMENT OF ARKANSAS
HERITAGE

Asa Hutchinson
Governor

Stacy Hurst
Director

May 8, 2018

Mr. John Fleming
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

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ENVIRONMENTAL
DIVISION

Arkansas Arts Council

Arkansas Natural
Heritage Commission

Arkansas State Archives

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars
Cultural Center

Old State House Museum

RE: Garland County – General
Section 106 Review – FHWA
Report Titled: *A Cultural Resources Survey of ArDOT Job Number
061501 Middle Fork Saline River STR. & APPRS. (S)Garland County,
Arkansas*
ArDOT Job Number: 061501
AHPP Tracking Number: 99268.01

Dear Mr. Fleming:

The staff of the Arkansas Historic Preservation Program has reviewed the above-referenced Phase I cultural resources report.

Based on the information presented in this report, we concur that the portion of site 3GA0625 located within the proposed construction right-of-way (ROW) and the two abandoned road segments are not eligible for the National Register of Historic Places (NRHP).

With the understanding that no additional ROW is acquired and that no subsurface cultural deposits are encountered, we concur that no historic properties will be affected by this undertaking.

Tribes that have expressed an interest in the area include the Caddo Nation (Mr. Phil Cross), the Osage Nation (Dr. Andrea Hunter), the Quapaw Tribe of Oklahoma (Mr. Everett Bandy), and the Shawnee Tribe of Oklahoma (Ms. Kim Jumper). We recommend that they be consulted in accordance with 36 CFR § 800.2 (c) (2).

Thank you for the opportunity to review this undertaking. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Tim Dodson of my staff at 501-324-9784.

Sincerely,

Scott Kaufman
Director, AHPP

cc: Mr. Randall Looney, Federal Highway Administration
Dr. Ann Early, Arkansas Archeological Survey



ARKANSAS HISTORIC
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IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Arkansas Ecological Service Field Office
110 South Amity Road, Suite 300
Conway, Arkansas 72032



February 27, 2019

Mr. John Fleming
c/o Kayti Ewing
Arkansas Department of Transportation
10324 Interstate 30
Little Rock, Arkansas 72209

Dear Mr. Fleming:

The U.S. Fish and Wildlife Service (Service) has reviewed your assessment and determinations for Arkansas Department of Transportation (ArDOT) Job Number 012318_USFWS Consultation, Garland and Perry County, Arkansas. The Arkansas Department of Transportation (ArDOT) is proposing to replace two bridges, one over Dry Run Creek in Perry County and, one over the Middle Fork of the Saline River in Garland County, in the Ouachita National Forest. The project was described and assessed as follows (abbreviated):

A design kmz file is attached as well.

Garland County is within the consultation area of the federally listed Northern Long-eared Bat (*Myotis septentrionalis*). The final 4(d) rule and Programmatic Biological Opinion (BO) applies to the project's activities that have the potential to affect Northern Long-eared Bats. The final 4(d) rule exempts the incidental take of Northern Long-eared Bats from take prohibitions in the Endangered Species Act. The exemptions apply as long as the activities do not occur within 0.25 mile of a known hibernaculum or within 150 feet of a known occupied maternity roost from June 1 to July 31. No known hibernacula or maternity roosts exist within the project limits; therefore, the project can proceed without any restrictions. All offsite locations will require coordination with USFWS. Please see the 4(d) Rule Streamlined Checklist.

A species list, see attached, for this project was generated using the Information for Planning and Conservation (IPaC) system, which also included: Arkansas Fatmucket (*Lampsilis powellii*), Rabbitsfoot (*Theliderma cylindrica*), and Harperella (*Ptilimnium nodosum*).

The Arkansas Fatmucket is endemic to the Ouachita Mountains. Currently, this species is known from the headwaters of the Saline River, including the Alum, Middle, North and South forks, and the mainstem of the Saline River, the upper Ouachita River and South Fork Ouachita River upstream of Lake Ouachita, and the Caddo River upstream and downstream of DeGray Lake in the Ouachita Mountains of Arkansas. In Arkansas, Arkansas Fatmucket is found within the Ouachita-Headwaters, Upper Ouachita, Little Missouri, Lower Ouachita-Smackover, Upper Saline and Lower Saline Watersheds. This species is known to occur in small to medium sized rivers where it is found in deep pools,

backwater areas with sand, sand-gravel, sand-cobble or sand-rock substrates. It does not appear to persist in the areas of the river with strong current or in impounded areas (Harris & Gordon 1988, Harris 1994, Robison & Allen 1995, USFWS 1992, NatureServe Explorer 2018). Habitat alteration and reduction through diminishment of water quality, channel alteration, inundation due to impoundment of rivers, increased sedimentation, and pollution from agriculture and logging operations all threaten the Arkansas Fatmucket mussel (NatureServe Explorer 2018). Habitat in the immediate project area(s) was evaluated and determined to be unsuitable for Arkansas Fatmucket mussels; therefore, a mussel survey was concluded to be unnecessary. Arkansas Fatmucket is known to inhabit the Middle Fork of the Saline River further downstream from the project location. The closest known occurrence is approximately 5.3 river miles downstream of the proposed Middle Fork of the Saline River Bridge and was last observed in 2004; however, it is unlikely that individuals are located within the project area due to lack of suitable habitat. Under the proposed activities, temporary soil disturbance, and sedimentation may alter this species' preferred habitat downstream. Furthermore, these proposed construction activities could affect populations downstream of the immediate project area(s) by potentially contributing a larger than normal sediment load to the Middle Fork of the Saline River and clogging the mussels' feeding siphons or burying them completely since Arkansas Fatmucket mussels are relatively sessile with only limited movement in the substrate (NatureServe Explorer 2018). Although the species' preferred habitat is not within the immediate project area, there is the possibility that individuals downstream could be affected by the proposed construction activities; therefore it is our determination that the proposed highway construction activities "may affect, but not likely to adversely affect" the Arkansas Fatmucket.

Harperella is a federally listed endangered plant species. Populations are scattered across Alabama, Arkansas, Georgia, Maryland, North Carolina, South Carolina, and West Virginia. Half of all known populations have been destroyed (Warriner and Witsell 2002). In Arkansas, *Harperella* is found in Montgomery, Garland, Perry, Polk, Scott, and Yell counties (Hardcastle and Williams 2001, Witsell and Baker 2011). *Harperella* typically occurs in three habitat types: rocky or gravel shoals and margins of clear, swift-flowing sections; and edges of intermittent pineland ponds in the coastal plain; and granite outcrop seeps. Population declines have been attributed to the plants dependence on a narrow range of hydrologic conditions making the species especially vulnerable to disruptions to the natural hydrologic regime and habitat degradation causing increased siltation and erosion, water quality reductions, and invasive plant introductions (USFWS 1990, NatureServe Explorer 2018). Vascular plant surveys conducted within the project area did not identify *Harperella* in the project area(s), but there are known populations as recent as 2017 from the South Fourche La Fave River approximately 5.3 miles north of the Dry Run Creek Bridge and 7.5 miles north of the Middle Fork of the Saline River Bridge (ANHC Records 2010 and 2016, Witsell and Baker 2011). Portions of the Middle Fork of Saline River Creek have been identified as suitable habitat for *Harperella*, but no populations have been found as of 2018. No direct effects are expected. Under the proposed activities, temporary soil disturbance and sedimentation could lead to increased turbidity and decreased water quality, which, in turn, could reduce growth rates of the plant species by 40% (USFWS 1990). In the unlikely scenario there are unknown populations downstream of either proposed bridge construction locations, then the temporary soil disturbance and sedimentation could indirectly affect downstream

Harperella populations. The proposed construction activities could indirectly affect unknown populations downstream from the project area(s); therefore, it is our determination that the project “may affect, but not likely to adversely affect” Harperella.

The range of the Rabbitsfoot Mussel includes 13 states: Alabama, Arkansas, Illinois, Indiana, Kansas, Kentucky, Louisiana, Missouri, Mississippi, Ohio, Oklahoma, Pennsylvania, and Tennessee. In Arkansas, the Rabbitsfoot mussel is known from 34 counties. The Rabbitsfoot mussel primarily inhabits small to medium sized streams and some larger rivers. It usually occurs in shallow areas along the bank and adjacent runs and shoals with reduced water velocity. This species may also occupy deep water runs, up to 9 to 12 feet in depth. Bottom substrates generally includes gravel and sand (Parmalee and Bogan 1998). Although widely distributed, occurrences are rare, and it has been eliminated from a portion of its historic range. The primary causes of this species decline are habitat loss, alteration and destruction through riverine impoundments, channelization, chemical contaminants, mining, and sedimentation (Butler 2005). There is no suitable habitat located within the project area(s), and the closest known occurrence is in the Saline River in Grant County, well over 50 river miles downstream from the project area(s); therefore, it is unlikely that any direct effects will occur. Temporary soil disturbance, sedimentation, and operation of heavy equipment could lead to increased turbidity and decreased water quality downstream, which could indirectly affect unknown populations of Rabbitsfoot mussels downstream; therefore, it is our determination that the proposed construction activities “may affect, but not likely to adversely affect” Rabbitsfoot mussels.

Based on the location of this action, the minimal habitat being affected, the habitat being removed occurring within or immediately adjacent to existing road and right of way, the distance to known species locations, and application of standard sediment and erosion controls; the Service agrees with your assessment and concurs with your determinations of “may affect, but not likely to adversely affect” for Arkansas Fatmucket, Harperella, and Rabbitsfoot. Additionally, the Service agrees with your assessment for all other species identified within your review. No further consultation regarding these species is necessary at this time.

The Service has reviewed your determination that the proposed action will not result in any prohibited incidental take for Northern Long-eared Bat. This project may affect the Northern Long-eared Bat; however, there are no effects beyond those previously disclosed in the Service’s programmatic biological opinion for the final 4(d) rule dated January 5, 2016. Any taking that may occur incidental to this project is not prohibited under the final 4(d) rule (50 CFR§17.40(o)).

This project is consistent with the description of the proposed action in the programmatic biological opinion, and the 4(d) rule does not prohibit incidental take of the Northern Long-eared Bat that may occur as a result of this project. Therefore, the programmatic biological opinion satisfies the "action agency" responsibilities under ESA section 7(a)(2) relative to the Northern Long-eared Bat for this project.

Please keep in mind that you must report any departures from the plans submitted; results of any surveys conducted; or any dead, injured, or sick Northern Long-eared Bats that are found to this

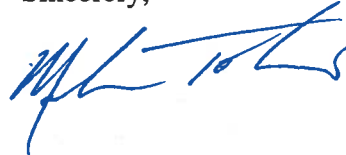
Mr. John Fleming

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office. If this project is not completed within one year of this letter, you must update your determination and resubmit the required information.

For further assistance or if you have any questions, please contact Lindsey Lewis at (501) 513-4489 or lindsey_lewis@fws.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Melvin L. Tobin', with a stylized flourish at the end.

Melvin L. Tobin
Field Supervisor

cc: Project File

Read File

Filename: C:\Users\lilewis\Documents\PROJECTS\FY2019\ARDOT\012318_USFWS
Consultation\AFO Letter - ArDOT Job# 012318_USFWS Consultation - Comments.docx



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480
<http://www.fws.gov/arkansas-es>

In Reply Refer To:

January 31, 2019

Consultation Code: 04ER1000-2019-SLI-0349

Event Code: 04ER1000-2019-E-00658

Project Name: 061501/080501 Middle Fork of Saline River Bridge & Dry Run Creek Bridge

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies endangered, threatened, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). **This letter only provides an official species list and technical assistance; if you determine that listed species and/or designated critical habitat may be affected in any way by the proposed project, even if the effect is wholly beneficial, consultation with the Service will be necessary.**

If you determine that this project will have no effect on listed species and their habitat in any way, then you have completed Section 7 consultation with the Service and may use this letter in your project file or application.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found on our website.

Please visit our website at <http://www.fws.gov/arkansas-es/IPaC/home.html> for species-specific guidance to avoid and minimize adverse effects to federally endangered,

threatened, proposed, and candidate species. Our web site also contains additional information on species life history and habitat requirements that may be useful in project planning.

If your project involves in-stream construction activities, oil and natural gas infrastructure, road construction, transmission lines, or communication towers, please review our project specific guidance at <http://www.fws.gov/arkansas-es/IPaC/ProjSpec.html>.

The karst region of Arkansas is a unique region that covers the **northern third of Arkansas** and we have specific guidance to conserve sensitive cave-obligate and bat species. **Please visit <http://www.fws.gov/arkansas-es/IPaC/Karst.html> to determine if your project occurs in the karst region and to view karst specific-guidance.** Proper implementation and maintenance of best management practices specified in these guidance documents is necessary to avoid adverse effects to federally protected species and often avoids the more lengthy formal consultation process.

If your species list includes any mussels, Northern Long-eared Bat, Indiana Bat, Yellowcheek Darter, Red-cockaded Woodpecker, or American Burying Beetle, your project may require a presence/absence and/or habitat survey prior to commencing project activities. Please check the appropriate species-specific guidance on our website to determine if your project requires a survey. We strongly recommend that you contact the appropriate staff species lead biologist (see office directory or species page) prior to conducting presence/absence surveys to ensure the appropriate level of effort and methodology.

Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make "no effect" determinations. If you determine that your proposed action will have "no effect" on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.

Through the consultation process, we will analyze information contained in a biological assessment that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a habitat conservation plan) is necessary to harm or harass federally listed threatened or endangered fish or wildlife species. In either case, there is no mechanism for authorizing incidental take "after-the-fact." For more information regarding formal consultation and HCPs, please see the Service's Consultation Handbook and Habitat Conservation Plans at www.fws.gov/endangered/esa-library/index.html#consultations.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to

federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, **the accuracy of this species list should be verified after 90 days.** This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arkansas Ecological Services Field Office

110 South Amity Suite 300

Conway, AR 72032-8975

(501) 513-4470

Project Summary

Consultation Code: 04ER1000-2019-SLI-0349

Event Code: 04ER1000-2019-E-00658

Project Name: 061501/080501 Middle Fork of Saline River Bridge & Dry Run Creek Bridge

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Replace the existing bridge over the Middle Fork of the Saline River in Garland County, and the bridge over Dry Run Creek in Perry County. Both bridges are on Highway 7 and are both in the Ouachita National Forest boundary.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/34.78292508646333N93.10236893118602W>



Counties: Garland, AR | Perry, AR

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](https://www.noaa.gov/), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red-cockaded Woodpecker <i>Picoides borealis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7614	Endangered

Clams

NAME	STATUS
Arkansas Fatmucket <i>Lampsilis powellii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2213	Threatened
Pink Mucket (pearlymussel) <i>Lampsilis abrupta</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7829	Endangered
Rabbitsfoot <i>Quadrula cylindrica cylindrica</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5165	Threatened
Scaleshell Mussel <i>Leptodea leptodon</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5881	Endangered

Insects

NAME	STATUS
Rattlesnake-master Borer Moth <i>Papaipema eryngii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7863	Candidate

Flowering Plants

NAME	STATUS
Harperella <i>Ptilimnium nodosum</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3739	Endangered
Missouri Bladderpod <i>Physaria filiformis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5361	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

Information to Determine 4(d) Rule Compliance:

YES NO

Information to Determine 4(d) Rule Compliance:	YES	NO
1. Does the project occur wholly outside of the WNS Zone ¹ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency ² to determine if your project is near known hibernacula or maternity roost trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Could the project alter the entrance or interior environment of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You are eligible to use this form if you have answered yes to question #1 **or** yes to question #2 **and** no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency and Applicant³ (Name, Email, Phone No.): Arkansas Department of Transportation (ARDOT), Kayti Ewing, anne.ewing@ardot.gov, 501-569-2083

Project Name: 012318 Middle Fork of Saline River and Dry Run Creek Strs. & Apprs.

Project Location (include coordinates if known): Perry and Garland County, 34.776588°, -93.096746°

Basic Project Description (provide narrative below or attach additional information): ARDOT proposes to replace two bridges, one over the Middle Fork of the Saline in Garland County and one over Dry Run Creek in Perry County.

¹ <http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf>

² See <http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html>

³ If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

General Project Information	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project occur within 150 feet of a known maternity roost tree?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project include forest conversion ⁴ ? (if yes, report acreage below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estimated total acres of forest conversion	~ 6.3 acres	
If known, estimated acres ⁵ of forest conversion from April 1 to October 31	~ 6.3 acres	
If known, estimated acres of forest conversion from June 1 to July 31 ⁶	~ 6.3 acres	
Does the project include timber harvest? (if yes, report acreage below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estimated total acres of timber harvest	~ 6.3 acres	
If known, estimated acres of timber harvest from April 1 to October 31	~ 6.3 acres	
If known, estimated acres of timber harvest from June 1 to July 31	~ 6.3 acres	
Does the project include prescribed fire? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Signature: Kayti Ewing Date Submitted: 2/22/2019

⁴ Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).

⁵ If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.

⁶ If the activity includes tree clearing in June and July, also include those acreage in April to October.

BIOLOGICAL EVALUATION

for

Activities Related to

**ARDOT Job Number 012318
Middle Fork of Saline River &
Dry Run Creek Strs. & Apprs. (Hwy. 7)**

**Ouachita National Forest
Jessieville-Winona-Fourche Ranger District
Perry and Garland Counties, Arkansas**

by

**Kayti Ewing
Botanist
Arkansas Department of Transportation
P.O. Box 2261
Little Rock, AR 72203
(501) 569-2281 (voice)
(501) 569-2009 (fax)
anne.ewing@ardot.gov**

February 2019

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PROJECT DESCRIPTION AND LOCATION

The Arkansas Department of Transportation (ARDOT) is proposing to replace two bridges on Highway 7; one crossing the Middle Fork of the Saline River (Site 1, Bridge No. 01782) in Garland County, and the other crossing the Dry Run Creek (Site 2, Bridge No. 01116) in Perry County (Figure 1). The project area includes Township 1 North, Range 20 West, Section 1 (Site 1) and Township 2 North, Range 20 West, Section 26 (Site 2). Site 1 lies in the Upper Saline Watershed (8-digit HUC 08040203) within the Lower Ouachita Basin (6-digit HUC 080402), while Site 2 lies in the Fourche La Fave Watershed (8-digit HUC 11110206) within the Lower Arkansas-Fourche La Fave Basin (6-digit HUC 111102).

Proposed improvements at the Middle Fork of the Saline River, Site 1, consist of replacing the existing 131' x 23.3' bridge with a 203' x 37.75' continuous composite W-beam unit with decorative concrete railing on existing location. A detour will be utilized during construction for maintenance of traffic purposes; the detour will be located on the east (northeast) side of Highway 7, approximately 50 feet upstream. Current conditions at Site 1 consists of two 10-foot travel lanes and 2-foot gravel shoulders. Additional proposed improvements include widening travel lanes to 11 feet and adding 6-foot shoulders to either side, two feet of which is paved.

At the Dry Run Creek crossing, Site 2, proposed improvements include replacing the existing 60' x 23.4' bridge with a 105' x 37.75' continuous reinforced concrete slab unit with decorative concrete railing. The new bridge will be constructed on new location, approximately 80 feet upstream. Maintenance of traffic will utilize the existing bridge during construction, and as the new bridge is open to traffic, the existing structure and approaches will be demolished. Existing conditions at Site 2 consists of two 10-foot travel lanes and 2-foot paved shoulders. Additional proposed improvements include widening the travel lanes to 11 feet and adding 6-foot shoulders to either side, two feet of which is paved.

At least one work road will be required at both sites. Sometimes two work roads are required—one for constructing the new bridge or detour and another to demolish the existing bridge when construction is complete. Work road information is limited at this time, but all work roads are required to maintain low flow conditions in order to not restrict water movement as much as possible.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed project is to replace two functionally obsolete bridges along Highway 7, over Middle Fork of the Saline River and Dry Run Creek. The Middle Fork of the Saline River Bridge is classified as functionally obsolete due to deterioration of the deck and concrete girders and the narrow roadway width. The Dry Run Creek Bridge is also classified as functionally obsolete due to the narrow roadway width.

The purpose of this project is to replace the two Highway 7 bridges over the Middle Fork of the Saline River and Dry Run Creek, removing the structural deficiencies and limited roadway width that would otherwise result in escalating maintenance costs and possible closure of Highway 7.

ALTERNATIVES CONSIDERED

The Middle Fork of the Saline River Bridge (Site 1) is to be replaced on existing alignment using a detour to the east of Highway 7 for maintenance of traffic purposes. One alternative looked at constructing the new bridge on the west side of the existing alignment; however, that alternative was quickly withdrawn since the relocation of the Middle Fork of Saline River would have been required due to its proximity to the existing roadway. Another alternative looked at constructing the new bridge on the east side of the existing alignment. This eastern alternative was not further considered due to the proximity of the roadside parking area.

The Dry Run Creek Bridge, Site 2, is to be replaced east of the existing bridge, using the existing structure for maintenance of traffic during construction. Again, another alternative looked at replacing the bridge on the west side of existing roadway, but Trace Creek runs parallel to Highway 7 on the west side. This alternative was not selected in order to avoid any possible stream location and resulting compensatory mitigation.

PURPOSE AND NEED FOR THE BIOLOGICAL EVALUATION

This Biological Evaluation (BE) documents the potential effects of the proposed highway construction activities, including utility relocation and timber harvesting, on both known and potentially occurring populations and habitat of the Ouachita National Forest's (ONF) Proposed, Endangered, Threatened, and Sensitive species (PETS) (USDI FWS 1999). This BE was conducted in accordance with methods given in Forest Service Manual 2672.43 (USDA FS 2005d).

As part of the National Environmental Policy Act decision-making process, the BE provides a review of ARDOT activities in sufficient detail to determine the potential affects of the proposed action on the listed PETS species. Objectives of the BE are as follows:

- to ensure that ARDOT actions do not contribute to loss of viability of any native or desired non-native plant or animal species or contribute to trends toward Federal listing of any species.
- to comply with all requirements of the Endangered Species Act, that actions of federal agencies not put at risk or adversely modify critical habitat of federally listed species.
- to provide standardized procedures for evaluation of PETS species to ensure they receive full consideration in the decision-making process, so that no species is placed in jeopardy as a result of inadequate management actions.
- to adhere to the requirements of the Forest Service Manual 2672.43(USDA FS 2005d), which provides direction for the inventory of PETS species in preparation of site-specific BEs.
- to address any potential impacts from management activities and incorporate conservation measures related to known PETS habitat or potential habitat.

Only those PETS species known to occur or have suitable habitat in the action area will be considered in this BE.

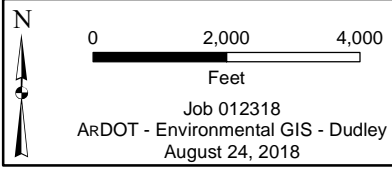
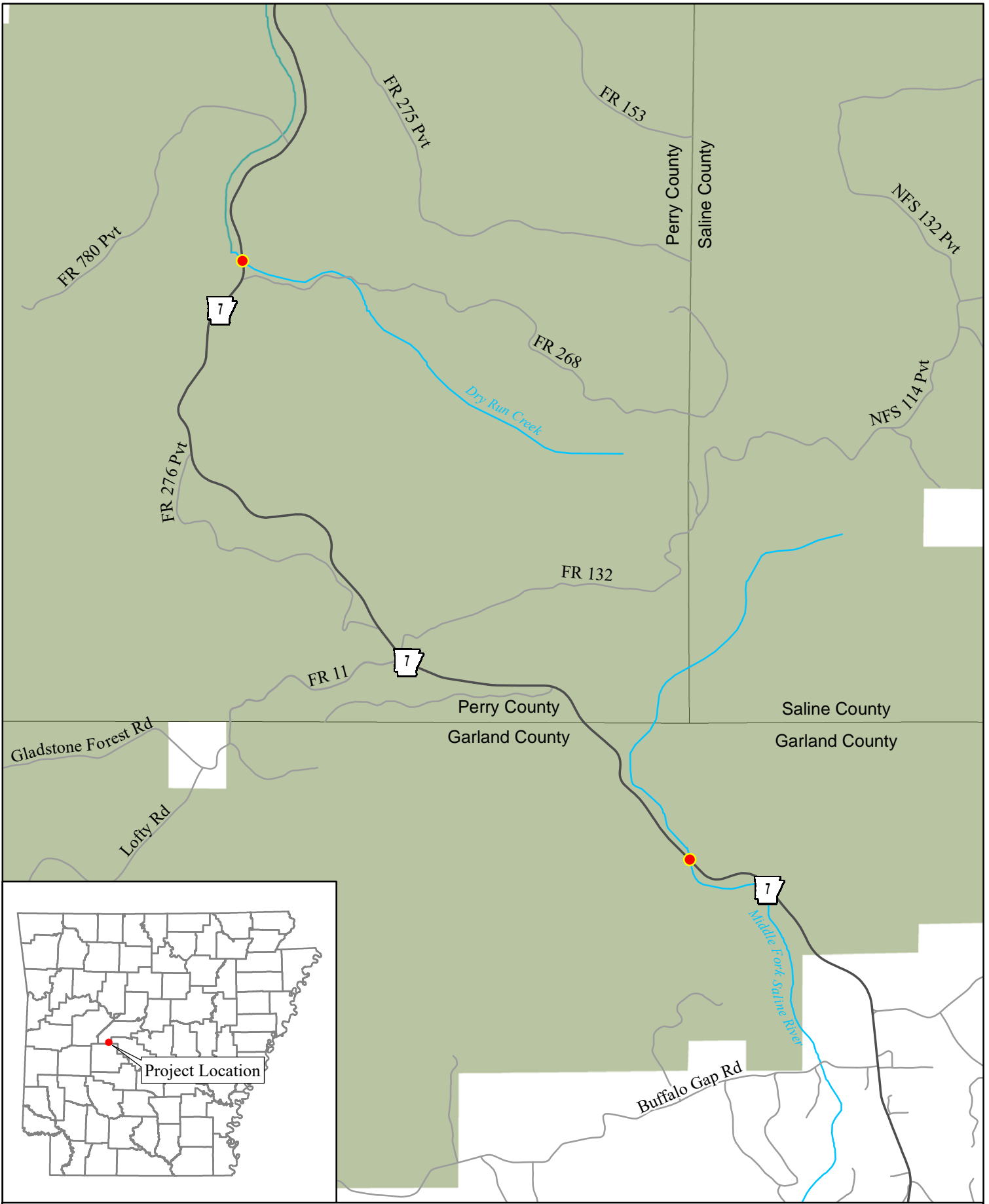
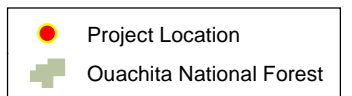


Figure 1
Project Location



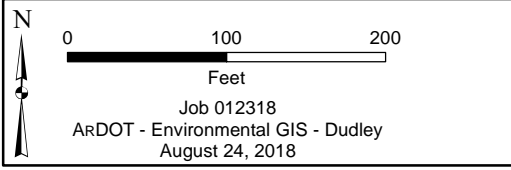
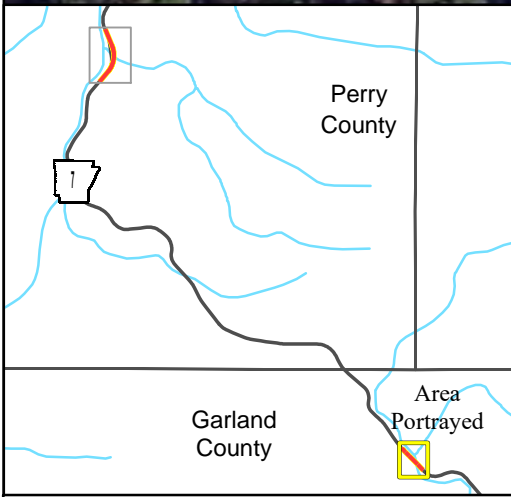
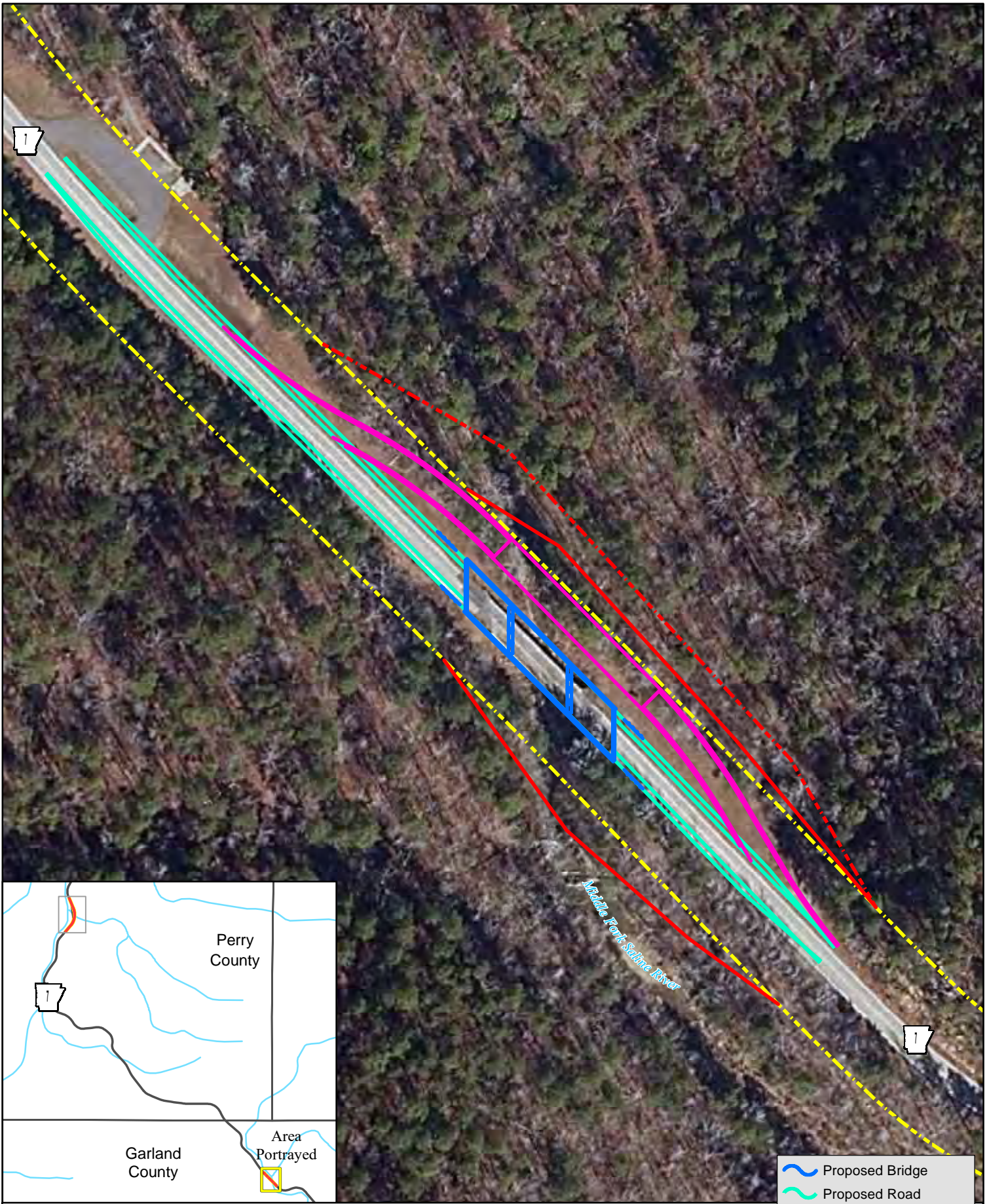








Figure 2
 Site 1 Design
 Middle Fork of Saline River

-  Proposed Bridge
-  Proposed Road
-  Proposed Detour
-  Proposed Right of Way
-  Temporary Easement
-  Existing Right of Way

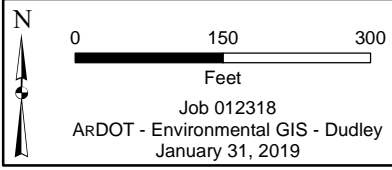
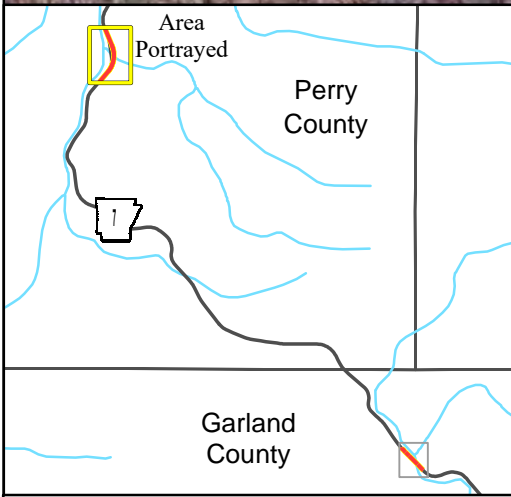
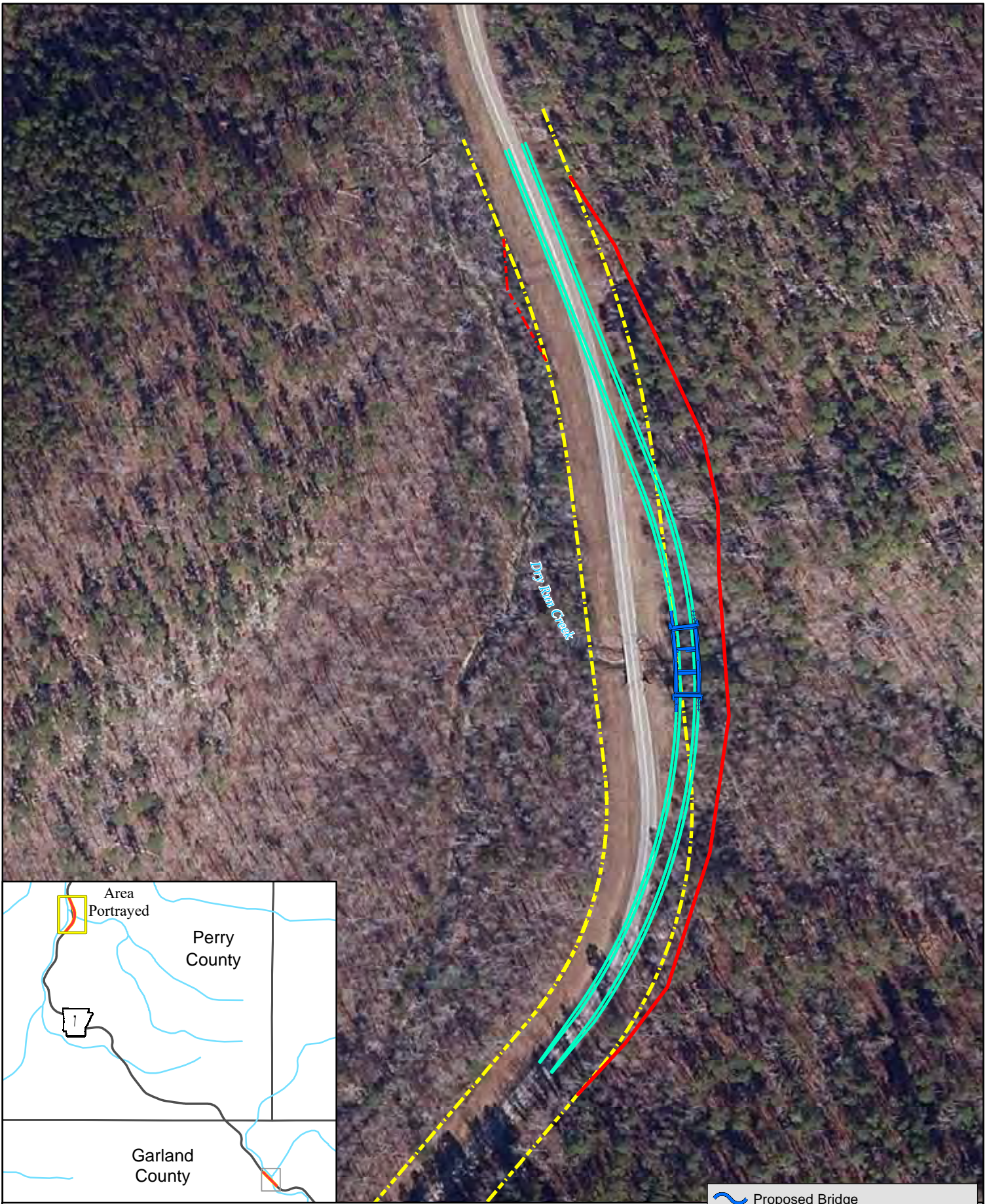







Figure 3
 Site 2 Design
 Dry Run Creek

-  Proposed Bridge
-  Proposed Right of Way
-  Temporary Construction Easement
-  Proposed Road
-  Existing Right of Way

PROPOSED MANAGEMENT ACTIONS

Proposed management actions include the use of Best Management Practices (BMPs) outlined in the National Pollution Discharge Elimination System (NPDES) and Section 404, Clean Water Act permits. These BMPs ensure that construction related activities associated with the project will not have detrimental effects on the water quality within the watershed.

INVENTORY HISTORY

This BE is based on Arkansas Natural Heritage Commission 2010, 2016, and 2018 records database, Information for Planning and Conservation (IPaC) system, ONF PETS checklist (2018) from the Jessieville-Winona-Fourche Ranger District, NatureServe Explorer Data (2018), and literature as cited for the various listed species known to occur on the ONF. Biological surveys for PETS species and their habitats for the proposed project were conducted on July 14 and 21, 2017, September 26, 2017 and on April 17, 2018 by ARDOT Environmental personnel, Kayti Ewing, Joe Ledvina, and USFS botanist, Susan Hooks. The results of the plant survey are included in *Appendix B*. Other pertinent literature and information concerning PETS populations and habitats are utilized as cited.

SPECIES CONSIDERED AND SPECIES EVALUATED

All PETS species will be evaluated and/or inventoried according to Forest Service Manual 2672.43 (USDA FS 2005c). All inventory and analysis for PETS species is based on “best available science.” *Appendix A* lists the ONF PETS species and indicates whether or not each is known to occur within the action area. The status of each species within the Jessieville-Winona-Fourche Ranger District and within the action area is based on a literature review of known surveys and information. As expressed for each species listed in *Appendix A*, additional surveys are not needed at this time to provide more definitive information to improve the determination of effects on the evaluated PETS species.

EVALUATED SPECIES SURVEY INFORMATION

Based on the Arkansas Natural Heritage Commission 2010, 2016, and 2018 records database, Information for Planning and Conservation (IPaC) system, NatureServe Explorer Data (2018), ARDOT and ONF USFS personnel field surveys, and other pertinent information as cited, twenty-one PETS species are known to occur or may potentially occur within the action area. Of these twenty-one species, four are federally listed: Arkansas Fatmucket (*Lampsilis powellii*) and harperella (*Ptilimnium nodosum*) as endangered, and Rabbitsfoot (*Theliderma cylindrica*) and northern long-ear bat (*Myotis septentrionalis*) as threatened. The other seventeen species are considered sensitive by the USFS, and include one butterfly, nine plant species, three mussel species, three fish species and one mammal species (see *Appendix A*). Only these twenty-one species will be evaluated in this BE for potential impacts from the proposed actions.

ENVIRONMENTAL BASELINE AND EFFECTS OF PROPOSED MANAGEMENT ACTIONS

Each specific activity that is being considered will be evaluated to determine potential effects to the twenty-one PETS species of concern in this BE. The specific activities were listed in the “PROJECT DESCRIPTION AND LOCATION” section above. The most likely *general* effects from the specific activities are as follows:

Highway Construction Activities:

- Would remove trees (forested habitat) from the site prior to other construction activities
- Would demolish the existing bridges (potential roosting habitat)
- Would cause temporary soil disturbance from heavy equipment operation
- Could temporarily increase sedimentation by exposing soils susceptible to erosion before the action area could be revegetated
- Could impact or crush individual plants and animals on the ground directly by heavy equipment operation
- Would create small patches of early successional habitat through the conversion of forested tracts to highway rights-of-way

These activities can be grouped or simplified into the four following impacts:

- **Soil disturbance impacts**
- **Sedimentation impacts**
- **Heavy equipment impacts (including bridge demolition)**
- **Creation of early successional habitat impacts (includes timber harvest)**

These four impacts will be evaluated below for the four federally listed and seventeen sensitive species that occur or may occur within the action area.

Arkansas Fatmucket (*Lampsilis powellii*) – Endangered

This species is endemic to the Ouachita Mountains. Currently, this species is known from the headwaters of the Saline River, including the Alum, Middle, North and South forks, and the mainstem of the Saline River, the upper Ouachita River and South Fork Ouachita River upstream of Lake Ouachita, and the Caddo River upstream and downstream of DeGray Lake in the Ouachita Mountains of Arkansas. In Arkansas, Arkansas Fatmucket is found within the Ouachita-Headwaters, Upper Ouachita, Little Missouri, Lower Ouachita-Smackover, Upper Saline and Lower Saline Watersheds. This species is known to occur in small to medium sized rivers where it is found in deep pools, backwater areas with sand, sand-gravel, sand-cobble or sand-rock substrates. It does not appear to persist in the areas of the river with strong current or in impounded areas (Harris & Gordon 1988, Harris 1994, Robison & Allen 1995, USFWS 1992, NatureServe Explorer 2018). Habitat alteration and reduction through diminishment of water quality, channel alteration, inundation due to impoundment of rivers, increased sedimentation and pollution from agriculture and logging operations all threaten the Arkansas Fatmucket mussel (NatureServe Explorer 2018).

Direct Effects

Habitat in the immediate project area(s) was evaluated and determined to be unsuitable for Arkansas Fatmucket mussels; therefore, a mussel survey was concluded to be unnecessary. Arkansas Fatmucket is known to inhabit the Middle Fork of the Saline River further downstream from the project location.

Indirect Effects

Under the proposed activities, temporary soil disturbance, and sedimentation may alter this species' preferred habitat downstream. Furthermore, these proposed construction activities could affect populations downstream of the immediate project area(s) by potentially contributing a larger than normal sediment load to the Middle Fork of the Saline River and clogging the mussels' feeding siphons or burying them completely since Arkansas Fatmucket mussels are relatively sessile with only limited movement in the substrate (NatureServe Explorer 2018).

Cumulative Effects

Current and planned Forest Service activities could have additional adverse impacts on this species; however, these cumulative effects would be minimal due to the fact that this species is protected under the Endangered Species Act (ESA) and the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Under the Endangered Species Act (ESA), cumulative effects are defined as those effects of future State or private activities—not involving federal activities—that are reasonably certain to occur within the action area. [50 CFR §402.02] Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may affect, but not likely to adversely affect” Arkansas Fatmucket mussels. Arkansas Natural Heritage Commission records indicate that there are Arkansas Fatmucket mussel occurrences within the Middle Fork of the Saline River. The closest known occurrence is approximately 5.3 river miles downstream of the Middle Fork of Saline River Bridge and was last observed in 2004; however, it is unlikely individuals are located within the project area due to lack of suitable habitat. Although the species was not found in the project area(s), there is the possibility that individuals of this species could be affected by construction activities downstream from the project area (Middle Fork of Saline River).*

Harperella (Ptilimnium nodosum) - Endangered

Harperella is a federally listed endangered plant species. Populations are scattered across Alabama, Arkansas, Georgia, Maryland, North Carolina, South Carolina and West Virginia. Half of all known populations have been destroyed (Warriner and Witsell 2002). In Arkansas, harperella is found in Montgomery, Garland, Perry, Polk, Scott and Yell counties (Hardcastle and Williams 2001, Witsell and Baker 2011). Harperella typically occurs in three habitat types: rocky or gravel shoals and margins of clear, swift-flowing sections; and edges of intermittent pineland ponds in the coastal plain; and granite outcrop seeps. Population declines have been attributed to the plants dependence on a narrow range of hydrologic conditions making the

species especially vulnerable to disruptions to the natural hydrologic regime and habitat degradation causing increased siltation and erosion, water quality reductions and invasive plant introductions (USFWS 1990, NatureServe Explorer 2018).

Direct Effects

Vascular plant surveys conducted within the project area did not identify harperella in the project area(s), but there are known populations, as recent as 2017, from the South Fourche La Fave River approximately 5.3 miles north of the Dry Run Creek Bridge and 7.5 miles north of the Middle Fork of Saline River Bridge (ANHC Records 2010 and 2016, Witsell and Baker 2011). Portions of the Middle Fork of Saline River Creek have been identified as suitable habitat for harperella, but no populations have been found as of 2018. No direct effects are expected.

Indirect Effects

Under the proposed activities, temporary soil disturbance and sedimentation could lead to increased turbidity and decreased water quality, which, in turn, could reduce growth rates of the plant species by 40% (USFWS 1990). In the unlikely scenario there are unknown populations downstream of either proposed bridge construction locations, then the temporary soil disturbance and sedimentation could indirectly affect downstream harperella populations.

Cumulative Effects

Under the Endangered Species Act (ESA), cumulative effects are defined as those effects of future State or private activities—not involving federal activities—that are reasonably certain to occur within the action area. [50 CFR §402.02] Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized since the right of way is bounded by National Forest System lands under the jurisdiction of the Ouachita National Forest. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may affect, but not likely to adversely affect” harperella. Vascular plant surveys conducted within the project area did not identify the species, but there are several known locations of harperella in the South Fourche La Fave River, north of the project area(s). An increase in sedimentation from bridge construction could reduce growth rates by 40% (USFWS 1990), since harperella is relatively sensitive to increased turbidity and decreased water quality. The proposed construction activities could indirectly affect unknown populations downstream from the project area(s).*

Northern Long-eared Bat (*Myotis septentrionalis*) – Threatened

The northern long-eared bat is found in 37 states across most the eastern and north central United States. In Arkansas, the northern long-eared bat’s range includes over 40 counties, mostly in the Ozark Highlands, Boston Mountains, Ouachita Mountains and the western part of South Central Plains Ecoregions. Hibernation primarily occurs in caves (USFWS 2011). Summer roosting and foraging habitat includes intact forested interiors with a large number of old trees, multiple forest strata and standing snags and woody debris. Foraging typically occurs within forests and along forest edges (NatureServe Explorer 2018). In Missouri, northern long-eared bats almost exclusively foraged in upland forested areas, rather than in floodplain and riparian forests (LaVal et al. 1980). In Iowa, this species was found primarily foraging in mature deciduous upland forests adjacent to riparian areas (Kunz 1973). Northern long-eared bat populations are

threatened by a range of stressors including disease, land use change, and direct human disturbance. Factors directly influencing this species include white-nose syndrome, winter and summer habitat modification, disturbance and destruction such as roost tree removal, cave vandalism and climate change (NatureServe Explorer 2018).

The Final 4(d) Rule applies to the project's activities that have the potential to affect northern long-eared bats. The Final 4(d) Rule exempts the incidental take of northern long-eared bats from take prohibitions in the Endangered Species Act. The exemptions apply as long as the activities do not occur within 0.25 mile of a known hibernaculum or within 150 feet of a known occupied maternity roost from June 1 to July 31, and no known hibernacula or maternity roosts exist within the project limits. A Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form will be completed as part of our Section 7 consultation for northern long-eared bats.

Direct Effects

Suitable foraging habitat and potential roosting habitat were observed in the project area for northern long-eared bats. It is possible that individuals of this species could be overlooked or not avoided during highway construction activities. No evidence of bats was observed during the bridge assessment of either the Middle Fork of Saline River Bridge or the Dry Run Creek Bridge; however, this species has been documented to occur in the project area. Unknown roosting and maternity sites could be potentially felled or damaged when the site cleared during construction. The proposed project will result in 3.36 acres of forested area to be cleared at Site 1, and 2.94 acres of forested area to be cleared at Site 2. Although direct effects to northern long-eared bats are not expected, it is possible that individuals of this species could be overlooked or not avoided during highway construction activities.

Indirect Effects

The project area is within the known range of the northern long-eared bat and occurrences have been documented nearby. The habitat of northern long-eared bats may be impacted indirectly by noises associated with tree clearing and bridge construction activities. Under the proposed construction activities, heavy equipment disturbance and noise associated with construction activities could disrupt potential foraging and roosting opportunities, temporarily, in the adjacent upland areas. Further, potential indirect effects to the northern long-eared bat may include disturbance and temporary habitat degradation from the clearing activities associated with the proposed project. Creation of early successional habitat will convert 3.36 acres, at Site 1, and 2.94 acres, at Site 2, of riparian and upland forest to highway right-of-way, limiting potential habitat for northern long-eared bats. Conversely, the resulting canopy and midstory openings will increase the amount of sunlight to the forest floor, resulting in a diverse and abundant assemblage of vegetation, which will increase the general biodiversity of the insects the bat forages upon. Additionally, the reduced clutter and lower basal area associated with the proposed project will result in improved habitat for northern long-eared bats, as it will also increase the small openings preferred for foraging (Lacki and Schwierjohann 2001, Perry and Thill 2007, Perry et al. 2007, Perry et al. 2008).

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *Under the Final 4(d) Rule of the Endangered Species Act for northern long-eared bats, the proposed highway construction project and associated activities are exempt from any take prohibitions, specifically the incidental take of northern long-eared bats. A bridge assessment found no evidence of bats utilizing the bridge. This species has been documented to occur near the project area, and there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Rabbitsfoot Mussel (*Theliderma cylindrica*) – Threatened

The range of the Rabbitsfoot Mussel includes 13 states: Alabama, Arkansas, Illinois, Indiana, Kansas, Kentucky, Louisiana, Missouri, Mississippi, Ohio, Oklahoma, Pennsylvania and Tennessee. In Arkansas, the Rabbitsfoot Mussel is known from 34 counties. The Rabbitsfoot Mussel primarily inhabits small to medium sized streams and some larger rivers. It usually occurs in shallow areas along the bank and adjacent runs and shoals with reduced water velocity. This species may also occupy deep water runs, up to 9 to 12 feet in depth. Bottom substrates generally includes gravel and sand (Parmalee and Bogan 1998). Although widely distributed, occurrences are rare, and it has been eliminated from a portion of its historic range. The primary causes of this species decline are habitat loss, alteration and destruction through riverine impoundments, channelization, chemical contaminants, mining and sedimentation (Butler 2005).

Direct Effects

There is no suitable habitat located within the project area(s), and the closest known occurrence is in the Saline River in Grant County, well over 50 river miles downstream from the project area(s); therefore, it is unlikely that any direct effects will occur.

Indirect Effects

Temporary soil disturbance, sedimentation and operation of heavy equipment could lead to increased turbidity and decreased water quality downstream, which could indirectly affect Rabbitsfoot Mussels.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may effect, but not likely to adversely affect” the Rabbitsfoot Mussel. Although this species occurs in the Saline River drainages, it is not known to occur within or immediately downstream of the project area(s), but sedimentation from construction could indirectly affect mussel populations downstream.*

Elktoe (*Alasmidonta marginata*) – Sensitive

This species ranges in the north from Canada south to Alabama and on the east from New York to Virginia and on the west from eastern North Dakota to northeastern Oklahoma. In Arkansas, Elktoe is found in 29 counties, which includes those in the Upper Saline Watershed, but does not

include Perry or Garland Counties (NatureServe Explorer 2018). The closest occurrence of the Elktoe Mussel have been found in the Middle Fork of the Saline River and the South Fork of the Saline River, both in Saline County and both south of the project area(s) (ANHC Data 2010, 2016). This species occurs in large to medium sized rivers, but it is more typical of smaller streams with fine to coarse gravel or sand substrates, and this species' preferred habitat includes swift riffles in smaller streams ranging from two to 18 inches in depth (NatureServe Explorer 2018). The primary threats to this species are agricultural, urban and industrial runoff, impoundments or other hydrologic alterations, stream gravel removal and clear cutting of forest and riparian vegetation (NatureServe Explorer 2018).

Direct Effects

There is no suitable habitat located within the project area(s); therefore, it is unlikely that any direct effects will occur.

Indirect Effects

Temporary soil disturbance and operation of heavy equipment could lead to an increase in sedimentation and alter this species' preferred habitat further downstream in the Middle Fork of the Saline River, where the Elktoe Mussel is known to occur.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to federal listing or loss of viability” for Elktoe Mussel. Although the species has not been recorded from the project area(s), there is the possibility that individuals of this species downstream from the project area could be affected by the proposed highway construction activities.*

Kiamichi Shiner (*Notropis ortenburgeri*) – Sensitive

This species is found in upland streams of the Ouachita Mountains in Arkansas and Oklahoma. In Arkansas, it is known from the Arkansas and Ouachita River drainages. Habitat includes clear upland creeks and small rivers, in flowing pools with gravel or boulder substrates (Robison and Buchanan 1988, NatureServe Explorer 2018). Habitat alteration and fragmentation due to reservoir construction and intensive silvicultural practices are major threats to the Kiamichi shiner (NatureServe Explorer 2018).

Direct Effects

ANHC Records (2010, 2016) indicate known occurrences of the Kiamichi shiner in the South Alum Creek, approximately 2.0 miles northeast of the Middle Fork of Saline River (Site 1) and 3.0 miles southeast of the Dry Run Creek (Site 2) that may be impacted by highway construction activities. During the proposed construction, heavy operating equipment could crush individuals.

Indirect Effects

Under the proposed activities, temporary soil disturbance and sedimentation may alter this species' preferred habitat. Furthermore, downstream populations, outside of the immediate project area, could be affected from proposed construction activities.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Kiamichi shiner. The species has been recorded in the nearby South Alum Creek, approximately 2.0 miles northeast and 3.0 miles southeast of Sites 1 and 2, respectively. Although the species has not been recorded from the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Longnose darter (*Percina nasuta*) - Sensitive

The longnose darter is found in the St. Francis, White, Arkansas and Ouachita River drainages in the Ozark and Ouachita Mountains of Arkansas, southern Missouri and eastern Oklahoma. In Arkansas, the longnose darter has recently been found in Lee Creek, Frog Bayou, Mulberry River, upper White River, War Eagle Creek, Big Piney Creek, Illinois Bayou, Ouachita River, Caddo River and the South Fourche La Fave River (Robison and Harp 1988, NatureServe Explorer 2018). The longnose darter can be found in small to medium sized rivers with clear water. It inhabits gravel riffles in the spring and slower moving water over sand and silt in the fall (Harris & Douglas 1978, NatureServe Explorer 2018). Longnose darter populations are susceptible to habitat alteration from stream impoundments and any activities leading to reduced water quality (NatureServe Explorer 2018).

Direct Effects

Although there is no recorded occurrence of the longnose darter in the project area, there are known occurrences in the South Fork of Fourche La Fave River, which date back to 1960s and 1970s, with the latest record in 1991. While it is unlikely, there is the likelihood of longnose darter populations that continue to inhabit the South Fourche La Fave River, and highway construction activities in the Middle Fork of the Saline River and in Dry Run Creek could potentially affect this species, if present. During the proposed construction, heavy operating equipment could crush individuals.

Indirect Effects

Under the proposed activities, temporary soil disturbance and sedimentation may alter this species' preferred habitat.

Cumulative Effects

Protective measures established under the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b) to ensure the integrity of streamside management areas and seeps/springs have greatly

reduced the potential for impacts to this species during resource management activities. Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” of the longnose darter. Under proposed construction activities, individuals could be crushed by heavy operating equipment, and construction activities could result in temporary soil disturbance and sedimentation, either of which could lead to a decrease in water quality altering this species preferred habitat.*

Monarch Butterfly (*Danaus plexippus* ssp. *plexippus*) – Sensitive

North America is a main component of the monarch’s range, but the overall range extends through Central America to northern South America. The North American monarch populations are divided into two main groups—the Western, those west of the Rocky Mountains, and the Eastern, those east of the Rocky Mountains—both of which are migratory. Essential overwintering areas for the western and eastern populations are limited to few areas in eucalyptus groves in coastal California and the conifer forests in the mountains of Mexico, respectively. The monarchs’ summer range include portions of the coterminous United States and southern portions of Canada bordering the United States. There are some non-migratory populations that occur in south Florida and along the Gulf Coast (NatureServe Explorer 2018).

In Arkansas, the monarch butterfly is found statewide. Most often monarchs are migrating through Arkansas heading north in late March to early May and migrating south in late August through October. Habitat is complex. In general, breeding areas are virtually all patches of milkweed in North America, as milkweeds are the larval foodplants. Milkweeds and other nectar-producing forbs are important energy sources for adult monarchs and help fuel migration. Several sources conclude that the recent large-scale decline of North American monarch populations is primarily the result of changes in the core breeding habitat, not the illegal logging activities of wintering habitat in Mexico. The large decline in milkweed and other nectar-producing forbs is attributed to changes in agricultural practices such as the widespread use of genetically modified herbicide-tolerant crops (NatureServe Explorer 2018).

Direct Effects

Although there are no recorded occurrences of the monarch butterfly in the project area(s), it is likely to occur during peak spring and fall migration periods. During proposed construction activities, heavy operating equipment could disturb adults and crush monarch eggs and larvae.

Indirect Effects

Under the proposed activities, temporary soil disturbance and creation of early successional habitat would alter this species’ preferred habitat. Also, creation of early successional habitat could benefit monarch butterflies by opening the canopy and providing suitable habitat for a few years. A Special Seeding Special Provision is included in the job contract to ensure only native forbs and grasses are seeded, which also benefits monarch butterflies. The following beneficial nectar and host plants to the monarch butterfly are included in the Special Seeding Special

Provision: pale purple coneflower (*Echinacea pallida*), butterfly milkweed (*Asclepias tuberosa*), partridge pea (*Chamaecrista fasciculata*), wild bergamot (*Monarda fistulosa*), purple blazing star (*Liatris aspera*), lanceleaf coreopsis (*Coreopsis lanceolata*), and black-eyed Susan (*Rudbeckia hirta*).

Cumulative Effects

Protective measures established under the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b) to ensure the integrity of streamside management areas and seeps/springs have greatly reduced the potential for impacts to this species during resource management activities. Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for the monarch butterfly. The species is likely to occur in the immediate project area, and it is possible that individuals of this species could be overlooked or not avoided during highway construction activities.*

Ouachita madtom (*Noturus lachneri*) – Sensitive

The Ouachita madtom is endemic to the Ouachita Mountains of central Arkansas and is restricted to the upper Saline River system and a small unnamed tributary of the Ouachita River below Remmel Dam (Robison and Buchanan 1988, NatureServe Explorer 2018). In Arkansas, the Ouachita madtom is found in Garland, Hot Spring, Montgomery and Saline Counties, and it is known from three watersheds—the Ouachita Headwaters (08040101), the Upper Ouachita (08040102), and the Upper Saline (08040203).

The species is typically found in pools, backwaters, and runs of creeks and small rivers of moderate to high gradient. These stream characteristically have clear, cool water, cobble to gravel to sand bottoms with alternating pools and riffles. This species may seek smaller tributaries for spawning, as young have been found in shallow pools over shale bedrock (Robison and Harp 1985).

Direct Effects

ANHC Records (2010, 2016) indicate known occurrences of the Ouachita madtom in the Middle Fork of Saline River (Site 1), approximately 1.0 mile downstream of the project area, and approximately 5.0 miles southeast of the Dry Run Creek (Site 2) in the Alum Fork of the Saline River that may be impacted by highway construction activities. During the proposed construction, heavy operating equipment could crush individuals.

Indirect Effects

Under the proposed activities, temporary soil disturbance and sedimentation may alter this species' preferred habitat.

Cumulative Effects

Current and planned Forest Service activities could have additional adverse impacts on this species; however, these cumulative effects would be minimal due to the fact that this species' habitat is protected under the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b).

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized since the right of way is bounded by National Forest System lands under the jurisdiction of the Ouachita National Forest. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to federal listing or loss of viability” for Ouachita madtom. Arkansas Natural Heritage Commission records indicate several Ouachita madtom occurrences in the Middle Fork of the Saline River, approximately 1.0 mile downstream from Site 1, and other nearby streams. This species is likely to occur in the project area; therefore, it is possible that individuals of this species could be overlooked or not avoided during highway construction activities.*

Purple Lilliput pearl mussel (*Toxolasma lividum*) – Sensitive

The purple lilliput pearl mussel occurs in Michigan and Ohio in the lower Ohio River drainage, most of the Tennessee River drainage in Virginia, North Carolina, Tennessee and Alabama; it occurs west of the Mississippi River in southern Missouri, northern Arkansas and potentially into Oklahoma. In Arkansas, it is found throughout the Ozark and Ouachita Highlands. Habitat includes fine-particle, sand, gravel or cobble and boulder substrates in riffles of headwaters of small to medium sized rivers (NatureServe Explorer 2018). Major threats to this species include pollution and sedimentation from land use practices and channel alteration and inundation, construction of dams and other river impoundments; although, this species tolerates impoundments better than others (NatureServe Explorer 2018).

Direct Effects

There is no suitable habitat located within the project area(s); therefore, it is unlikely that any direct effects will occur.

Indirect Effects

Under the proposed activities, temporary soil disturbance and sedimentation may alter this species' preferred habitat. Sedimentation could clog the mussels' feeding siphons or even bury them completely. Furthermore, downstream populations, outside of the immediate project area, could be affected from proposed construction activities.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for purple lilliput mussels. Arkansas Natural Heritage Commission records indicate a purple lilliput mussel occurrence approximately 5.0 miles southeast from Site 1 in Brushy Creek. Although the species is not known from within the immediate project area(s), individuals downstream from the project area could be affected from construction activities.*

Southern hickorynut mussel (*Obovaria arkansasensis*) – Sensitive

Due to phenotypic plasticity among mussels found in headwater areas versus those found downstream, it was thought that two different mussel species (*Obovaria jacksoniana* and *Villosa arkansasensis*) were being observed; however, recent DNA evidence has shown that they are the same species that is now recognized as *Obovaria arkansasensis* (Inoue et al. 2013). Previous synonyms that are currently invalid include *Obovaria jacksoniana* and *Villosa arkansasensis*.

This species ranges from Alabama west to east Texas, and as far north as southeast Missouri along the Mississippi River south to Mississippi. In Arkansas, viable populations have a widespread distribution, and a few individuals were found in the Middle Fork of the Saline River (Harris et al. 2009, ANHC Records 2010 and 2016, NatureServe Explorer 2018). Southern hickorynut mussels are found in small to large sized rivers with gravel bottoms (NatureServe 2018). Little is known about the major threats to this species, but Mississippi populations have been destroyed by construction activities directly related to dam and reservoir construction (NatureServe Explorer 2018).

Direct Effects

There is no suitable habitat located within the project area(s); therefore, it is unlikely that any direct effects will occur.

Indirect Effects

Under the proposed activities, temporary soil disturbance and sedimentation may alter this species' preferred habitat. Sedimentation could clog the mussels' feeding siphons or even bury it completely. Furthermore, downstream populations, outside of the immediate project area, may be affected from proposed construction activities.

Cumulative Effects

Protective measures established under the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b) to ensure the integrity of streamside management areas and seeps/springs have greatly reduced the potential for impacts to this species during resource management activities. Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for the southern hickorynut mussel. Arkansas Natural Heritage Commission records indicate a southern hickorynut mussel occurrence (relict shell) approximately 4.0 miles downstream of Site 1 in the Middle Fork of the Saline River. Although the species is not known from the immediate project area(s), individuals downstream from the project area could be affected from construction activities.*

Tricolored bat (*Perimyotis subflavus*) – Sensitive

The range of the tricolored bat extends from Nova Scotia, southern Quebec, Michigan, Minnesota, and South Dakota south to eastern and southern Mexico, Honduras, Texas, U.S. Gulf Coast, and Florida, west to Wyoming, Colorado and New Mexico (Patterson et al. 2003). In Arkansas, this species is found statewide.

These bats are associated with forested landscapes, where they forage near trees and along waterways. In many areas, most foraging occurs in riparian areas. Maternity and summer roosts are mainly in dead or live tree foliage. In Arkansas, roosts were most often among dead leaves of oaks in mature hardwood forests, and some maternity roosts were found in dead needle of live, large pines. Caves, mines and rock crevices may be used as night roosts between foraging outings. Maternity colonies may also utilize manmade structures such as bridges. Hibernation sites are most often in caves, but they have been found to utilize box culverts under highways near forested areas (NatureServe Explorer 2018).

Direct Effects

Under the proposed construction activities, heavy equipment disturbance and noise associated with construction activities could disrupt foraging and potential roosting opportunities in and immediately surrounding the project area temporarily. Unknown maternity roosts and roost trees could be potentially cleared or damaged during construction, as approximately 3.34 acres of forested area will be cleared at Site 1 and 2.94 acres will be cleared at Site 2. No evidence of bats using the bridge was observed; therefore, no direct effects are expected from the heavy equipment impacts from demolishing the existing bridge. However, suitable habitat is present in the project area; therefore, individuals of this species could be impacted directly from tree clearing activities.

Indirect Effects

Proposed construction activities will result in the conversion of approximately 6.3 acres of riparian forest (i.e., foraging and roosting habitat) to highway right-of-way. Temporary soil disturbance and sedimentation caused by construction activities could contribute to a temporary decrease in water quality, which could in turn affect aquatic insect assemblages; however, erosion control BMPs will in place to minimize sedimentation. This creation of early successional habitat could alter this species' foraging and potential roosting habitat. Temporary soil disturbance and sedimentation also could alter this species' foraging habitat.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for the tricolored bat. Although surveys were not conducted within the project area, a bridge assessment found no evidence of bats utilizing the bridge. This species is likely to occur in the project area, and there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Browne's (Arkansas) Waterleaf (*Hydrophyllum brownei*) – Sensitive

Browne's waterleaf is endemic to the Ouachita Mountains in western Arkansas. This species is found in Garland, Howard, Montgomery, Pike, Polk, Saline, Sevier and Yell counties (Marsico 2003, NatureServe Explorer 2018). Habitat includes moist, diverse, deciduous woodlands. The formation of long rhizomes allows Browne's waterleaf to colonize habitats lacking deep loamy soils, such as shaded talus slopes and rocky, well-drained stream terraces (NatureServe Explorer 2018). Land cover conversion of mesic forests on stream terraces to pine plantations continues to be a major threat to existing populations (NatureServe Explorer 2018).

Direct Effects

Vascular plant surveys conducted in the project area did not identify any Browne's waterleaf in the project area. Although the vascular plant survey did not detect the species within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities. Under proposed activities, heavy operating equipment could crush individuals.

Indirect Effects

Under the proposed activities, temporary soil disturbance, creation of early successional habitat and sedimentation may allow non-native species to become established and alter the preferred habitat of this species.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Browne's waterleaf. Vascular plant surveys conducted within the project area did not identify Browne's waterleaf. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Church's wildrye (*Elymus churchii*) – Sensitive

This species is found Alabama, Arkansas, Missouri and Oklahoma. In Arkansas, it is known from Benton, Carroll, Logan, Montgomery, Polk and Scott Counties (NatureServe Explorer 2018). Habitat includes dry, rocky and basic soils, in open woods on ridges, bluffs and river banks (Campbell 2006).

Direct Effects

Vascular plant surveys conducted within the project area did not identify the Church's wildrye; however, there is the possibility that individuals of this species could be overlooked or not

avoided during highway construction activities. Under proposed activities, heavy operating equipment could crush individuals.

Indirect Effects

Under the proposed activities, temporary soil disturbance, creation of early successional habitat and sedimentation may allow non-native species to become established and alter the preferred habitat of this species.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized since the right of way is bounded by National Forest System lands under the jurisdiction of the Ouachita National Forest. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Church’s wildrye. Vascular plant surveys conducted within the project area did not identify the Church’s wildrye; however, there is the possibility that this species could be overlooked or not avoided during highway construction activities.*

Cumberland sandreed (*Calamovilfa arcuata*) – Sensitive

Cumberland sandreed has a disjunct distribution, with populations clustered in Kentucky, Tennessee and Alabama and another group of populations in eastern Oklahoma and western Arkansas (NatureServe Explorer 2018). In Arkansas, Cumberland sandreed is found in Howard, Perry and Scott Counties. Habitat includes sunny, open gravel/cobble bars along high-gradient streams and small rivers that are subject to scouring floods (Kral 1983, Masters 1993). Flood scouring creates new gravel bars but inhibits competition from shrubs including *Alnus serrulata* and *Itea virginica* (Kral 1983, NatureServe Explorer 2018). Main threats to Cumberland sandreed populations include reservoir and dam construction or any changes to river hydrology that alter flood frequency and intensity as well as woody species that colonize cobble bars (Kral 1983, NatureServe Explorer 2018).

Direct Effects

Vascular plant surveys conducted in the project area did not identify any Cumberland sandreed in the project area. Although the vascular plant survey did not detect the species within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities. Under proposed activities, heavy operating equipment could crush individuals.

Indirect Effects

Under the proposed activities, temporary soil disturbance and creation of early successional habitat may allow nonnative species to become established and alter this species’ preferred habitat. Potentially invasive species noted in the project area include Japanese stilt grass (*Microstegium vimineum*), sericea lespedeza (*Lespedeza cuneata*), Chinese privet (*Ligustrum sinense*), tall fescue (*Festuca arundinacea*), and mimosa tree (*Albizia julibrissin*). Japanese stilt grass is of special concern because it is shade tolerant and can displace natural vegetation under a

forest. Sedimentation may allow alter this species' preferred habitat downstream and indirectly affect downstream populations.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Cumberland sandreed. Vascular plant surveys conducted within the project area did not identify Cumberland sandreed. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Ouachita False Indigo (*Amorpha ouachitensis*) – Sensitive

Ouachita false indigo is an endemic to the Ouachita Mountains of western Arkansas and southeastern Oklahoma. Habitat includes rocky creeks, stream banks, floodplains, rocky ridges, glades and dry rocky sandstone slopes (Masters 1993, NatureServe Explorer 2018). Cattle grazing, logging, brush clearing, stream alteration and road construction threaten Ouachita false indigo populations (Masters 1993, NatureServe Explorer 2018).

Direct Effects

Vascular plant surveys conducted did not identify any Ouachita false indigo within the project area. Although the vascular plant survey did not detect the species within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities. Under proposed activities, heavy operating equipment could crush individuals. Temporary soil disturbance, creation of early successional habitat and sedimentation should not have any direct effect on this species, especially since this species is capable of growing in disturbed conditions (NatureServe Explorer 2018).

Indirect Effects

Under the proposed activities, temporary soil disturbance, creation of early successional habitat and sedimentation may allow non-native species to become established and alter this species' preferred habitat.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Ouachita false indigo. Vascular plant surveys conducted within the project area did not identify the Ouachita false indigo. Although the species was not detected within the project area, there is the*

possibility that individuals of this species could be overlooked or not avoided during highway construction activities.

Ozark Chinquapin (*Castanea pumila* var. *ozarkensis*) – Sensitive

This tree is found mainly in the Ozark Plateau Region, but there are scattered populations in the Ouachita Mountains. Habitat includes oak-pine and oak-hickory forests on relatively dry, acidic soils on ridge tops, tops of sandstone bluffs, upper slopes adjacent to ravines, and is also noted from mesic sites in much of Arkansas, and less commonly in Missouri and Oklahoma (Masters 1993, Nature Serve Explorer 2018). Although forest clearings pose a threat to the dwindling Ozark Chinquapin populations, the declining population is mostly attributed to the chestnut blight. Trees killed by the chestnut blight may produce numerous sprouts from the roots (Masters 1993, Nature Serve Explorer 2018).

Direct Effects

Vascular plant surveys conducted did not identify any Ozark Chinquapin trees within the project area. Although the vascular plant survey did not detect the species within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities. Under proposed activities, heavy operating equipment could crush individuals. Temporary soil disturbance, creation of early successional habitat and sedimentation should not have any direct effect on this species that have undoubtedly already been exposed to the chestnut blight.

Indirect Effects

Under the proposed activities, temporary soil disturbance and creation of early successional habitat may allow non-native species to become established and alter this species' preferred habitat.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for the Ozark Chinquapin. Vascular plant surveys conducted within the project area did not identify the Ozark Chinquapin. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Shinner’s sunflower (*Helianthus occidentalis* ssp. *plantagineus*) – Sensitive

Shinner’s sunflower is known from east Texas, Arkansas and Louisiana. The Louisiana populations are considered possibly extirpated (NatureServe Explorer 2018). Population declines have been attributed to suburban sprawl in Texas, since a number of historic sites are near or in urban areas (NatureServe Explorer 2018). In Arkansas, Shinner’s sunflower occurs in Franklin, Garland, Montgomery, Perry and Pope Counties. Shinner’s sunflower is known from two kinds

of habitats in Arkansas: upland sandstone woodlands and very high quality cobble bars and terraces of mountain streams, often associated with Cumberland sandreed (*Calamovilfa arcuata*) and harperella (*Ptilimnium nodosum*) (Witsell 2006). Marsh and Golden (1996) observed Shinner's sunflower on shale outcrops on woodland edges in the Ouachitas.

Direct Effects

Vascular plant surveys conducted within the project area did not identify Shinner's sunflower. Although the vascular plant survey did not detect the species within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities. Under the proposed activities, heavy equipment could crush individuals. Sedimentation should not have any direct effects on this species.

Indirect Effects

Under the proposed activities, temporary soil disturbance and creation of early successional habitat may allow nonnative species to become established and alter this species' preferred habitat. Potentially invasive species noted in the project area include Japanese stilt grass (*Microstegium vimineum*), sericea lespedeza (*Lespedeza cuneata*), Chinese privet (*Ligustrum sinense*), Japanese honeysuckle (*Lonicera japonica*), Johnson grass (*Sorghum halepense*), and mimosa tree (*Albizia julibrisin*).

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b) in order to minimize cumulative impacts. Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities "may impact individuals but are not likely to cause a trend to Federal listing or loss of viability" for Shinner's sunflower. Vascular plant surveys conducted within the project area did not identify the Shinner's sunflower. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Southern Lady's Slipper (*Cypripedium kentuckiense*) – Sensitive

This orchid occurs within the Interior Highlands of Arkansas, Missouri, and Oklahoma, the Gulf Coastal Plain of Texas, Louisiana, Alabama, and Mississippi, and the Cumberland Plateau of Kentucky and northern Tennessee (NatureServe Explorer 2018). It has also recently been found in eastern Virginia. The Southern lady-slipper is common in the state of Arkansas, but less common in Oklahoma, the western extent of its range.

The habitat for this species is mesic floodplain forests along stream terraces and along margins of seeps and springs. These areas are often inundated annually and have complete canopy cover. This species is also found on mesic north slopes in hardwood forests. It is most abundant above the flood level and away from spring-saturated soils. It is one of the most common and widespread sensitive plant species on the Ouachita National Forest. Protective measures established under the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b) to ensure the integrity of streamside management areas and seeps/springs have greatly reduced the potential

for impacts to this species during resource management activities. Although its status is improving, the southern lady's slipper's habitat is threatened by logging, which converts suitable forest types into pine plantations and reservoir construction, which can permanently inundate floodplain forests. Southern lady's slipper is intolerant to anthropogenic disturbance (Masters 1993).

Direct Effects

Vascular plant surveys conducted within the project area did not identify the southern lady-slipper. Although the vascular plant survey did not detect the species within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities. Creation of early successional habitat could displace the southern lady's slipper, while operating heavy equipment could crush individuals. Sedimentation should not have any direct effects on this species.

Indirect Effects

Under the proposed activities, temporary soil disturbance and creation of early successional habitat may allow nonnative species to become established, which could out-compete and decrease lady slipper habitat. Potentially invasive species noted in the project area include Japanese stilt grass (*Microstegium vimineum*), sericea lespedeza (*Lespedeza cuneata*), Chinese privet (*Ligustrum sinense*), Japanese honeysuckle (*Lonicera japonica*), Johnson grass (*Sorghum halepense*), and mimosa tree (*Albizia julibrissin*). Japanese stilt grass is of special concern because it is shade tolerant and can displace natural vegetation under a forest.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Southern lady's slipper. Vascular plant surveys conducted within the project area did not identify the Southern lady's slipper. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Texas fescue (*Festuca versuta*) – Sensitive

Texas fescue occurs in Arkansas, Kansas, Oklahoma and Texas. In Arkansas, it is found in Garland, Hot Spring, Howard, Montgomery, Polk, Saline, Scott, Washington and Yell Counties (NatureServe Explorer 2018). Habitat includes moist shaded sites on rocky slopes in open woods (NatureServe Explorer 2018).

Direct Effects

Vascular plant surveys conducted did not identify any Texas fescue within the project area(s), but suitable habitat does exist. Although vascular plant surveys did not detect the species within the project area(s), there is the possibility that individuals of this species could be overlooked or

not avoided during highway construction activities. Operation of heavy equipment could crush individuals.

Indirect Effects

Under the proposed activities, temporary soil disturbance and creation of early successional habitat may allow nonnative species to become established. Potentially invasive species noted in the project area include Japanese stilt grass (*Microstegium vimineum*), sericea lespedeza (*Lespedeza cuneata*), Chinese privet (*Ligustrum sinense*), tall fescue (*Festuca arundinacea*), and mimosa tree (*Albizia julibrissin*). Japanese stilt grass is of special concern because it is shade tolerant and can displace natural vegetation under a forest.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized due to the amount of property currently owned or maintained by the forest service. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to federal listing or loss of viability” for Texas fescue. Vascular plant surveys conducted within the project area did not identify the Texas fescue. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Waterfall’s Sedge (*Carex latebracteata*) – Sensitive

Waterfall’s sedge is endemic to the Ouachita Mountains of southeastern Oklahoma and southwestern Arkansas. It is known from several hundred sites in Arkansas, most of which are in or near the Ouachita National Forest. Waterfall’s sedge is locally abundant along the stream systems of the Ouachita Mountains in Arkansas and Oklahoma. It is found in Polk, Yell, Montgomery, Howard, Garland, and Pike counties in Arkansas and LeFlore and McCurtain counties in Oklahoma (NatureServe Explorer 2018, Masters 1993). Waterfall’s sedge is found in a variety of habitats such as shaley roadsides, dry shale woodlands, riparian areas, mesic oak hickory forests, pine and pine hardwood forests, mazarn shale and novaculite glades.

Waterfall’s sedge receives some natural protection from human disturbance by the diversity of its preferred habitats, as described above. Many of the locations on the Ouachita National Forest are on sites that are outside the normal operating limits of common land management activities. Several of these are protected from many habitat-altering activities by virtue of being within the glade and riparian communities, Wilderness Areas, and Research Natural Areas which are protected under the Forest Plan (USDA FS 2005a).

Direct Effects

Vascular plant surveys conducted within the project area did not identify the Waterfall’s sedge. Although the vascular plant survey did not detect the species within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities. Sedimentation should not have any direct effects on this species as these activities would occur outside of its preferred habitat.

Indirect Effects

Under the proposed activities, temporary soil disturbance and creation of early successional habitat may allow nonnative species to become established. Potentially invasive species noted in the project area include Japanese stilt grass (*Microstegium vimineum*), sericea lespedeza (*Lespedeza cuneata*), Chinese privet (*Ligustrum sinense*), tall fescue (*Festuca arundinacea*), and mimosa tree (*Albizia julibrissin*). Japanese stilt grass is of special concern because it is shade tolerant and can displace natural vegetation under a forest.

Cumulative Effects

Highway construction activities occurring within the ONF are reviewed to ensure compatibility with the Forest Plan (USDA FS 2005a) and FEIS (USDA FS 2005b). Further development within the area will likely be minimized since the right of way is bounded by National Forest System lands under the jurisdiction of the Ouachita National Forest. As a result, no cumulative effects are expected to occur.

Determination of Effects: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to federal listing or loss of viability” for Waterfall’s sedge. Vascular plant surveys conducted within the project area did not identify the Waterfall’s sedge. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

CONSULTATION HISTORY WITH THE U.S. DEPARTMENT OF THE INTERIOR – U.S. FISH AND WILDLIFE SERVICE

A copy of this document as well as a Categorical Exclusion for this project will be provided to the US Fish and Wildlife Service (USFWS) for comment. Four federally listed species are known to occur in or near the proposed action area: Harperella (*Ptilimnium nodosum*) and Arkansas Fatmucket (*Lampsilis powellii*) as endangered, and the Rabbitsfoot mussel (*Theliderma cylindrica*) and northern long-eared bat (*Myotis septentrionalis*) as threatened. Based on the findings of this document as well as previous consultations between ONF and the USFWS, a determination of not likely to adversely affect is appropriate, unless presented with new information.

COORDINATION HISTORY WITH THE U.S. ARMY CORPS OF ENGINEERS

The proposed construction activities will require excavation or discharge of dredged or fill material into jurisdictional waters of the U.S.; thus, an USACE issued permit under the Section 404 of the Clean Water Act will need obtained for this project. A permit application will be submitted to the Little Rock District for this project.

DETERMINATION OF EFFECTS

Based on the preceding documentation, discussions, and “best available science,” the “determination of effects” for the proposed actions are as follows:

A. Proposed, Threatened and Endangered Species

No Effect

Not likely to adversely affect

Likely to adversely affect

***Arkansas Fatmucket:** The proposed timber harvesting, utility relocations and highway construction activities “may affect, not likely to adversely affect” Arkansas Fatmucket mussels. Arkansas Natural Heritage Commission records indicate that there are Arkansas Fatmucket mussel occurrences within the Middle Fork of the Saline River. The closest known occurrence is approximately 5.3 river miles downstream of the Middle Fork of Saline River Bridge from 2004; however, it is unlikely individuals are located within the project area due to lack of suitable habitat. Although the species was not found in the project area(s), there is the possibility that individuals of this species could be affected by construction activities downstream from the project area (Middle Fork of Saline River).*

***Harperella:** The proposed timber harvesting, utility relocations and highway construction activities will “not likely to adversely affect” harperella. Vascular plant surveys conducted within the project area did not identify harperella; however, there are known populations in Perry County. An increase in sedimentation from bridge construction may negatively affect any populations*

downstream, since they are relatively sensitive to increases in turbidity and decreases in water quality.

Northern long-eared bat: *The proposed construction activities including timber harvesting are exempt from incidental take under the Final 4(d) Rule of the Endangered Species Act regarding northern long-eared bats. Bridge assessments conducted for both Site 1 and Site 2 did not observe any evidence that bats were using the bridges.*

Rabbitsfoot Mussel: *The proposed highway construction activities “may effect, not likely to adversely affect” the Rabbitsfoot Mussel. Although this species occurs in the Saline River drainages, it is not known to occur within or immediately downstream of the project area(s), but sedimentation from construction could indirectly affect mussel populations downstream.*

B. Sensitive Species

No impact

Beneficial impact

May impact individuals but is not likely to cause a trend to federal listing or loss of viability:

Elktoe: *The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Elktoe Mussels. Temporary soil disturbance and sedimentation could lead to a decrease in water quality and clog mussels’ feeding siphons or bury them completely.*

Kiamichi shiner: *The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Kiamichi shiner. Under proposed activities, heavy operating equipment could crush individuals. Temporary soil disturbance and sedimentation could alter this species preferred habitat.*

Longnose darter: *The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for longnose darter. Under proposed activities, heavy operating equipment could crush individuals. Temporary soil disturbance and sedimentation could decrease water quality.*

Monarch butterfly: *The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for the monarch butterfly. Under the proposed activities, heavy operating equipment could disturb adults and crush eggs and larvae. Temporary soil disturbance could increase nonnative, invasive plant species presence and alter this species preferred habitat. Creation of early*

successional habitat could benefit monarch butterflies by temporarily opening up the forest canopy and providing pollinator habitat, while ARDOT's Special Seeding Special Provision would enhance pollinator habitat.

Ouachita madtom: *The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for the Ouachita madtom. Under proposed activities, heavy operating equipment could crush individuals. Temporary soil disturbance and sedimentation could alter this species preferred habitat.*

Purple Lilliput Mussel: *The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Purple Lilliput Mussel. Temporary soil disturbance and sedimentation could lead to a decrease in water quality and clog mussels' feeding siphons or bury them completely.*

Southern hickorynut mussel: *The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for the southern hickorynut mussel. Temporary soil disturbance and sedimentation could clog mussels' feeding siphons or bury them completely.*

Tricolored bat: *The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for tricolored bats. Under proposed activities, heavy operating equipment could disturb individuals. Temporary soil disturbance and sedimentation could decrease water quality, which may alter foraging opportunities.*

Browne's waterleaf: *The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Browne's waterleaf. Although vascular plant surveys conducted within the project area did not identify the Browne's waterleaf, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Church's wildrye: *The proposed highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Church's wildrye. Vascular plant surveys conducted within the project area did not identify the Church's wildrye; however, there is the possibility that this species could be overlooked or not avoided during highway construction activities.*

Cumberland sandreed: *The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for Cumberland sandreed. Vascular plant surveys conducted within the project area did not identify the Cumberland sandreed. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.*

Ouachita false indigo: The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for *Ouachita false indigo*. Vascular plant surveys conducted within the project area did not identify the *Ouachita false indigo*. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.

Ozark chinquapin: The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for *Ozark chinquapin*. Vascular plant surveys conducted within the project area did not identify the *Ozark chinquapin*. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.

Shinner’s sunflower: The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for *Shinner’s sunflower*. Vascular plant surveys conducted within the project area did not identify the *Shinner’s sunflower*. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.

Southern lady’s slipper: The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for *Southern lady-slipper*. Vascular plant surveys conducted within the project area did not identify the *Southern lady-slipper*. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.

Texas fescue: The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for *Texas fescue*. Vascular plant surveys conducted within the project area did not identify the *Texas fescue*. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.

Waterfall’s sedge: The proposed timber harvesting, utility relocations and highway construction activities “may impact individuals but are not likely to cause a trend to Federal listing or loss of viability” for *Waterfall’s sedge*. Vascular plant surveys conducted within the project area did not identify the *Waterfall’s sedge*. Although the species was not detected within the project area, there is the possibility that individuals of this species could be overlooked or not avoided during highway construction activities.

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2/22/2019

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Appendix A

**Region 8
Regional Forester’s Sensitive Species List
(Arkansas Portion of the Ouachita National Forest Only)**

Survey Needs Based on FSM 2672.43(USDA FS 2005d)

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
FEDERALLY ENDANGERED and THREATENED SPECIES				
American alligator	<i>Alligator mississippiensis</i>	TSA	No	Range does not include the Jessieville-Winona-Fourche Units of the District (AGFC Website).
American burying beetle	<i>Nicrophorus americanus</i>	E	No	Occurrence is not expected; project area(s) lies outside designated American Burying Beetle Area (USDI-FWS 2005b, USFWS Consultation Area Shapefile 2012).
Arkansas fatmucket (mussel)	<i>Lampsilis powellii</i>	T	Yes	Known from the Middle Fork of Saline River, downstream of the project location(s) and the National Forest Boundary in Saline County (ANHC Records 2010, 2016, 2018). Arkansas endemic; occurs in the Saline, Ouachita and Caddo River Systems only (Davidson 1997, Davidson and Clem 2002, USDI-FWS 2005a, USDA-FS 2005a, Robison and Allen 1995, Harris et al. 2009, Williams et al. 2017). Habitat includes small to medium sized rivers in deep pools, backwater areas with sand or sand-rock substrate. Suitable habitat downstream.
Harperella (plant)	<i>Ptilimnium nodosum</i>	E	Yes	Does occur north of the project area(s) in the South Fourche la Fave River (Witsell and Baker 2011, USDA-FS 2005b, ANHC Records 2010, 2016, 2018; NatureServe Explorer 2018). Suitable habitat includes rocky/gravelly shoals or cracks in bedrock outcrops beneath the water surface in clear, swift-flowing streams. Suitable habitat exists in the project area(s).
Indiana bat	<i>Myotis sodalis</i>	E	No	In 2018, a range-wide Indiana bat project tracked an Indiana bat near Bigelow, Arkansas; however, no roosting or hibernacula data was obtained. There are no records for the Indiana bat on the Arkansas portion of the forest (Sealander and Heidt 1990, Kurta and Kennedy eds. 2002, Southern Research Station data, NatureServe Explorer 2018). Suitable foraging habitat is present; however, occurrence is not expected, as the project area(s) lie outside the designated Indiana Bat Consultation Area (USFEWS 2018).
Least Tern (bird)	<i>Sternula antillarum</i>	E	No	Nests on sandbars of large rivers (James & Neal 1986, USFWS 2013). No suitable habitat in project area(s).
Leopard darter (fish)	<i>Percina pantherina</i>	T	No	Range does not include the JWF Units (USDA-FS 2005b, ANHC Records 2010, 2016, 2018; NatureServe Explorer 2018). Located on Cossatot, Little and Glover Rivers.
Missouri bladderpod (plant)	<i>Physaria (Lesquerella) filiformis</i>	T	No	Not known from project area(s) or surrounding counties, closest known location is Garland Co. (Witsell 2006). Suitable habitat includes dolomite, limestone, sandstone and shale glades, either of which is not known from the project area(s).

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Ouachita rock pocketbook (mussel)	<i>Arcidens wheeleri</i>	E	No	Range does not include JWF Units of District (USDA-FS 2005b, ANHC Records 2010, 2016, 2018; NatureServe Explorer 2018). Known from Red & Ouachita Rivers Systems.
Piping Plover (bird)	<i>Charadrius melodus</i>	E	No	Stopover habitat during migration has been observed in Arkansas. Closest known occurrence is along the Arkansas River in Perry County (ANHC Records 2010, 2016, 2018). One record from the Ouachita Mountains in 1938 (James & Neal 1986). Suitable habitat not available in the project area(s).
Pink Mucket (Pearlymussel)	<i>Lampsilis abrupta</i>	E	No	Not known from Fourche la Fave Watershed, but is known from the Upper Saline Watershed. Characterized as a large river species associated with fast-flowing waters. Found in waters with rocky or boulder substrates, at depths up to 1 meter, but also found in deeper waters with slower currents with sand and gravel substrates (NatureServe Explorer 2018, USFWS 1997). Suitable habitat not available in the project area(s).
Red-cockaded Woodpecker (bird)	<i>Picoides borealis</i>	E	No	Historically present, known records from 1979, 1981 & 1990, approx. 6.0 miles north of the project location— Dry Run Creek. However, signs were looked for during previous watershed surveys and none were found.
Scaleshell Mussel	<i>Leptodea leptodon</i>	E	No	Occurrence (c. 1991) within Winona Unit of District in the South Fourche La Fave River <i>only</i> (Harris 1992, Harris et al. 2009, USFWS 2001, Stoeckel & Moles 2002, ANHC Records 2010, 2016, 2018; NatureServe Explorer 2018). Occurs in riffles with moderate to high gradients in creeks and large rivers.
Winged maple-leaf mussel	<i>Quadrula fragosa</i>	E	No	Range does not include project area or JWF Units of District (Harris et al. 2009; ANHC Records 2010, 2016, 2018; NatureServe Explorer 2018). Occurs on Ouachita and Little Missouri Rivers.
Spectaclecase mussel	<i>Margaritifera monodonta</i>	E	No	Does not occur in project area (Harris et al. 2009, NatureServe Explorer 2018). Occurs on lower Ouachita River and Mulberry.
Rabbitsfoot mussel	<i>Theliderma cylindrica</i>	T	Yes	Does not occur within or downstream from the immediate project area(s) (Harris et al. 2009, USDI-FWS 2012, Williams et al. 2017). However, distribution of species is relatively widespread but never exceptionally abundant. Populations occur in the Ouachita River and Saline River Drainages.
Northern long-eared bat	<i>Myotis septentrionalis</i>	T	Yes	Thought to be common forest-wide. Spending summers in live or dead trees and winter in hibernacula.
FOREST SERVICE SENSITIVE SPECIES - ANIMALS				
Bachman's Sparrow (bird)	<i>Peucaea aestivalis</i>	S	No	Not likely present in or near project area. Requires open pine forest, early forest stage cover for nesting habitat (Haggerty 1986, 1995, 2000, Shriver and Vickery 2001, Tucker et al. 2004, 2006, Wood et al. 2004).
Caddo madtom (fish)	<i>Noturus taylori</i>	S	No	Range does not include the Jessieville-Winona-Fourche Units of District (AR Fish Database 2001, ANHC Records 2010, 2016, 2018). Arkansas Endemic (Robison & Allen 1995).
Caddo Mtn. salamander	<i>Plethodon caddoensis</i>	S	No	Range does not include Jessieville-Winona-Fourche Units of District (Trauth and Wilhide 1999, Trauth et al. 2004). Arkansas Endemic (Robison and Allen 1995).

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Elktoe (mussel)	<i>Alasmodonta marginata</i>	S	Yes	Not known to occur on the Jessie-Winona-Fourche Units of the District. Known from Caddo, Saline, Ouachita Rivers.
Fourche Mtn. salamander	<i>Plethodon fourchensis</i>	S	No	Range does not include Jessieville-Winona Units of District (Trauth and Wilhide 1999, Trauth <i>et al.</i> 2004). Arkansas Endemic (Robison and Allen 1995).
Henslow's Sparrow	<i>Ammodramus henslowii</i>	S	No	Known from Franklin and Washington Counties. Breeding habitat includes open fields and meadows with grasses and shrubs in low areas. Nonbreeding habitat includes grassy areas adjacent to pine woods or second growth woods. Suitable habitat not likely in project area(s) (NatureServe Explorer 2018).
Ironcolor shiner (fish)	<i>Notropis chalybaeus</i>	S	No	Not known to occur on the Jessie-Winona-Fourche Units of the District. Known from the only the Coastal Plain.
Irons Fork burrowing crayfish	<i>Procambarus reimeri</i>	S	No	Range does not include Jessieville-Winona-Fourche Units of District (Robison 2000). Arkansas Endemic (Robison and Allen 1995).
Kiamichi shiner (fish)	<i>Notropis ortenburgeri</i>	S	Yes	Closest known location is in the Winona Unit, about 2 & 3 miles east of project area(s) on South Fork of Alum Fork (ANHC Records 2010, 2016, 2018; NatureServe Explorer 2018, Robinson & Buchannan, 1988). Known from west Arkansas, south of Arkansas River in the Poteau, Fourche la Fave, Petit Jean, Ouachita and Little river systems.
Kiamichi slimy salamander	<i>Plethodon kiamichi</i>	S	No	Range does not include Jessieville-Winona-Fourche Units of District (Trauth and Wilhide 1999, Trauth <i>et al.</i> 2004).
Longnose darter (fish)	<i>Percina nasuta</i>	S	Yes	Does occur north the Dry Run Creek (Arkansas Drainage) project area (Robison and Buchanan 1988, Robison 1992). Located on South Fourche La Fave River near Highway 7 bridge (ANHC Records 2010, 2016, 2018).
Mena crayfish	<i>Orconectes menae</i>	S	No	Range does not include Jessieville-Winona-Fourche Units of District (Robison 2000, ANHC Records 2010, 2016, 2018).
Monarch butterfly	<i>Danaus plexippus</i>	P	Yes	Found forest-wide.
Ohio River Pigtoe (mussel)	<i>Pleurobema cordatum</i>	S	No	Range does not include Jessieville-Winona-Fourche Units of District (Harris <i>et al.</i> 1997; Harris <i>et al.</i> 2009).
Ouachita darter (fish)	<i>Percina brucethompsoni</i>	S	No	Does not occur in the project area(s); it's only known from the upper Ouachita River drainages (Robison & Buchanan 1988, Robison 1992). Dry Run Creek is in the Lower Arkansas-Fourche la Fave Drainage, while Middle Fork of Saline River is in the Lower Ouachita Drainage.
Ouachita madtom (fish)	<i>Noturus lachneri</i>	S	Yes	Documented in the Middle Fork of Saline River, downstream from the immediate project area (ANHC Records 2010 & 2016, Rickett 1986, Robison & Buchanan 1988, Tatum & Nelson 1989, Bowman 1990, Patton & Zornes 1991, Gagen <i>et al.</i> 1998, ADEQ Web data 2008). Arkansas Endemic (Robison & Allen 1995).
Ouachita Mountain shiner (fish)	<i>Lythrurus snelsoni</i>	S	No	Range does not include Jessieville-Winona-Fourche Units of District (Robison and Buchanan 1988). Kiamichi, Upper and Lower Little Drainages (NatureServe Explorer 2018).

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Paleback darter (fish)	<i>Etheostoma pallidiorum</i>	S	No	Range does not include Jessieville-Winona-Fourche Units of District. Arkansas Endemic (Robison and Allen 1995). Occurs in the upper Caddo River and in a small tributary of the upper Ouachita River in the Ouachita Mountains of Montgomery, Pike and Garland Counties (Robison and Buchanan 1988, Robison 2004).
Peppered shiner (fish)	<i>Notropis perpallidus</i>	S	No	Known from Ouachita and Saline Rivers. Range does not include Fourche-Jessieville-Winona Unit within the Forest administrative boundary (Robison 2001b, 2006).
Purple Lilliput pearlymussel	<i>Toxolasma lividus</i>	S	Yes	Known occurrences in Middle Fork Saline River, downstream of project area(s) (Harris & Gordon 1988, Brown & Brown 1989, Burns & McDonnell 1992, Harris <i>et al.</i> 1997, ANHC Records 2010, 2016, 2018; NatureServe Explorer 2018).
Pyramid Pigtoe (mussel)	<i>Pleurobema rubrum</i>	S	No	Located in Petit Jean River near the Fourche Unit of District (Harris <i>et al.</i> 1997; Harris <i>et al.</i> 2009; ANHC Records 2010, 2016, 2018). Habitat includes large rivers.
Rich Mtn. salamander	<i>Plethodon ouachitae</i>	S	No	Range does not include Jessieville-Winona-Fourche Units of District (Trauth and Wilhide 1999, Trauth <i>et al.</i> 2004).
Rich Mtn. slit-mouth snail	<i>Stenotrema pilsbryi</i>	S	No	Range does not include Jessieville-Winona-Fourche Units of District (Robison and Allen 1995).
Rocky shiner (fish)	<i>Notropis perpallidus</i>	S	No	Not known to occur on the Jessie-Winona-Fourche Units of the District. Restricted to the Saline, Antoine, Caddo, Little Missouri and upper Ouachita rivers (Robison & Buchanan 1988).
Sequoyah slimy salamander	<i>Plethodon sequoyah</i>	S	No	Range does not include Jessieville-Winona-Fourche District (Trauth & Wilhide 1999, Trauth <i>et al.</i> 2004).
Southeastern myotis (bat)	<i>Myotis austroriparius</i>	S	No	Current range does not include Jessieville-Winona-Fourche Units of Forest. (Sealander and Heidt 1990, Saugey <i>et al.</i> 1993, Tumilson <i>et al.</i> 2002, Britzke 2003, Southern Research Station datafiles). Historic record of the SE Myotis from an abandoned mine along the Ouachita River in 1953 prior to filling of Lake Ouachita. Caddo-Womble District, Compartment 1603 (Davis <i>et al.</i> 1955).
Southern Hickorynut (mussel)	<i>Obovaria arkansasensis</i>	S	Yes	Documented downstream of Lake Winona in the Alum Fork Saline River (Brown and Brown 1989, Harris <i>et al.</i> 1997, Harris <i>et al.</i> 2009). Known location in Winona Unit in South Fourche La Fave River (ANHC Records 2010, 2016, 2018; NatureServe Explorer 2018).
Small-footed myotis (bat)	<i>Myotis leibii</i>	S	No	Suitable habitat in the form of large exposed bluff lines and extensive talus or rock rivers does not occur in project area(s). Closest record from the Forest is from the Mena area (Saugey <i>et al.</i> 1993). Suitable habitat does not exist in project area(s).
Stargazing darter (fish)	<i>Percina uranidea</i>	S	No	Known from adjacent watersheds, where it occurs in the eastern Saline and Ouachita Rivers in southern Arkansas (Robison & Buchanan 1988).
Tri-colored bat	<i>Perimyotis subflavus</i>	S	Yes	Potentially found forest-wide.
Western Fanshell (mussel)	<i>Cyprogenia aberti</i>	S	No	Range does not include Jessieville-Winona-Fourche Units of District (ANHC Records 2010, 2016, 2018; NatureServe Explorer 2018). Is known from Saline and Ouachita Rivers.

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
FOREST SERVICE SENSITIVE SPECIES - PLANTS				
Arkansas alumroot	<i>Heuchera villosa</i> var. <i>arkansana</i>	S	No	Known from Montgomery and Pope Counties in the Ouachita Mtn. region. Habitat includes shady ledges of calcareous or sandy rock along streams (NatureServe Explorer). Suitable habitat does not exist in project area, and plant surveys suggest its presence is unlikely.
Arkansas meadow-rue	<i>Thalictrum arkansanum</i>	S	No	Unknown from Jessieville-Winona-Fourche Units of District (Bates 1992a, b, ANHC Records 2010, 2016, 2018).
Arkansas (Browne's) waterleaf	<i>Hydrophyllum brownei</i>	S	Yes	Documented occurrence in Alum Fork of Saline River corridor below Forest Boundary (Marsico 2006, Witsell 2007a, Robison <i>et al.</i> 2008). Arkansas Endemic (Robison and Allen 1995).
Bush's poppymallow	<i>Callirhoe bushii</i>	S	No	Unknown from Jessieville-Winona-Fourche Units of District and/or Arkansas Units of Forest (USDA-FS 2005a, Appendix C, ANHC Records 2010, 2016, 2018).
Church's wildrye	<i>Elymus churchii</i>	S	Yes	Known from Montgomery, Polk, Scott and Yell Counties in the Ouachita Mtn. region. Suitable habitat includes dry, rocky often relatively rich soils in open woods on ridges and bluffs and river banks (Flora of N. America, Vol. 24). Suitable habitat is available in project area(s).
Cossatot leafcup	<i>Polymnia cossatotensis</i>	S	No	Unknown from Jessieville-Winona-Fourche Units of District (Bates 1992a, b, ANHC Records 2010 & 2016, Robison <i>et al.</i> 2008). Arkansas Endemic (Robison & Allen 1995).
Creeping St. John's wort	<i>Hypericum adpressum</i>	S	No	Known from Saline County in isolated wetlands (NatureServe Explorer 2018). Suitable habitat does not exist in project area(s).
Cumberland sandreed	<i>Calamovilfa arcuata</i>	S	Yes	Closest occurrence is along the South Fourche La Fave River, north of the project area(s) (ANHC Records 2010, 2016, 2018). District records elsewhere from riparian areas indicate potential for occurrence (Witsell 2004).
Cypressknee sedge	<i>Carex decomposita</i>	S	No	Known from several counties in the Ouachita Mtn. region. Habitats include cypress knees, floating logs, floating mats and buttonbush stands in both shade and full sun (NatureServe Explorer 2018). Suitable habitat does not exist in project area(s).
Gulf pipewort	<i>Eriocaulon kornickianum</i>	S	No	Unknown from Jessieville-Winona-Fourche Units of District (ANHC Records 2010, 2016, 2018).
Mackenzie's blue wildrye	<i>Elymus glaucus</i> ssp. <i>mackenziei</i>	S	No	Known from the Arkansas, Missouri and Oklahoma, at scattered sites in the Ozark Mountains and at Rich Mountain in the Ouachita Mountains. Suitable habitat includes limestone cliffs, rocky ledges and glades in open woods and thickets (Flora of N. America, Vol. 24). No suitable habitat exists.
Maple-leaved oak	<i>Quercus acerifolia</i>	S	No	Unknown from Jessieville-Winona-Fourche Units of District (ANHC Records 2010, 2016, 2018). Arkansas Endemic (Robison and Allen 1995).
Moore's delphinium	<i>Delphinium newtonianum</i>	S	No	Unknown from Jessieville-Winona-Fourche Units of District (Hardcastle 2003, ANHC Records 2010, 2016, 2018; Robison <i>et al.</i> 2008). Arkansas Endemic (Robison & Allen 1995).

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Narrowleaf ironweed	<i>Vernonia lettermannii</i>	S	No	Unknown from Jessieville-Winona Units of District (Bates 1992a, b, ANHC Records 2010, 2016, 2018).
Nuttall's cornsalad	<i>Valerianella nuttalli</i>	S	No	A few locations on Jessieville Unit of District associated with shale glades, north of Lake Ouachita in Garland County (Forest Botanist, ANHC Records 2010, 2016, 2018). No suitable habitat is present in the project area(s).
Open-ground draba	<i>Draba aprica</i>	S	No	Known occurrences in the Jessieville and Winona Units of District in Garland & Saline County. Typically found on very thin soils often on rocky glades and barrens margins (ANHC Records 2010, 2016, 2018; Tucker 1983). Suitable habitat not present in project area(s).
Ouachita false indigo	<i>Amorpha ouachitensis</i>	S	Yes	The closest known occurrence of this species is in Perry County along Bear Creek southwest of Bear Creek and northwest of Middle Fork of the Saline River (ANHC Records 2010, 2016, 2018).
Ouachita Mtn. Goldenrod	<i>Solidago ouachitensis</i>	S	No	Not known from the JWF District (McElderry & Gentry 2006b, ANHC Records 2010, 2016, 2018).
Ozark chinquapin	<i>Castanea pumila</i> var. <i>ozarkensis</i>	S	Yes	Forest-wide occurrence (ANHC Records 2010, 2016, 2018). Damage already occurred if it exists it will re-sprout, as long as herbicide is not used.
Ozark least trillium	<i>Trillium pusillum</i> var. <i>ozarkanum</i>	S	No	Unknown from JWF District (Bates 1992a, b, ANHC Records 2010, 2016, 2018; FTN Associates 2007).
Ozark spiderwort	<i>Tradescantia ozarkana</i>	S	No	Unknown from Jessieville-Winona-Fourche Units of District (Bates 1992a, b, ANHC Records 2010, 2016, 2018).
Palmer's cornsalad	<i>Valerianella palmeri</i>	S	No	Known locations on shale glades on Jessieville Unit in Garland County (Forest Botanist, ANHC Records 2010, 2016, 2018). No suitable habitat in the project area(s).
Pineoak jewelflower	<i>Streptanthus squamiformis</i>	S	No	Unknown from Jessieville-Winona-Fourche Units of District (ANHC Records 2010, 2016, 2018).
Sand grape	<i>Vitis rupestris</i>	S	No	1 location near Steve, AR in Yell County along Buchanan Creek near Fourche Unit. Known from SE Scott County along West Fork Big Cedar Creek, and in Montgomery County along Wheat Creek, N of Highway 88 (ANHC Records 2010, 2016, 2018). Suitable habitat includes calcareous or gravelly stream banks, river bottoms, washes and along scoured boulders and cobbles. Also, it occurs along the edges of limestone glades and barrens. Not likely to occur in the project area(s).
Shinners' sunflower	<i>Helianthus occidentalis</i> ssp. <i>plantagineus</i>	S	Yes	Several known occurrences on the JWF Units of District near the project area; closest known location is approx. 5.5 miles northeast of Dry Run Creek Bridge, on a cobbly bank of the South Fourche La Fave River (ANHC Records 2010, 2016, 2018). Suitable habitat includes upland, standstone woodlands and in very high quality cobble bar/terraces of mountain streams (NatureServe Explorer 2018). Suitable habitat exists in the project area(s).

Common Name	Scientific Name	Status*	Potentially Affected	Notes and Comments
Southern lady's slipper	<i>Cypripedium kentuckiense</i>	S	Yes	Closest known occurrences near the project area(s) are approx. 2.6 miles west of Middle Fork of Saline River Bridge and 4.3 miles east of the Dry Run Creek Bridge (ANHC Records 2010, 2016, 2018). Suitable habitat includes mesic, shady, mature floodplain forests, near streams and creeks. Suitable habitat exists in the project area(s).
Texas fescue	<i>Festuca versuta</i>	S	Yes	Known from Garland, Madison, Montgomery, Polk, Saline and Yell Counties (bonap.org 2018). Suitable habitat includes moist, shaded sites on rocky slopes in open woods. Suitable habitat exists in the project area(s).
Timid sedge	<i>Carex timida</i>	S	No	Known from Howard, Montgomery, Pike & Polk Counties in the Ouachita Mtns. (bonap.org 2018). Suitable habitat includes mesic deciduous forests, mixed deciduous and juniper woodlands, along rivers and creeks. Occurs on lime-rich substrates. The project area(s) is mapped as Jackfork Sandstone and Stanley Shale; therefore, it is not likely this species occurs.
Waterfall's sedge	<i>Carex latebracteata</i>	S	Yes	Documented from the Fourche and Jessievile Units of District in Montgomery, Garland and Yell Counties (Bates 1992a, b, McElderry et al. 2006a, ANHC Records 2010, 2016, 2018), but not near the project area(s). Suitable habitat includes mesic slopes with shale parent material in mature oak-pine forests with a sparse understory. Suitable habitat exists in the project area(s).

***Status:**

P = proposed for federal listing as endangered or threatened

E = federal endangered species

T = federal threatened species

S = Amended Regional Forester's Sensitive Species List (Region 8 2018)

TSA = Threatened by Similarity of Appearance to the American crocodile.

Appendix B VASCULAR PLANT SURVEY

A vascular plant survey was conducted on July 14 and 21, 2017, September 26, 2017 and on April 17, 2018 in the Ouachita National Forest near the Dry Run Creek Bridge and the Middle Fork of Saline River Bridge on State Highway 7 by ARDOT staff Kayti Ewing and Joe Ledvina and US Forest Service botanist, Susan Hooks. A total of 162 species were identified. Eleven species (7%) are non-native, which were located primarily along the roadside. Non-native species (nn) are noted below. One species that is tracked by the ANHC was located in the project area, and no species listed as PETS by the US Forest Service were located in the project area.

TREES (26 species)

<i>Acer rubrum</i>	red maple
<i>Amelanchier arborea</i>	serviceberry
<i>Carpinus caroliniana</i>	ironwood
<i>Carya texana</i>	black hickory
<i>Carya tomentosa</i>	mockernut hickory
<i>Cercis canadensis</i>	redbud
<i>Cornus florida</i>	flowering dogwood
<i>Fraxinus pennsylvanica</i>	green ash
<i>Ilex decidua</i>	deciduous holly
<i>Ilex opaca</i>	American holly
<i>Juglans nigra</i>	black walnut
<i>Juniperus virginiana</i>	eastern red cedar
<i>Liquidambar styraciflua</i>	sweetgum
<i>Nyssa sylvatica</i>	blackgum
<i>Ostrya virginiana</i>	hop hornbeam
<i>Pinus echinata</i>	shortleaf pine
<i>Pinus taeda</i>	loblolly pine
<i>Platanus occidentalis</i>	sycamore
<i>Prunus serotina</i>	black cherry
<i>Quercus alba</i>	white oak
<i>Quercus rubra</i>	northern red oak
<i>Salix caroliniana</i>	Carolina willow
<i>Sideroxylon lanuginosum</i>	gum bully
<i>Tilia americana</i>	basswood
<i>Ulmus alata</i>	winged elm
<i>Viburnum rufidulum</i>	rusty blackhaw

SHRUBS (15 species)

<i>Alnus serrulata</i>	alder	
<i>Amorpha nitens</i>	false indigo	
<i>Callicarpa americana</i>	American beautyberry	
<i>Cornus foemina</i>	stiff dogwood	
<i>Crataegus crus-galli</i>	cockspur hawthorn	
<i>Crataegus marshallii</i>	parsley hawthorn	
<i>Euonymus americanus</i>	bursting-heart	
<i>Hamamelis vernalis</i>	witch hazel	
<i>Hypericum prolificum</i>	shrubby St. John's Wort	
<i>Ligustrum sinense</i>	Chinese privet	nn
<i>Lyonia ligustrina</i>	maleberry	
<i>Rosa carolina</i>	Carolina rose	

<i>Symphoricarpos orbiculatus</i>	coralberry, buckbrush	
<i>Vaccinium arboreum</i>	farkleberry	
<i>Yucca arkansana</i>	Arkansas yucca	

WOODY VINES and BRAMBLES (11 species)

<i>Berchemia scandens</i>	rattan vine	
<i>Campsis radicans</i>	trumpet creeper	
<i>Lonicera japonica</i>	Japanese honeysuckle	nn
<i>Lonicera sempervirens</i>	coral honeysuckle	
<i>Parthenocissus quinquefolia</i>	Virginia creeper	
<i>Rubus sp.</i>	blackberry	
<i>Smilax bona-nox</i>	cat brier	
<i>Smilax rotundifolia</i>	common greenbrier	
<i>Toxicodendron radicans</i>	poison ivy	
<i>Vitis cinerea</i>	graybark grape	
<i>Vitis rotundifolia</i>	muscadine grape	

DICOT FORBS (86 species)

<i>Acalypha gracilens</i>	three-seeded mercury	
<i>Achillea millefolium</i>	common yarrow	
<i>Agalinis tenuifolia</i>	slenderleaf false foxglove	
<i>Agrimonia rostellata</i>	beaked agrimony	
<i>Antennaria parlinii</i>	Parlin's pussytoes	
<i>Antennaria plantaginifolia</i>	pussytoes	
<i>Asarum canadense</i>	wild ginger	
<i>Aureolaria flava</i>	smooth false foxglove	
<i>Aureolaria pedicularia</i>	fern-leaved false foxglove	
<i>Baptisia alba</i>	white wild indigo	
<i>Baptisia bracteata</i>	cream false indigo	
<i>Bidens frondosa</i>	devil's beggarticks	
<i>Boehmeria cylindrica</i>	false nettle	
<i>Claytonia virginica</i>	Virginia spring beauty	
<i>Coreopsis grandiflora</i>	largeflower tickseed	
<i>Coreopsis palmata</i>	prairie coreopsis	
<i>Croton sp.</i>		
<i>Cunila origanoides</i>	dittany	
<i>Daucus carota</i>	Queen Anne's lace	nn
<i>Desmodium rotundifolium</i>	dollar leaf	
<i>Desmodium sp.</i>	tick trefoil	
<i>Dioscorea villosa</i>	wild yam	
<i>Echinacea pallida</i>	pale purple coneflower	
<i>Echinacea purpurea</i>	purple coneflower	
<i>Elephantopus carolinianus</i>	Carolina elephant's-foot	
<i>Erigeron sp.</i>	fleabane	
<i>Eryngium yuccifolium</i>	rattlesnake master	
<i>Erythronium rostratum</i>	yellow troutlily	
<i>Euphorbia corollata</i>	flowering spurge	
<i>Euphorbia commutata</i>	tinted woodland spurge	
<i>Frasera carolinensis</i>	American columbo	
<i>Galium texense</i>	Texas bedstraw	
<i>Gamochaeta purpurea</i>	spoonleaf purple everlasting	

<i>Geum canadense</i>	white avens	
<i>Gratiola neglecta</i>	clammy hedge-hyssop	
<i>Helenium amarum</i>	yellow sneezeweed	
<i>Helianthus angustifolius</i>	narrowleaf sunflower	
<i>Helianthus divaricatus</i>	woodland sunflower	
<i>Huechra americana</i>	American alumroot	
<i>Hypericum hypericoides</i>	St. Andrew's cross	
<i>Hypericum mutilum</i>	dwarf St. John's wort	
<i>Hypericum perforatum</i>	European St. John's wort	nn
<i>Iris cristata</i>	dwarf crested iris	
<i>Krigia cespitosa</i>	common dwarf dandelion	
<i>Lespedeza cuneata</i>	Sericea lespedeza	nn
<i>Leucanthemum vulgare</i>	ox-eye daisy	nn
<i>Lobelia cardinalis</i>	cardinal flower	
<i>Maianthemum racemosum</i>	false Solomon's seal	
<i>Manfreda virginica</i>	false aloe	
<i>Mitchella repens</i>	partridge berry	
<i>Oxalis stricta</i>	yellow woodsorrel	
<i>Oxalis violacea</i>	violet woodsorrel	
<i>Packera tomentosa</i>	woolly ragwort	
<i>Parthenium integrifolium</i>	wild quinine	
<i>Pedicularis canadensis</i>	wood betony	
<i>Penstemon digitalis</i>	foxglove beardtongue	
<i>Perilla frutescens</i>	beefsteak plant	nn
<i>Phlox divaricata</i>	woodland phlox	
<i>Podophyllum peltatum</i>	mayapple	
<i>Potentilla recta</i>	sulphur cinquefoil	nn
<i>Prenanthes alba</i>	white lettuce	
<i>Pycnanthemum tenuifolium</i>	narrowleaf mountain mint	
<i>Rudbeckia grandiflora</i>	rough coneflower	
<i>Rudbeckia hirta</i>	black-eyed Susan	
<i>Sanicula candensis</i>	black snakeroot	
<i>Scutellaria elliptica</i> var. <i>elliptica</i>	hairy skullcap	
<i>Silphium laciniatum</i>	compass plant	
<i>Sisyrinchium angustifolium</i>	blue-eyed grass	
<i>Solidago caesia</i>	blue-stemmed goldenrod	
<i>Solidago odora</i>	anise-scented goldenrod	
<i>Solidago rugosa</i>	wrinkleleaf goldenrod	
<i>Stellaria media</i>	chickweed	nn
<i>Symphyotrichum anomalum</i>	many-rayed aster	
<i>Symphyotrichum patens</i>	late purple aster	
<i>Thalictrum thalictroides</i>	rue anemone	
<i>Thaspium barbinode</i>	hairy-jointed meadow parsnip	
<i>Tipularia discolor</i>	crane-fly orchid	
<i>Urtica dioica</i>	common nettle	
<i>Uvularia perfoliata</i>	perfoliate bellwort	tracked
<i>Verbesina helianthoides</i>	yellow crownbeard	
<i>Vicia minutiflora</i>	pygmyflower vetch	
<i>Vicia villosa</i>	winter vetch	nn
<i>Viola palmata</i>	three-lobed violet	
<i>Viola pedata</i>	bird's foot violet	
<i>Viola sororia</i>	blue violet	
<i>Zizia aptera</i>	heart-leaved golden alexander	

GRASSES AND SEDGES (18 species)

<i>Brachyelytrum erectum</i>	long-awned wood grass	
<i>Carex sp.</i>	sedge	
<i>Carex torta</i>	twisted sedge	
<i>Chasmanthium latifolium</i>	inland sea oats	
<i>Chasmanthium laxum</i>	slender woodoats	
<i>Chasmanthium sessiliflorum</i>	longleaf woodoats	
<i>Cynodon dactylon</i>	Bermuda grass	nn
<i>Danthonia spicata</i>	poverty oatgrass	
<i>Dichanthelium clandestinum</i>	deer-tongue grass	
<i>Dichanthelium oligosanthes</i>	Heller's rosette grass	
<i>Dichanthelium sp.</i>	panicgrass	
<i>Eleocharis acicularis</i>	needle spikerush	
<i>Elymus canadensis</i>	Canada wildrye	
<i>Luzula sp.</i>	wood rush	
<i>Melica nitens</i>	threeflower melic grass	
<i>Panicum anceps</i>	beaked panicgrass	
<i>Scleria oligantha</i>	littlehead nutrush	
<i>Tridens flavus</i>	purpletop	

FERNS (6 species)

<i>Asplenium platyneuron</i>	ebony spleenwort
<i>Botrychium virginianum</i>	rattlesnake fern
<i>Botrychium biternatum</i>	southern grape fern
<i>Cheilanthes tomentosa</i>	woolly lip fern
<i>Pleopeltis polypodioides</i> var. <i>michauxiana</i>	resurrection fern
<i>Polystichum acrosticoides</i>	christmas fern

**ARDOT ENVIRONMENTAL VERIFICATION CHECKLIST
FOR CONSIDERATION OF POTENTIAL IMPACTS**

ARDOT Job Number 012318 FAP Number NHPP-2653(1)

Job Title Middle Fork Saline River & Dry Run Creek Strs. & Apprs. (S)

Environmental Resource	None	Minimal	Major	Comments-required for each item
Air Quality	X			No impacts anticipated
Cultural Resources	X			"No historic properties affected"
Economic	X			Not impacted by proposed project
Endangered Species		X		"May affect, not likely to adversely affect"
Environmental Justice/Title VI	X			No protected populations in project area
Fish and Wildlife		X		Temporary during construction
Floodplains		X		Site 1 within Zone A SFHA
Forest Service Property		X		2.3 acres PCE, 0.5 acre TCE
Hazardous Materials/Landfills	X			None identified in project area
Land Use	X			All proposed acquisition on USFS land
Migratory Birds	X			Migratory Bird SP added to contract
Navigation/Coast Guard	X			No resources identified in project area
Noise Levels	X			Noise levels will not exceed impact criteria
Prime Farmland	X			None identified in project area
Protected Waters		X		Middle Fork Saline River NRI/ERW/ESW
Public Recreation Lands	X			None identified in project area
Public Water Supply/WHPA	X			None identified in project area
Relocatees	X			No relocations
Section 4(f)/6(f)	X			None identified in project area
Social	X			No impacts anticipated
Underground Storage Tanks	X			None identified in project area
Visual		X		Temporary changes to visual environment
Streams		X		<0.1 acre permanent and temp impacts
Water Quality		X		Water Pollution Control SP added
Wetlands	X			None identified in project area
Wildlife Refuges	X			None identified in project area

Section 401 Water Quality Certification Required? Yes
 Short-term Activity Authorization Required? Yes
 Section 404 Permit Required? Yes Type Nationwide Permit #14

Remarks:

Signature of Evaluator Susan Stapfeld Date March 28, 2019
 7/27/2018

ROADWAY DESIGN REQUEST

Job Number 012318 FAP No. NHPP-2653(1) County Garland & Perry

Job Name Middle Fork Saline River & Dry Run Creek Strs. & Apprs. (S)

Design Engineer George W. Davison Environmental Staff _____

Brief Project Description Replace Bridges and Apprs.: Site 1 on existing, Site 2 on new location.

A. Existing Conditions:

Roadway Width: 26'-0" Shoulder Type/Width: Site 1: 2' Gravel
Site 2: 2' Paved

Number of Lanes and Width: 2 - 11' Existing Right-of-Way: 132'

Sidewalks? N/A Location: _____ Width: _____

Bike Lanes? N/A Location: _____ Width: _____

B. Proposed Conditions:

Roadway Width: 34'-0" Shoulder Type/Width: 6' (2' Paved)

Number of Lanes and Width: 2 - 11' Proposed Right-of-Way: Site 1: 187'
Site 2: 132'

Sidewalks? N/A Location: _____ Width: _____

Bike Lanes? N/A Location: _____ Width: _____

C. Construction Information:

If detour: Where: Site 1: North/East Length: Site 1: 0.194 miles
Site 2: No Detour Site 2: 0.256 miles

D. Design Traffic Data:

2019 ADT: Site 1: 1200 Site 1: 1500 Site 1: 12%
Site 2: 1100 Site 2: 1200 Site 2: 10%
 Design Speed: 55 m.p.h. % Trucks: _____

E. Approximate total length of project: 0.450 mile(s)

F. Justification for proposed improvements: Site 1: Functionally Obsolete
Site 2: Functionally Obsolete

G. Total Relocatees: N/A Residences: N/A Businesses: N/A

H. Have you coordinated with any outside agencies (e.g., FHWA, City, County, etc.)? _____

Agency/Official	Person Contacted	Date



DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867
www.swl.usace.army.mil

September 26, 2019

Regulatory Division

NATIONWIDE PERMIT NO. SWL 2019-00498

Mr. John Fleming
Division Head, Environmental Division
Arkansas Department of Transportation
PO Box 2261
Little Rock, Arkansas 72203-2261

Dear Mr. Fleming:

Please refer to your recent request concerning Department of the Army permit requirements pursuant to Section 404 of the Clean Water Act. You requested authorization for the placement of dredged and fill material in waters of the United States associated with replacing the bridges over the Middle Fork of the Saline River and Dry Run Creek and upgrading the approaches. The bridge over the Middle Fork will be constructed on existing location and a temporary detour will be constructed 60 feet downstream from the existing bridge. The bridge over Dry Run Creek will be constructed approximately 80 feet downstream from the existing bridge. The approaches for both bridges will be upgraded to two 11-foot-wide lanes with 6-foot-wide shoulders. Temporary rock work roads will be required at both locations. Permanent impacts at each crossing will be less than 300 linear feet and 0.1 acres. Both bridges are located within the Ouachita National Forest Boundary (USFS) and the Middle Fork is designated as an Extraordinary Resource Water and Ecologically Sensitive Waterbody, and is on the Nationwide Rivers Inventory. The Arkansas Department of Environmental Quality (ADEQ) issued an individual Section 401 water quality certification (WQC) (copy enclosed) for the project on August 26, 2019. The project will require the acquisition of 2.3 acres of USFS property and ArDOT prepared a Biological Evaluation for the USFS in February 2019. ArDOT determined that the project may affect but is not likely to adversely affect the Arkansas Fatmucket (*Lampsilis powelli*), Rabbitsfoot (*Theliderma cylindrica*) and Harperella (*Ptilimnium nodosum*). ArDOT also determined that the project may affect the Northern Long-eared Bat (*Myotis septentrionalis*) in accordance with the Final 4(d) Rule. The USFS and the U.S. Fish and Wildlife Service concurred with ArDOT's findings. There are no cultural resources impacts. The Federal Highway Administration approved the project as a Tier 3 Categorical Exclusion on April 1, 2019. The project is located on State Highway 7, approximately two miles north of Jessieville, in section 1, T. 1 N., R. 20 W., section 6, T. 1 N., R. 19 W., section 22, T. 2 N., R. 20 W., and section 23, T. 2 N., R. 20 W., Garland and Perry Counties, Arkansas. A vicinity map and project location maps are enclosed.

The proposed activities are authorized by two Department of the Army Nationwide Permits (NWP's) **No. 14** (copy enclosed), provided that the General Conditions therein and the **Special Condition** below are met. For your convenience, we have highlighted the General Conditions of the NWP that are the most pertinent to your project. You should become familiar with the conditions and maintain a copy of the permit at the worksite for ready reference. If changes are proposed in the design or location of the project, you should submit revised plans to this office for approval before construction of the change begins.

Special Condition:

ArDOT agrees to prohibit the clearing of trees within 150 feet of any known Northern Long-eared Bat (NLEB) occupied maternity roost tree during the pup rearing season (June 1 through July 31) or within 0.25 miles of any NLEB hibernaculum.

Please pay particular attention to General Condition No. 12 which stipulates that appropriate erosion and siltation controls be used during construction and all exposed soil be permanently stabilized. Erosion control measures must be implemented before, during and after construction. If you have any questions concerning compliance with the conditions of the individual Section 401 WQC certification, you should contact Mr. Jim Wise or Ms. Melanie Treat at the ADEQ, Water Division, 5301 Northshore Drive, North Little Rock, Arkansas 72118, telephone (501) 682-0040.

Also, in order to fully comply with the conditions of the NWP, you must submit the enclosed compliance certification within 30 days of completion of the project. This is required pursuant to General Condition No. 30 of the permit.

The NWP determination will be valid until March 18, 2022. If NWP **No. 14** is modified, suspended, or revoked during this period, your project may not be authorized unless you have begun or are under contract to begin the project. If work has started or the work is under contract, you would then have twelve (12) months to complete the work.

Your cooperation in the Regulatory Program is appreciated. If you have any additional questions about this permit or any of its provisions, please contact Mr. Johnny McLean at (501)

324-5295 and refer to Permit No. **MVK 2019-00498, Middle Fork Saline River and Dry Run Creek Structures and Approaches near Jessieville (ArDOT Job No. 012318).**

Sincerely,

CHITWOOD.SARA Digitally signed by
CHITWOOD.SARAH.L.124935960
H.L.124935960 9
Date: 2019.09.26 14:46:25 -05'00'
Sarah Chitwood
Chief, Regulatory Evaluation Branch

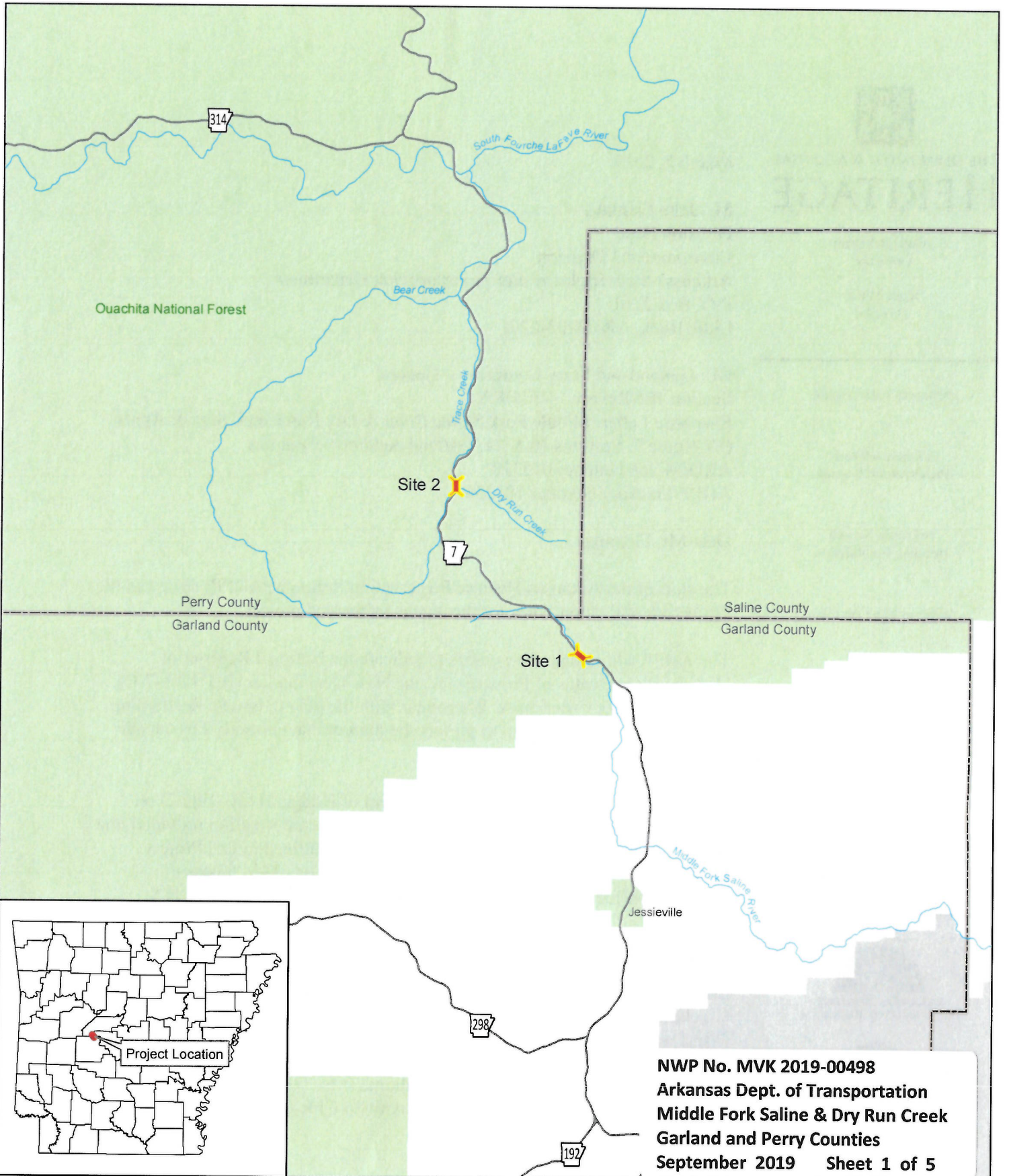
Enclosures

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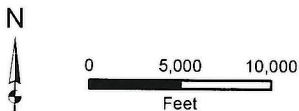
Ms. Melanie Treat, Arkansas Department of Environmental Quality, w/cy encls.

Mr. Lindsey Lewis, U.S. Fish & Wildlife Service, w/cy encls.

Vicksburg Regulatory, w/cy encls.



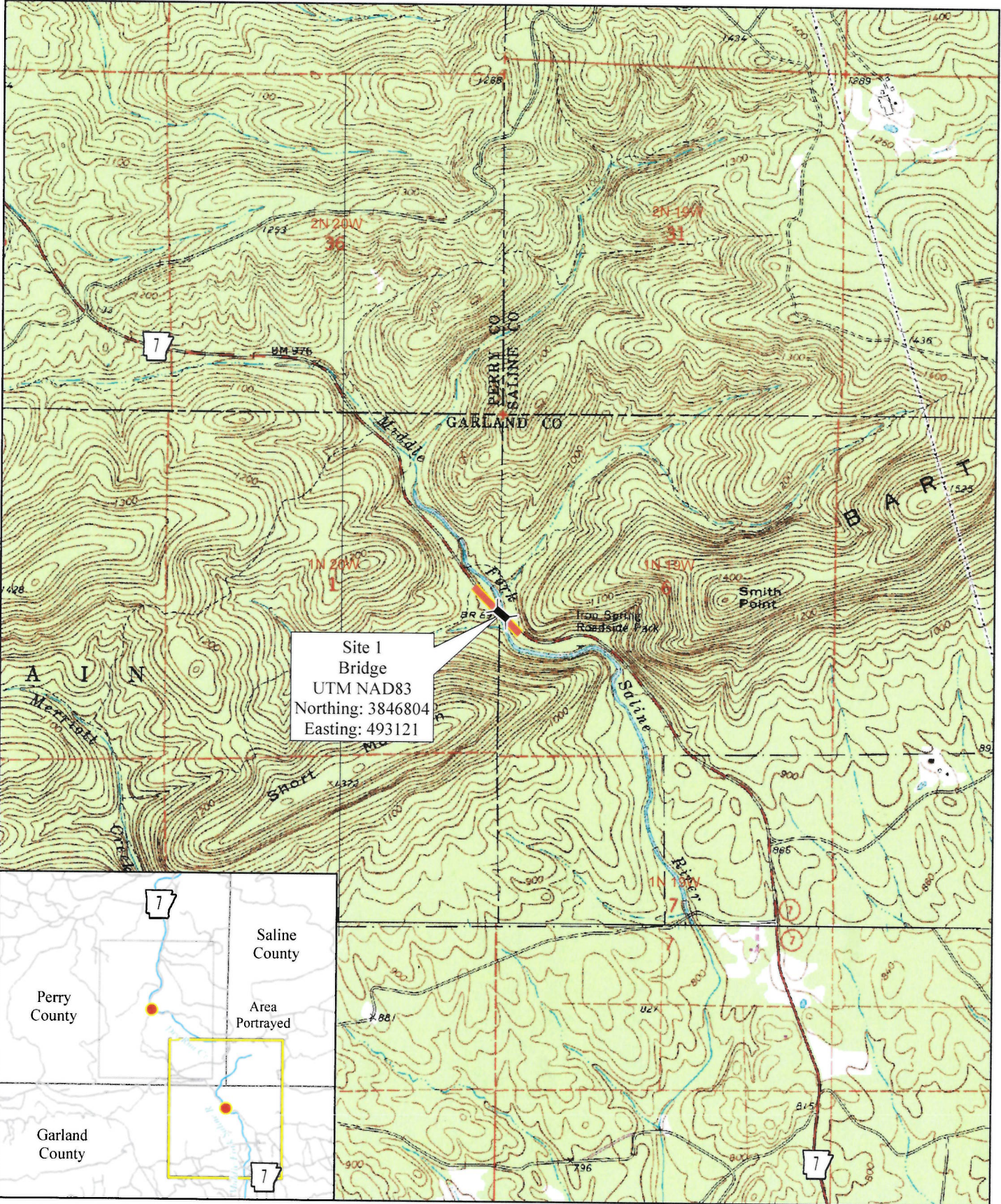
NWP No. MVK 2019-00498
Arkansas Dept. of Transportation
Middle Fork Saline & Dry Run Creek
Garland and Perry Counties
September 2019 Sheet 1 of 5



ARDOT - Environmental GIS - Strawn
 February 21, 2019

Job 012318
Middle Fork Saline River & Dry Run Creek
Strs. & Apprs. (Hwy. 7)
Garland & Perry Counties


Project Location



Site 1
 Bridge
 UTM NAD83
 Northing: 3846804
 Easting: 493121



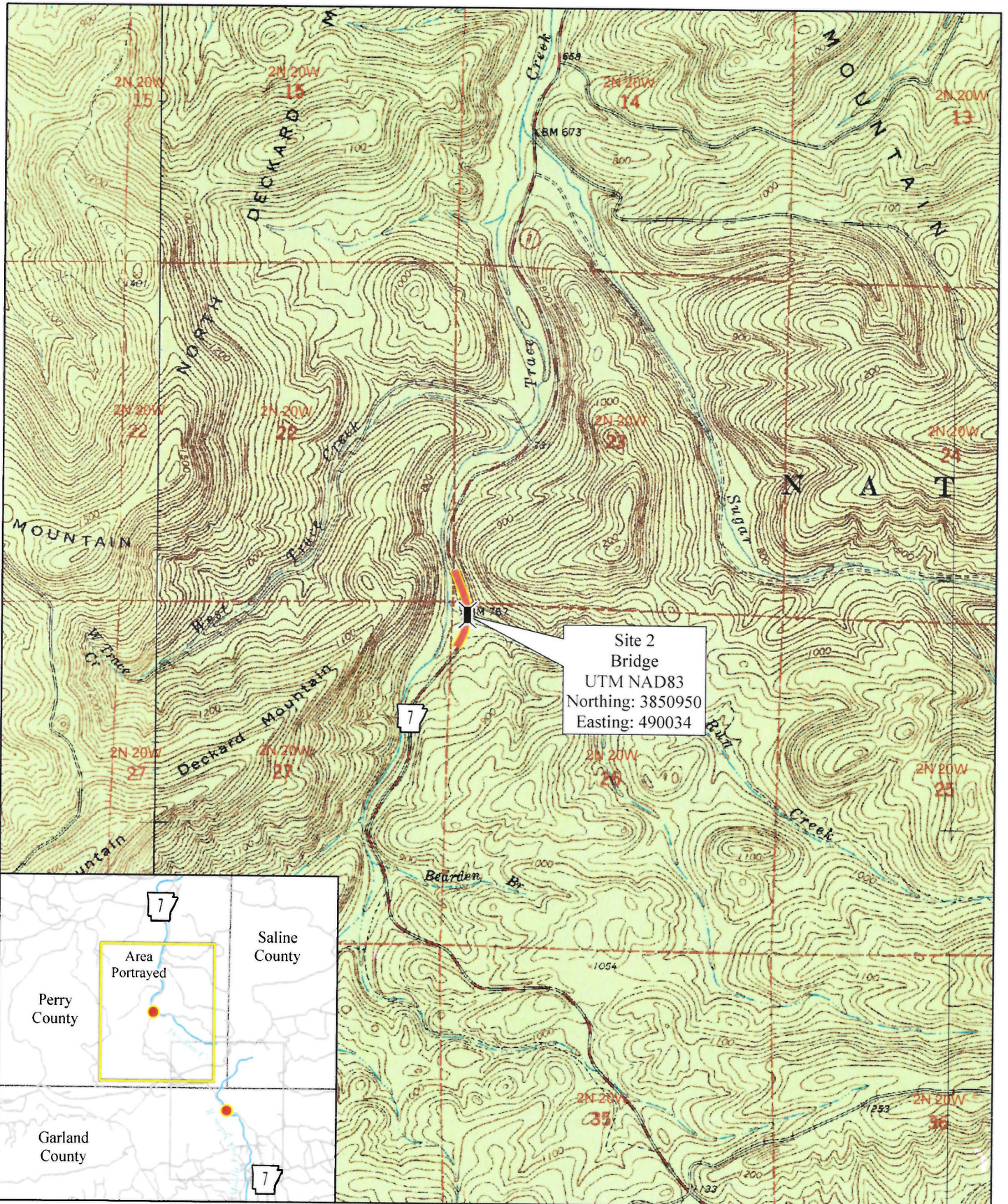
Job 012318
 Middle Fork Saline River
 & Dry Creek Strs. & Apprs.
 Garland and Perry Counties

 Project Location

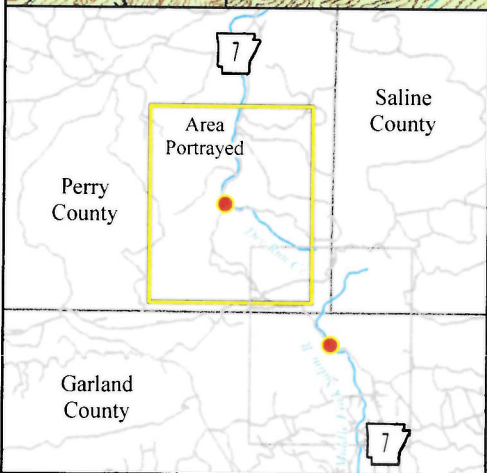
ARDOT - Environmental GIS - Dudley
 May 10, 2019

Sheet 2 of 5

USGS Topographic Map:
 Nimrod SE 1988




Site 2
 Bridge
 UTM NAD83
 Northing: 3850950
 Easting: 490034



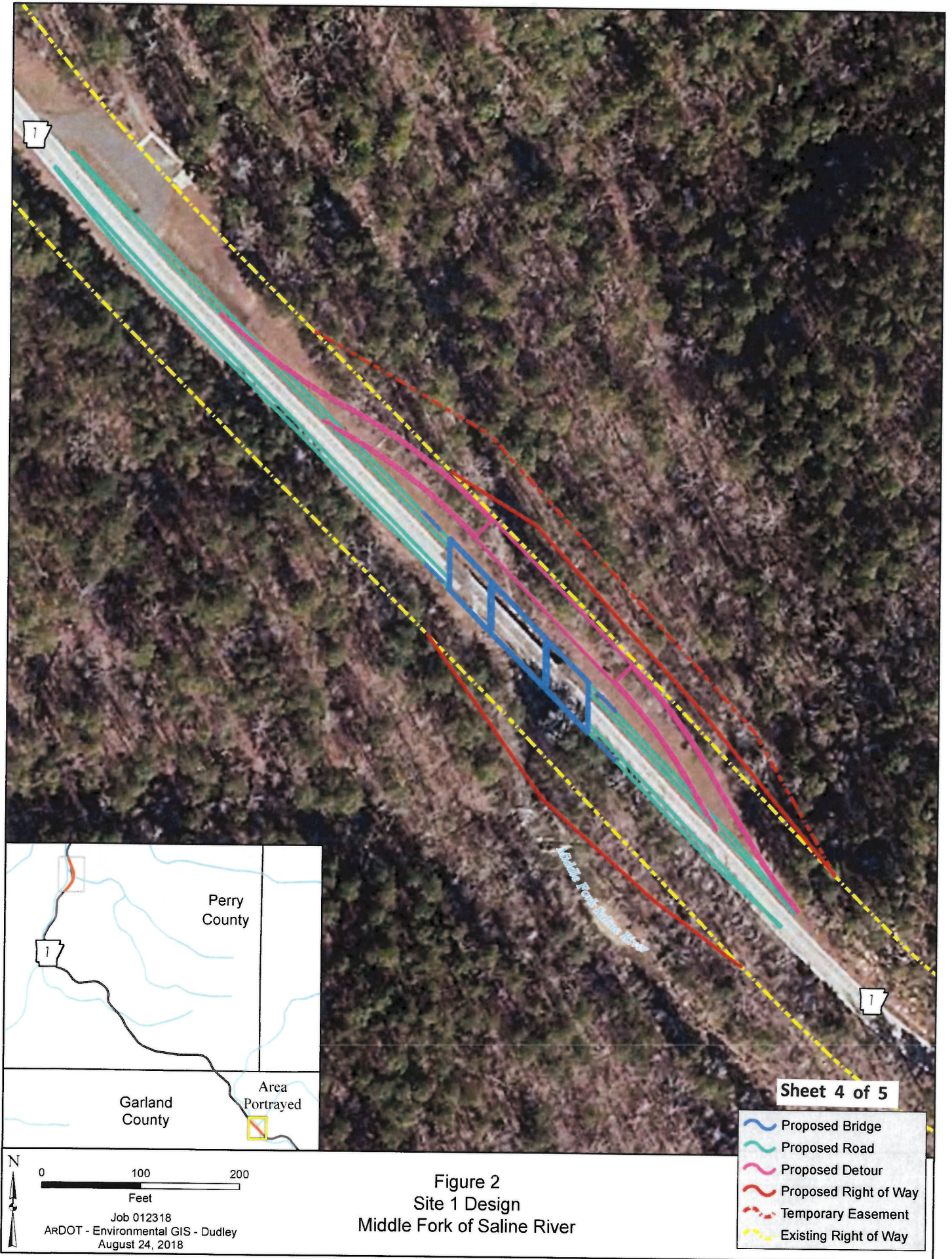
ARDOT - Environmental GIS - Dudley
 May 10, 2019

Job 012318
 Middle Fork Saline River
 & Dry Creek Strs. & Apprs.
 Garland and Perry Counties

Sheet 3 of 5

 Project Location

USGS Topographic Map:
 Nimrod SE 1988



Sheet 4 of 5







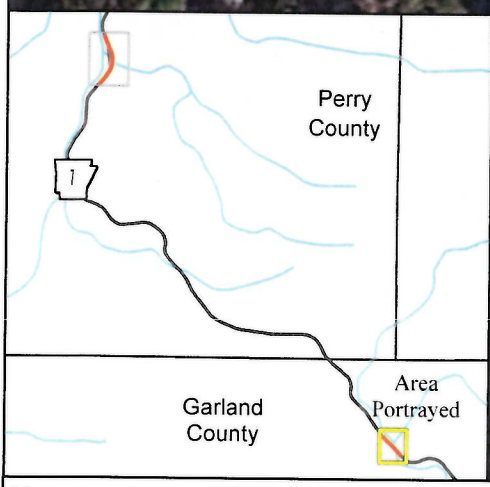
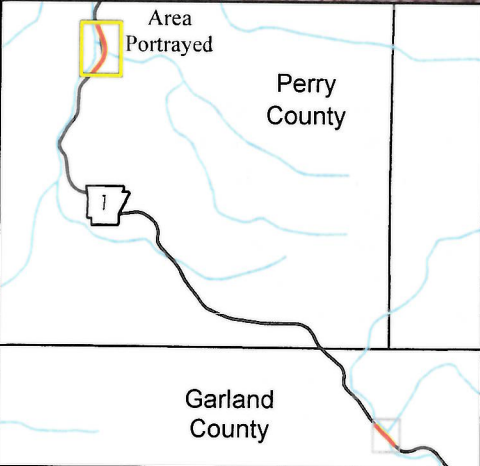
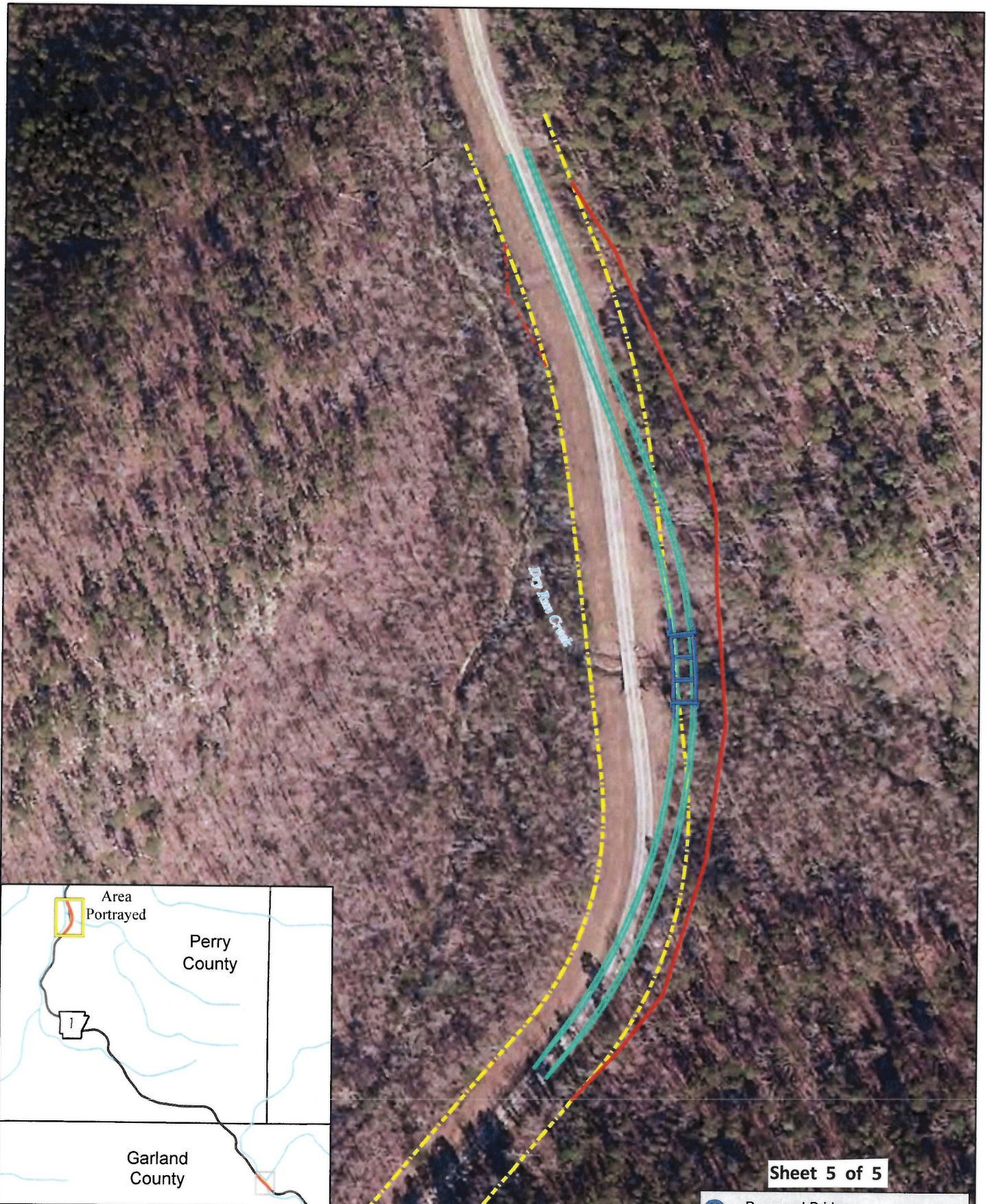
-  Proposed Bridge
-  Proposed Road
-  Proposed Detour
-  Proposed Right of Way
-  Temporary Easement
-  Existing Right of Way

Figure 2
 Site 1 Design
 Middle Fork of Saline River



N
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 Feet
 Job 012318
 ARDOT - Environmental GIS - Dudley
 August 24, 2018



Sheet 5 of 5

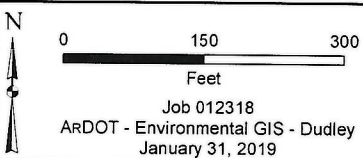







Figure 3
Site 2 Design
Dry Run Creek

-  Proposed Bridge
-  Proposed Right of Way
-  Temporary Construction Easement
-  Proposed Road
-  Existing Right of Way