

# Appendix G

## Threatened and Endangered Species

For Little Creek Trail & Plaza Trailhead

Faulkner County



**June 9, 2025**

## **THREATENED AND ENDANGERED SPECIES SUMMARY**

# **LITTLE CREEK TRAIL & PLAZA TRAILHEAD**

**Prepared for:**  
The City of Conway  
1111 Main Street  
Conway, AR 72032

**CT JOB NO.** 24805000



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## 1 Introduction

Crafton Tull conducted a habitat assessment on the approximately 3.6 mile, 8.7-acre proposed pedestrian trail system on March 19, 2025, that focuses on federally listed threatened and endangered species (protected under the Endangered Species Act) that could potentially occur within the project area. The project area is located entirely within Conway, Faulkner County, Arkansas. A map indicating the trail segment extent overlaying the USGS topographic quadrangle can be viewed in Appendix A, Figure 1. A detailed photo point location map with an accompanying photo report to view select areas throughout the project area can be found in Appendix A, Figure 2.

### 1.1 Ecological Setting

The project area is generally level, although portions of the site transition to slightly sloping and is located in the Arkansas Valley Plains (37d) ecoregion, which is characterized by its undulating, sometimes flat, terrain with hills and ridges, and a mix of prairie, savanna, and woodland vegetation. Prior to settlement, frequently burned western areas had extensive prairie on droughty soils. Scattered pine-oak savanna also occurred. Elsewhere, potential natural vegetation was primarily oak-hickory forest or oak-hickory-pine forest. Today, pastureland is extensive, but remnants of prairie and woodland occur. Poultry and livestock farming are primary land uses in undeveloped areas while urban communities are increasingly prevalent with the expanding area of central Arkansas along the Arkansas River Valley. The project area and immediate surrounding area are characterized by upland improved grass pasture, urban lawns, industrial and commercial development, and residential developments. Four distinct plant communities were observed in the project area: an urban lawn community, upland improved grass pasture, an early successional wetland, and forested riparian. The urban lawn community was dominated primarily by upland lawn grasses, such as Bermudagrass (*Cynodon dactylon*). The upland improved grass pasture was dominated primarily by Tall Fescue (*Schedonorus arundinaceus*) and Bermudagrass. The early successional wetland was dominated by Lamp Rush (*Juncus effusus*) and Curly Dock (*Rumex crispus*). The forested riparian corridors were primarily dominated by American Elm (*Ulmus americana*) and Chinese Privet (*Ligustrum sinense*). Crafton Tull conducted an onsite, visual reconnaissance for the 3.6 miles (8.7 acres) project area on March 19, 2025. In addition, U.S. Fish and Wildlife Services' Information for Planning and Consultation (IPaC) website was utilized to determine species known to reasonably occur near or within the project area, a list of these species is provided in Table 1.

Table 1: USFWS Federally Listed Species

| Species                                                                  | Status     | Preferred Habitat       | Habitat Presence | Potentially Affected |
|--------------------------------------------------------------------------|------------|-------------------------|------------------|----------------------|
| Indiana Bat <i>Myotis sodalis</i>                                        | Endangered | Caves & Large Trees     | Marginal         | Unlikely             |
| Tricolored Bat <i>Perimyotis subflavus</i>                               | Proposed   | Caves & Large Trees     | Marginal         | Unlikely             |
| Eastern Black Rail <i>Laterallus jamaicensis</i> ssp. <i>jamaicensis</i> | Threatened | Wetlands                | No               | No                   |
| Piping Plover <i>Charadrius melodus</i>                                  | Threatened | Shorelines              | No               | No                   |
| Rufa Red Knot <i>Calidris canutus rufa</i>                               | Threatened | Shorelines/Wetlands     | No               | No                   |
| Alligator Snapping Turtle <i>Macrochelys temminckii</i>                  | Proposed   | Rivers and Streams      | No               | No                   |
| Monarch Butterfly <i>Danaus plexippus</i>                                | Proposed   | Open, wildflower fields | Marginal         | Unlikely             |



## 2 Findings

### 2.1 USFWS Federally Listed Species

The predominantly urban character of the project right-of-way (ROW) throughout most of the project area results in a general lack of suitable habitat for federally listed species. Bat species require cave systems or similar features, such as mine shafts for over-wintering hibernaculum, and mature trees with exfoliating bark or large dead/dying trees, in the summer to roost beneath the bark. Suitable habitat did exist for Tricolored Bat in the area. The ROW generally avoids trees that Tricolored Bat and Indiana Bat would likely use to roost. Listed bird species such as, Piping Plover, Eastern Black Rail, and Rufa Red Knot, require shoreline habitat or wetlands. While wetlands exist onsite, the site contains 0.03 acres of freshwater emergent wetlands that are likely too small to support populations of the Eastern Black Rail. Additionally, Eastern Black Rail is not likely to occur in the area, with the unlikely exception of a possible transient individual during migration. Alligator Snapping Turtle prefer large aquatic resources, i.e., large rivers and lakes, that are absent within the project area, therefore habitat to support this species is lacking. Habitat is marginal for Monarch Butterfly, although it likely occurs as a transient, especially during migration. Appendix B provides pictures that illustrate features identified throughout the Connect Conway Trails project area.

### 2.2 ANHC State Species of Conservation Concern

Eight (8) species of state conservation concern were reported by the Arkansas Natural Heritage Commission (ANHC) to potentially inhabit the greater project area (Conway city limits). Of these 8 species, none were reported to be within the trail ROW, although one species was reported to be within close proximity to the trail ROW (Osage Burrowing Crayfish, *Procambarus liberorum*). No indications of crayfish burrows were identified within the portion of the project ROW that was closest to the known discovery site of Osage Burrowing Crayfish. The ANHC Species of State Conservation Concern are listed in Table 2.

Table 2: ANHC Species of State Conservation Concern

| Name                                                       | Critical habitat in project area? | Critical habitat close to project area? | Potentially Affected |
|------------------------------------------------------------|-----------------------------------|-----------------------------------------|----------------------|
| Savannah Milkweed ( <i>Asclepias obovate</i> )             | No                                | No                                      | No                   |
| Alligator Gar ( <i>Atractosteus spatula</i> )              | No                                | No                                      | No                   |
| Opaque Prairie Sedge ( <i>Carex opaca</i> )                | No                                | No                                      | No                   |
| Nuttall's Pleat-leaf ( <i>Nemastylis nuttalli</i> )        | No                                | No                                      | No                   |
| Osage Burrowing Crayfish ( <i>Procambarus liberorum</i> )  | No                                | Yes                                     | Unlikely             |
| Great Coneflower ( <i>Rudbeckia maxima</i> )               | No                                | No                                      | No                   |
| Fragrant Ladies'-tresses ( <i>Spiranthes odorata</i> )     | No                                | No                                      | No                   |
| Arkansas Twistflower ( <i>Streptanthus maculatus</i> spp.) | No                                | No                                      | No                   |



### 3 Summary

Based on the onsite reconnaissance and desktop evaluation, two federally listed bat species (Tricolored Bat and Indiana Bat), could possibly, but unlikely, be adversely impacted by the proposed project. Of the two species identified, Tricolored Bat is most likely to occur within the project area, as it is fairly common in the Arkansas River Valley. This species has not yet been listed as endangered, and project activities would not cause jeopardy to this species. Indiana Bat is known to occur in the general area, especially in forested uplands of the Ozarks to the north of the project area. However, habitat for this species is limited in the project area ROW, and therefore its occurrence is unlikely. Although the likelihood of occurrence by Indiana Bat is very low, it is suggested that tree cover is removed during the inactive period, which is generally mid-November through mid-March. Finally, although marginal suitable habitat occurs for Monarch Butterfly within the project area, the minor impacts associated with the proposed project would unlikely cause jeopardy to this species.

### 4 References

Ecoregion Download Files by State - Region 6. Environmental Protection Agency.  
<https://www.epa.gov/eco-research/ecoregion-download-files-state-region-6#pane-03>.

NatureServe. 2024. NatureServe Explorer – *Perimyotis subflavus* (Tricolored Bat).  
[https://explorer.natureserve.org/Taxon/ELEMENT\\_GLOBAL.2.102580/Perimyotis\\_subflavus](https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.102580/Perimyotis_subflavus)

Species: U.S. fish & wildlife service. 2025. <https://www.fws.gov/species>.

U.S. Fish and Wildlife Service. 2024. Information for Planning and Consultation (IPaC).  
<https://ipac.ecosphere.fws.gov/>

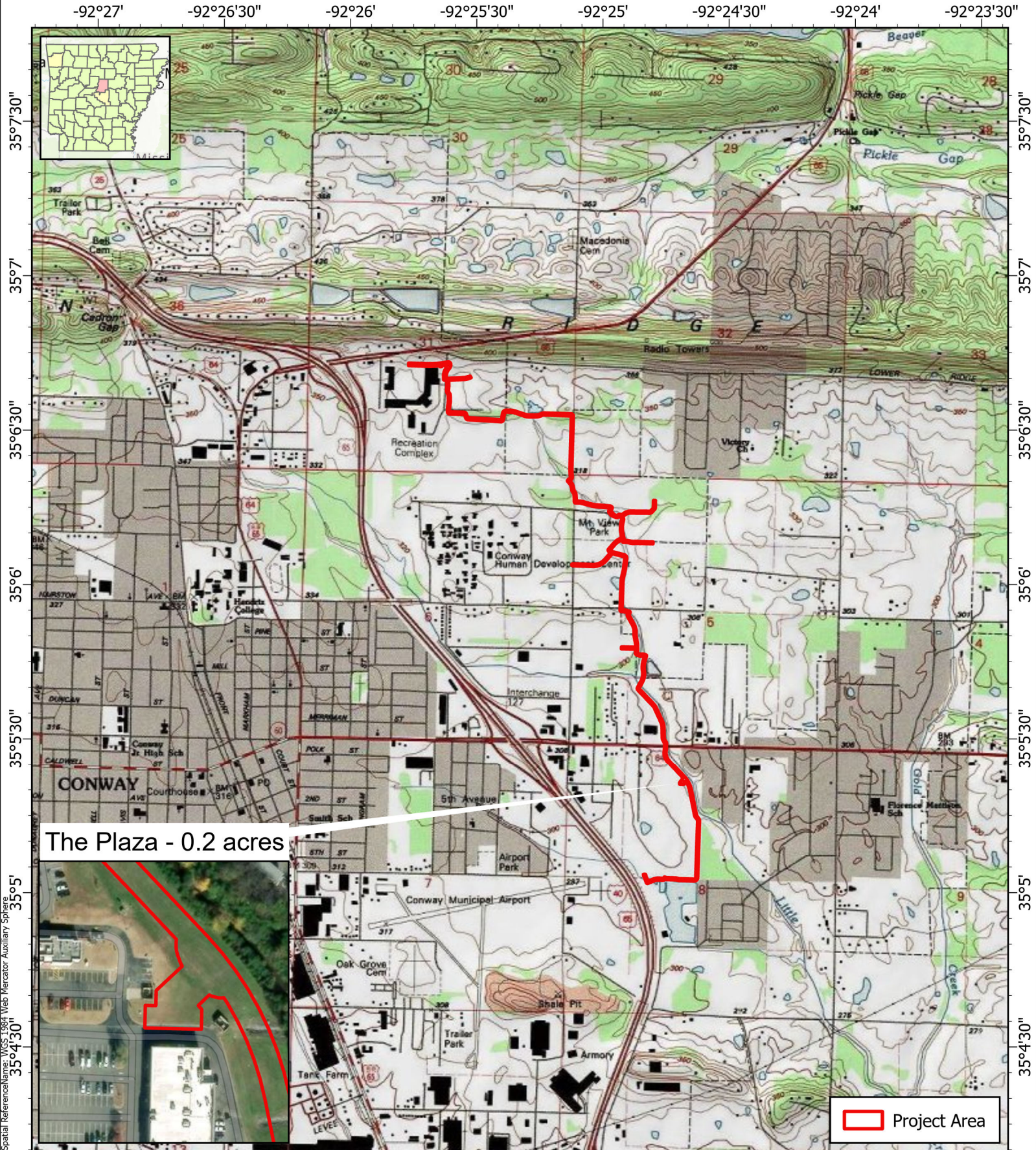
U.S. Fish & Wildlife Service. 2025. *Myotis sodalis* (Indiana Bat)  
<https://www.fws.gov/species/indiana-bat-myotis-sodalis>.



# APPENDIX A

## Figures and Exhibits





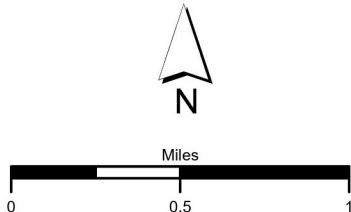
Spatial Reference Name: WGS 1984 Web Mercator Auxiliary Sphere



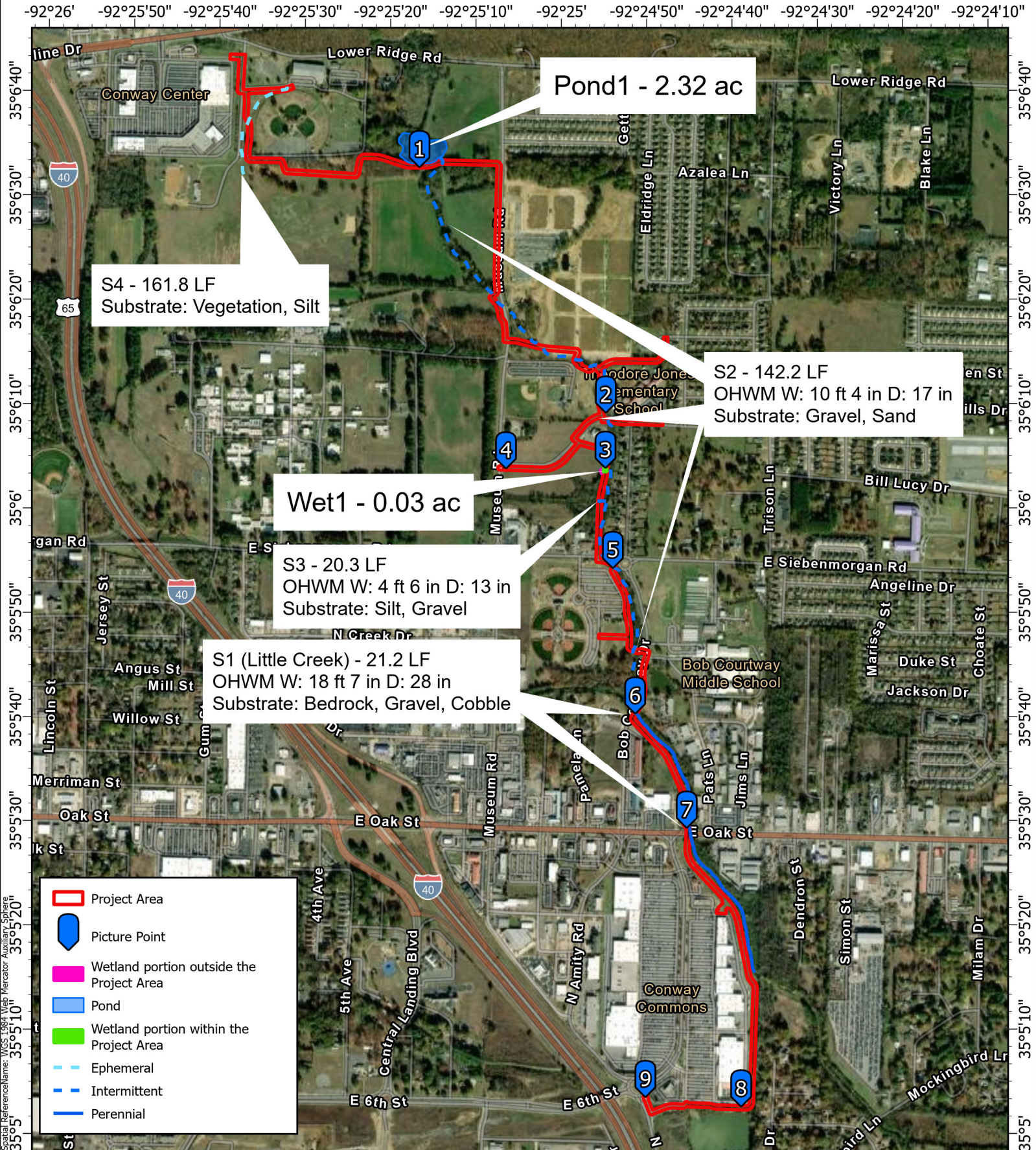
Connect Conway  
RAISE Trails

CT Prj #: 24805000

**Figure 1**  
**Project Area**  
**&**  
**USGS Topographic Quadrangle**









**Crafton Tull**

901 N. 47th Street, Suite 400, Rogers, AR 72756  
479.636.4038 F 479.631.6224 F

**Connect Conway  
RAISE Trails**

CT Proj #: 24805000

**Figure 2**  
**Threatened & Endangered Species Survey**  
**Photo location Map**



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Miles

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# APPENDIX B

## Site Photographs



Photopoint 1. Pond1. Outside of ROW



Photopoint 2. S2. Box culvert bridge beneath Andrews Dr.

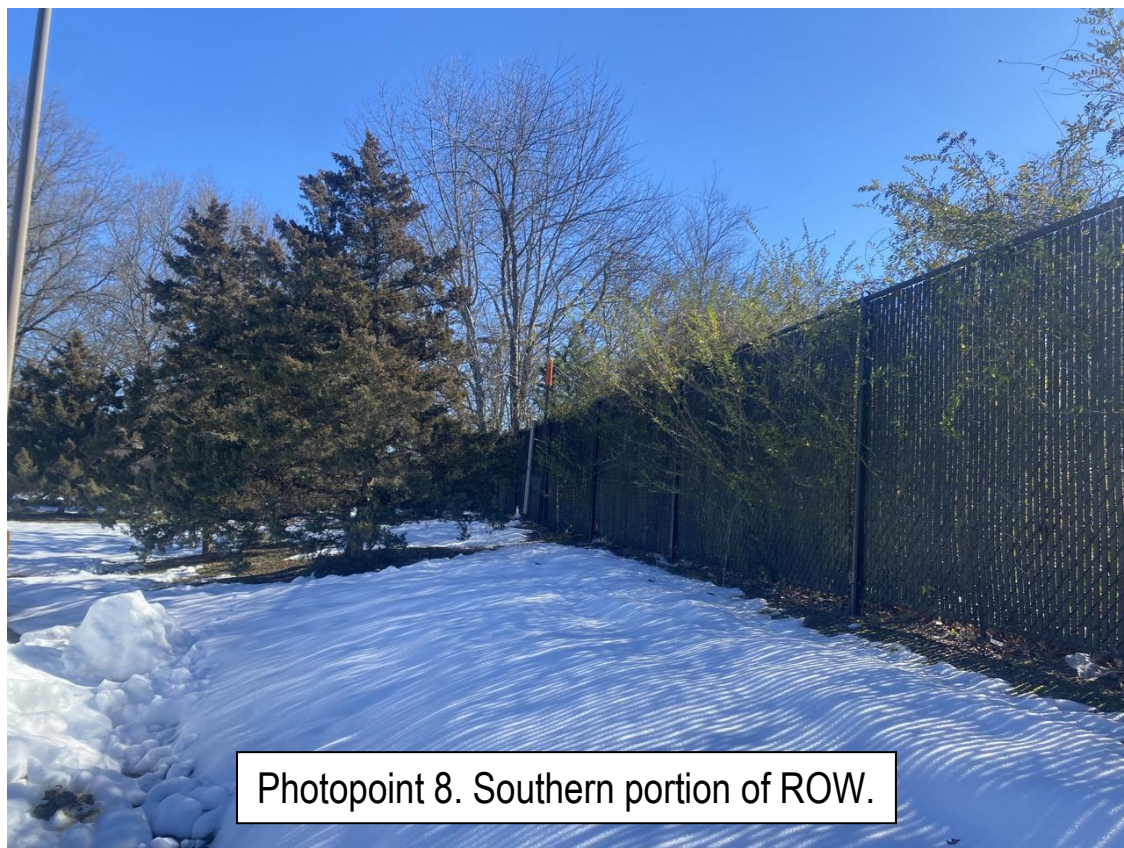
















Photopoint 9. South ROW terminus at North Amity Rd.





**Crafton Tull**



**USFWS IPaC**



## 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



In Reply Refer To:

10/24/2025 20:47:36 UTC

Project Code: 2025-0052248

Project Name: Connect Conway Trails - Segment 1

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, 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.*).

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 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 IPaC system by completing the same process used to receive the enclosed list.

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.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological



evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

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 Code 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

**Project Code:** 2025-0052248  
**Project Name:** Connect Conway Trails - Segment 1  
**Project Type:** Road/Hwy - Maintenance/Modification  
**Project Description:** Faulkner County, in coordination with the Federal Highway Administration (FHWA) are proposing to construct a multi-use, non-motorized recreational trail, known as the Connect Conway Trails (CCT ), primarily within the Historically Disadvantaged east Conway neighborhoods, home to a concentration of most of the city's Areas of Persistent Poverty in Faulkner County Arkansas.

The Connect Conway Project aims to build a safe, connected, and accessible transportation system for the Conway community through an investment of 12.5 miles of new bike and pedestrian infrastructure in the form of a 12' shared-use greenway trail, 12' sidepath, 12' cycle track, and sidewalks.

This consultation is for Segment 1 of the project on the east side of the I-40. The project limits extend from the northeastern portion of the city connecting with the Conway Towne Center retail center near U.S. Highway 65 (Skyline Drive to the 6th Street overpass at Interstate 40. The trail would allow network access to the Conway Commons Shopping Center and develop a parklike setting adjacent to Little Creek.

Estimated completion of the NEPA review for this project is early 2026.

**Project Location:**

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@35.098014899999995,-92.41479888505788,14z>



**Counties:** Faulkner County, Arkansas

## ENDANGERED SPECIES ACT SPECIES

There is a total of 7 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 Fisheries<sup>1</sup>, 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](#), 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                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Indiana Bat <i>Myotis sodalis</i><br>There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/5949">https://ecos.fws.gov/ecp/species/5949</a> | Endangered             |
| Tricolored Bat <i>Perimyotis subflavus</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a>                                          | Proposed<br>Endangered |

## BIRDS

| NAME                                                                                                                                                                                                                                                                                                                                                                                                          | STATUS     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Eastern Black Rail <i>Laterallus jamaicensis ssp. jamaicensis</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/10477">https://ecos.fws.gov/ecp/species/10477</a>                                                                                                                                                                | Threatened |
| Piping Plover <i>Charadrius melodus</i><br>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.<br>There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a> | Threatened |
| Rufa Red Knot <i>Calidris canutus rufa</i><br>There is <b>proposed</b> critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a>                                                                                                                                  | Threatened |

## REPTILES

| NAME                                                                                                                                                                                                                               | STATUS                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Alligator Snapping Turtle <i>Macrochelys temminckii</i><br>No critical habitat has been designated for this species.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/4658">https://ecos.fws.gov/ecp/species/4658</a> | Proposed<br>Threatened |

## INSECTS

| NAME                                                                                                                                                                                                                                                                        | STATUS                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Monarch Butterfly <i>Danaus plexippus</i><br>There is <b>proposed</b> critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a> | Proposed<br>Threatened |

## CRITICAL HABITATS

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



YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

## **IPAC USER CONTACT INFORMATION**

Agency: Conway city  
Name: Stuart Gower-Jackson  
Address: 901 N. 47th Street  
Address Line 2: Suite 400  
City: Rogers  
State: AR  
Zip: 72756  
Email: stuart.gower-jackson@craftontull.com  
Phone: 4796364838

## **LEAD AGENCY CONTACT INFORMATION**

Lead Agency: Federal Highway Administration



## 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



In Reply Refer To:

08/15/2025 16:01:55 UTC

Project code: 2025-0052248

Project Name: Connect Conway Trails - Segment 1

Subject: Not Likely to Adversely Affect Technical assistance letter for the 'Connect Conway Trails - Segment 1' project under the December 13, 2024, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat, Northern Long-eared Bat, and Tricolored Bat.

To whom it may concern:

This letter records the determination of effects to federally listed (or proposed) bat species anticipated to result from the Connect Conway Trails - Segment 1 (the Project). This determination is based upon information you entered into the assisted determination key (Dkey) associated with the above referenced Programmatic Biological Opinion/Conference Opinion (PBO/PCO) in the U.S. Fish and Wildlife Service's (Service) Information for Planning and Consultation (IPaC) system on the date listed above. **This letter does not satisfy compliance requirement under section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (16 USC 1536), as amended.** Those requirements will be met upon taking the actions described below.

### Ensuring Accurate Determinations When Using IPaC:

The Service developed the IPaC system and this Dkey in accordance with the ESA and based on the PBO/PCO. All information submitted by the project proponent into IPaC must accurately represent the full scope and details of the Project.

**Failure to accurately represent or implement the Project as detailed in the Dkey invalidates this letter. Answers to certain questions in the Dkey commit the project proponent to implementation of conservation measures that must be followed for the ESA determinations to remain valid. Carefully review this letter, your ESA requirements are NOT yet complete.**

### Determinations:

Based on the information you provided (Project Description shown below), you have determined that the Project is within the scope and adheres to the criteria of the PBO/PCO, including the



adoption of applicable avoidance and minimization measures. Based on your IPaC submission and the PBO/PCO, the Project is consistent with the following effect determinations:

| Species                                        | Listing Status | Determination |
|------------------------------------------------|----------------|---------------|
| Indiana Bat ( <i>Myotis sodalis</i> )          | Endangered     | NLAA          |
| Tricolored Bat ( <i>Perimyotis subflavus</i> ) | Proposed       | NLAA          |
|                                                | Endangered     |               |

The tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can confer under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a no effect or not likely to adversely affect (NLAA) determination from the key to confirm that the determination is still accurate.

This "may affect - not likely to adversely affect" determination becomes effective when the lead Federal action agency or designated non-federal representative requests the Service rely on the PBO/PCO to satisfy the agency's consultation requirements for this project. **To fulfill the next steps in the consultation process, add the lead Federal action agency or designated non-federal representative as a Project Member in the IPaC system and provide this letter to the lead Federal action agency or its designated non-federal representative with a request for review, and as the agency deems appropriate, submit for concurrence verification through the IPaC system. ESA section 7 compliance for this Proposed Action is NOT yet complete until the Federal action agency or its designated non-federal representative receives a not likely to adversely affect verification letter from the Service IPaC system.**

If the Project is modified, or new information reveals that it may affect the Indiana bat, northern long-eared bat, or tricolored bat in a manner or to an extent not considered in the PBO/PCO, further review to conclude the requirements of ESA section 7(a)(2) may be required.

**For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities:**

If your initial bridge, culvert, or structure assessment failed to detect Indiana bat, northern long-eared bat, or tricolored bat use or occupancy, yet bats are later detected prior to, or during construction, promptly notify the local Service Field Office within 2 working days of the discovery. In addition, please document whether incidental take occurred, and if so, the type (i.e. kill or harm) and amount (i.e. number of individuals) and submit documentation to the local Service Field Office within 5 working days from the completion of the bridge, culvert, or structure construction (use Appendix E - Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form in the [User's Guide](#)). In these instances, potential incidental take of Indiana bats, northern long-eared bats, or tricolored bats may be exempted provided that the take is reported to

the Service. In these instances, potential incidental take of Indiana bats, northern long-eared bats, or tricolored bats may be exempted provided that the take is reported to the Service.

If the Project may affect any other federally listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Field Office is required for those species/designated critical habitat. If the Project has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency to contact this Service Field Office

The following species may occur in your project area and **are not** covered by this determination:

- Alligator Snapping Turtle *Macrochelys temminckii* Proposed Threatened
- Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* Threatened
- Monarch Butterfly *Danaus plexippus* Proposed Threatened
- Piping Plover *Charadrius melodus* Threatened
- Rufa Red Knot *Calidris canutus rufa* Threatened

## PROJECT DESCRIPTION

The following project name and description was collected in IPaC as part of the endangered species review process.

### NAME

Connect Conway Trails - Segment 1

### DESCRIPTION

Faulkner County, in coordination with the Federal Highway Administration (FHWA) are proposing to construct a multi-use, non-motorized recreational trail, known as the Connect Conway Trails (CCT ), primarily within the Historically Disadvantaged east Conway neighborhoods, home to a concentration of most of the city's Areas of Persistent Poverty in Faulkner County Arkansas.

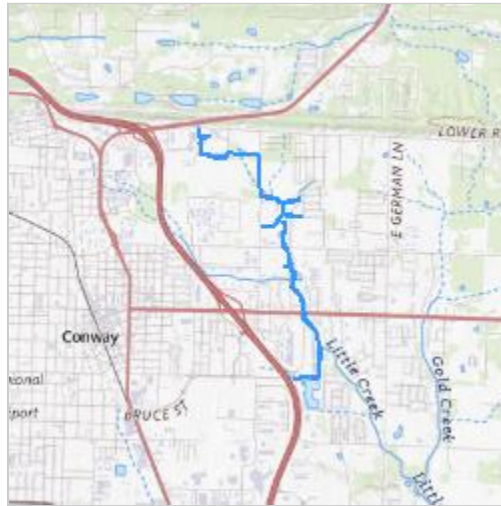
The Connect Conway Project aims to build a safe, connected, ~~equitable~~, and accessible transportation system for the Conway community through an investment of 12.5 miles of new bike and pedestrian infrastructure in the form of a 12' shared-use greenway trail, 12' sidepath, 12' cycle track, and sidewalks.

This consultation is for Segment 1 of the project on the east side of the I-40. The project limits extend from the northeastern portion of the city connecting with the Conway Towne Center retail center near U.S. Highway 65 (Skyline Drive to the 6th Street overpass at Interstate 40. The trail would allow network access to the Conway Commons Shopping Center and develop a parklike setting adjacent to Little Creek.

Estimated completion of the NEPA review for this project is early 2026.



The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@35.098014899999995,-92.41479888505788,14z>



## DETERMINATION KEY RESULT

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the Indiana bat, northern long-eared bat or tricolored bat, therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.) is required. However, also based on your answers provided, this project may rely on the concurrence provided in the Programmatic Biological Opinion/Conference Opinion for Transportation Projects in the Range of the Indiana bat, northern long-eared bat, and tricolored bat, dated December 13, 2024.

## QUALIFICATION INTERVIEW

1. Which Federal Agency is the lead federal agency the action?

*A) Federal Highway Administration (FHWA)*

2. Does the Action Area intersect the species list area of the Indiana bat?

**Automatically answered**

*Yes*

3. Does the Action Area intersect the species list area of the tricolored Bat (TCB)?

**Automatically answered**

*Yes*

4. Is the project within 0.5 miles radius of an entrance/opening to any known Indiana bat hibernaculum?

*No*

5. [Semantic] Is any portion of the action area within a 0.5 mile radius of an entrance/opening to any known NLEB or TCB hibernacula?

**Note:** The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact the Field Office listed in the letterhead of this letter.

**Automatically answered**

*No*

6. Does your project's activities include raising the road profile above the tree canopy in documented habitat for the Indiana bat, NLEB, or TCB?

Note: For the definition of documented habitat, refer to Appendix A: <https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat>

*No*

7. Is your project located within a karst area?

*No*

8. Will the project include bridge, culvert, or structure removal, replacement, and/or alteration activities?

**Note:** For definitions of bridge, culvert, and structure, refer to Appendix A: <https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat>.

Yes

9. Do your project's activities involve tree removal/trimming, temporary lighting, new/additional permanent lighting, ground disturbance, percussives that involves noise/vibration above existing background levels, vibrations, or slash pile burning?

Yes

10. Is there suitable summer habitat for the Indiana bat, NLEB, or TCB within the project action area?

**Note:** See the Service's summer survey guidance for current definitions of suitable habitat [<https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>].

Yes

11. Have P/A surveys for the Indiana bat, NLEB, or TCB been conducted within the suitable summer habitat located within your project action area? This refers to mist-netting or acoustic surveys, not bridge assessments.

**Note:** See the Service's survey guidance <https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>

No

12. Will the project involve the removal or trimming of trees within suitable habitat for the Indiana bat, NLEB, or TCB?

Yes

13. Will any tree removal or trimming occur during the bat pup season?

**Note:** For more information about bat pup seasons please visit [https://www.fws.gov/sites/default/files/documents/2024-10/2024\\_usfws\\_rangewide\\_ibat-nleb\\_survey\\_guidelines.pdf](https://www.fws.gov/sites/default/files/documents/2024-10/2024_usfws_rangewide_ibat-nleb_survey_guidelines.pdf)

No

14. Will the removal or trimming of trees occur **within documented habitat** for the Indiana bat, NLEB, or TCB?

**Note:** For the definition of documented habitat, refer to Appendix A: <https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat>

No

15. Will all tree removal or trimming occur within 100 feet of the road or rail surface?

Yes

16. Does your project include activities involving the temporary or permanent exclusion of Indiana bats, NLEBs, or TCBs from a bridge/culvert or structure?

**Note:** exclusion is conducted to deny bats' entry or reentry into a bridge/culvert or structure. To be effective and to avoid harming bats, it should be done according to established standards.

No

17. Does your project involve the use of temporary lighting within Indiana bat, NLEB, or TCB suitable habitat?

Note: For the definition of lighting, refer to Appendix A: <https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat>

No

18. Will the project substantially increase baseline light conditions via the use of permanent lighting (replacement or new/additional) in suitable habitat.

Yes

19. When installing new/additional permanent lighting, can downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting) be used?

Yes

20. Will your project include percussive activities?

Note: Refer to Stressor #2 Noise/Vibration on page 109 of the PBO/PCO.

No

21. Will the project include **bridge** removal, replacement, and/or alteration activities?

Yes

22. Has a Bridge Bat Assessment been conducted **within the last 24 months** to determine if the bridge is being used by the Indiana bat, NLEB, or TCB? If yes, upload assessment.

Note: Refer to the Service's current survey guidance for acceptable assessment practices and validity timeframe of bridge/culvert and structure bat assessments: <https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

No

23. Has the local Service Field Office confirmed that Indiana bats, NLEB, and TCBs are not using bridges within the action area?

No

24. Will bridge removal, replacement, and/or alteration activities occur during the winter hibernation period (inactive season)?

Yes



25. Have hibernating bats been observed using the bridge?

Note: If a hibernating colony of bats other than Indiana bat, NLEB, or TCB is observed, please coordinate with the local Service Field Office and appropriate State agency.

No

26. Will suitable roosting habitat still be available within the bridge once construction/replacement is complete?

Note: Suitable roosting sites may be incorporated into the design of a new bridge.

Yes

27. Will bridge removal, replacement, and/or alteration activities conducted during the active season (excluding Dec. 15 - Feb 15 in Zones 1 of the NLEB and/or TCB YR active areas) **avoid** disturbing roosting bats using the bridge?

Note: The following types of bridge or culvert work can generally be conducted with the presence of bats:

- Above bridge deck or culvert work where construction equipment or materials do not extend to the underside of deck or within the culvert where bats may be located (e.g., materials won't drip down to underside of deck or within the culvert) and does not include vibration or noise above existing background levels, including general traffic (e.g., road line painting, wing-wall work).
- Below bridge deck or culvert work that is conducted away from roosting bats and does not involve vibration or noise above existing background levels, including general traffic (e.g., wing-wall work, some abutment, beam end, scour, or pier repair).

Yes

28. Does the project include **culvert** removal, replacement, and/or alteration activities?

No

29. Does the project include **structure** removal, replacement, and/or alteration activities?

No

30. Will the project involve the removal or trimming of more than 20 acres of Indiana bat, NLEB, or TCB suitable habitat per 5-mile section of road/rail?

No

31. Will the removal or trimming of trees occur within 0.5 miles of a known Indiana bat, NLEB, or TCB hibernaculum?

No

32. Will the removal or trimming of these trees occur during the active season?

No

33. Will the removal or trimming of trees occur **beyond 100 feet** of the existing road/rail surfaces?

No

34. Does the Action Area intersect the species list area of the Indiana bat?

**Automatically answered**

Yes

35. Does the Action Area intersect the species list area of the tricolored Bat (TCB)?

**Automatically answered**

Yes

## PROJECT QUESTIONNAIRE

1. Have you made a No Effect determinations for all other species included on the FWS IPaC generated species list?

Yes

2. Have you made a May Affect determination for any other species on the FWS IPaC generated list?

No

3. How many acres of trees are proposed for removal/trimming **outside of documented habitat** for the Indiana bat, NLEB, or TCB within 100 feet of the existing road/rail surfaces during the inactive season (NLAA)?

Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

3.5

4. How many acres of trees are proposed for removal/trimming **outside of documented habitat** for the Indiana bat, NLEB, or TCB within 100 feet of the existing road/rail surfaces during the active season (**outside the pup season and not between Dec 15th-Feb 15th in Zone 1 of the NLEB and TCB YR active areas**) (LAA)?

Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

0

5. How many acres of trees are proposed for removal/trimming **outside of documented habitat** for the Indiana bat, NLEB, or TCB within 100 feet of the existing road/rail surfaces during the pup season (**trees must be <9 in DBH, and not between Dec 15th-Feb 15th in Zone 1 of the NLEB and TCB YR active areas**) (LAA)?

Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

0

6. How many acres of trees are proposed for removal/trimming **either outside or within documented habitat** for the Indiana bat, NLEB, or TCB between 100-300 feet of the existing road/rail surface during the inactive season (LAA)? Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

0

7. How many acres of trees are proposed for removal/trimming **either outside or within documented habitat** for the Indiana bat, NLEB, or TCB between 100-300 feet of the

existing road/rail surfaces during the active season (**outside the pup season, and not between Dec 15-Feb 15 in Zone 1 of the NLEB and TCB YR active areas**) (LAA)?

Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

0

8. How many acres of trees are proposed for removal/trimming **either outside or within documented habitat** for the Indiana bat, NLEB, or TCB beyond 300 feet of the existing road/rail surfaces during the inactive season (LAA)?

Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

0

9. How many acres of trees are proposed for removal/trimming **either outside or within documented habitat** for the Indiana bat, NLEB, or TCB beyond 300 feet of the existing road/rail surfaces during the active season (**outside the pup season, and not between Dec 15th-Feb 15th in Zone 1 of the NLEB and TCB YR active areas**) (LAA)?

Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

0

## AVOIDANCE AND MINIMIZATION MEASURES (AMMS)

This determination key result includes the commitment to implement the following Avoidance and Minimization Measures (AMMs):

### GAMM1

Ensure all operators, employees, and contractors working in areas of Indiana bat, NLEB, or TCB suitable habitat are aware of all Transportation Agency environmental commitments, including all applicable AMMs.

### LAMM2

When installing new/additional permanent lighting or replacing existing permanent lights, use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting); or for those Transportation Agencies using the Backlight Uplight and Glare (BUG) system developed by the Illuminating Engineering Society, the project should be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable. [http://www.escolighting.com/PDFfiles/BUG\\_rating.pdf](http://www.escolighting.com/PDFfiles/BUG_rating.pdf)

### BCSAMM1A

Perform bridge, culvert or structure removal, replacement, and/or alteration activities during the winter hibernation period (inactive season) unless a hibernating colony of bats is present. If hibernating bats are observed using the bridge, culvert, or structure, Transportation Agencies and State DOTs will coordinate with the local Service Field Office for project-specific consultation guidance.

### BCSAMM1B

Coordinate with the local Service field office to ensure suitable roosting habitat is still available within the bridge, culvert, or structure once construction/replacement is complete (when

assessment documents use by a large number of covered bat species, >5). Suitable roosting sites may be incorporated into the design of a new bridge, culvert, or structure.

**BCSAMM3A**

Ensure bridge, culvert, or structure removal, replacement, and/or alteration activities conducted during the active season will not disturb roosting Indiana bats, NLEBs, or TCBs using the bridge, culvert, or structure.

**TRTAMM1**

Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to the extent practicable to avoid tree removal/trimming in excess of what is required to implement the project safely.

**TRTAMM2**

Ensure tree removal/trimming is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree removal/trimming to ensure contractors stay within clearing limits

**TRTAMM3**

Ensure tree removal/trimming is limited to the inactive season, occurs within 100 ft of the road/rail surface, and is outside of documented habitat for the Indiana bat, NLEB, and TCB



## **DETERMINATION KEY DESCRIPTION: FHWA, FRA, FTA PROGRAMMATIC CONSULTATION FOR TRANSPORTATION PROJECTS AFFECTING IBAT, NLEB, OR TCB**

This key was last updated in IPaC on July 21, 2025. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) and may affect the federally listed endangered Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and/or federally proposed endangered tricolored bat (*Perimyotis subflavus*).

This decision key should only be used to verify project applicability with the Service's Programmatic Biological Opinion/Conference Opinion for Transportation Projects in the Range of the Indiana bat, northern long-eared bat, and tricolored bat, dated December 13, 2024. The programmatic consultation limited transportation activities that may affect the covered bat species and addresses situations that are both likely and not likely to adversely affect the covered bat species. This decision key will assist in identifying the effect of a specific project/activity and the applicability of the programmatic consultation. The programmatic consultation is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic consultation, or that may affect ESA-listed species other than the Indiana bat, northern long-eared bat, or tricolored bat, or their designated critical habitat, may require additional ESA Section 7 consultation.

**IPAC USER CONTACT INFORMATION**

Agency: Conway city  
Name: Stuart Gower-Jackson  
Address: 901 N. 47th Street  
Address Line 2: Suite 400  
City: Rogers  
State: AR  
Zip: 72756  
Email: stuart.gower-jackson@craftontull.com  
Phone: 4796364838

**LEAD AGENCY CONTACT INFORMATION**

Lead Agency: Federal Highway Administration

# Endangered Species Act Review

DETERMINATION KEY

## Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key

Release date: July 16, 2025

You completed the latest version of this key, published July 16, 2025, and reached a determination of not applicable for species or critical habitats covered by the key.

This determination key (key) is intended to streamline review of projects for potential effects to the northern long-eared bat (*Myotis septentrionalis*; NLEB) and the proposed tricolored bat (*Perimyotis subflavus*; TCB). This key is designed as a tool to help Federal agencies and other project proponents decide if their proposed action has the potential to adversely affect the northern long-eared bat or jeopardize the continued existence of the proposed tricolored bat and covers certain routine and predictable projects for which predetermined consultation outcomes are feasible. This key will replace the NLEB Rangewide Key in order to provide for the addition of TCB to the key. Letters provided through use of the NLEB Rangewide Key will still be valid, but the key will no longer be available to users. If a project needs to be reassessed, please use the updated NLEB and TCB Rangewide Key. Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action may affect a listed species. TCB is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can confer under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the TCB be listed, agencies must review projects that are not yet complete, or

projects with ongoing effects within the TCB range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate. Some projects may be outside the scope of this key. Activities that fall outside the scope of this key will require additional evaluation and/or consultation outside of the IPaC application; please contact the appropriate Ecological Service Field Office if you have questions. The link below provides the information used to support the standing analyses and key.

<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis> If your project qualifies for use of this key, you will be prompted to answer questions about your project to help you evaluate its effects on the northern long-eared bat and/or tricolored bat. Three outcomes are possible: 1) If your completed review indicates a "No Effect" (NE) for northern long-eared bat and tricolored bat, and you have made separate "No Effect" determinations for all other species and critical habitats, if any, on your Official Species List, print your IPaC output letter for your files to document your compliance with the Endangered Species Act. 2) For Federal projects with a "Not Likely to Adversely Affect" determination, our concurrence becomes valid if you do not hear otherwise after a 15-day review period, as specified in your letter. 3) If your output letter indicates additional coordination with the appropriate Ecological Services Field Office is necessary (i.e., you get a "May Affect" determination" without a concurrence that adverse effects are not likely), you will be provided additional guidance on contacting the Service to continue ESA coordination outside of this key; ESA compliance cannot be concluded using the key for "May Affect" determinations. Please note that only one assisted key may be completed per species for each project. Please carefully review the descriptions of all available keys to select the most appropriate key for your project. For instance, federal transportation projects with potential effects to listed bats may be advised to complete the key entitled, FHWA, FRA, FTA Programmatic Consultation for Transportation Projects affecting NLEB or Indiana Bat. Finally, be advised that this key is intended to assist the user in evaluating the effects of their actions on northern long-eared bat and/or tricolored bat. It does not authorize any activities that are otherwise prohibited by the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other Federal or state statutes.

A video demonstration of this Key is available [here](#).



## Species covered by this key

This key covers the following species expected to occur in this project area:

Tricolored Bat *Perimyotis subflavus*

The following species, also covered by this key, are not expected to occur in this project area:

Northern Long-eared Bat *Myotis septentrionalis*

## Critical habitats covered by this key

This key covers the critical habitats for the following species expected to occur in this project area:

None

For more information about this determination key, including a list of all potential questions, refer to the [detailed overview](#).

## Qualification interview

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

**Note:** Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

☒ No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

☒ Automatically answered

No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

☒ Automatically answered

No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

**Note:** For federal actions (Action means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas.

Examples include, but are not limited to:

(a) actions intended to conserve listed species or their habitat;

(b) the promulgation of regulations;

(c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or

(d) actions directly or indirectly causing modifications to the land, water, or air.

50 CFR 402.02 "Action" .), answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

☐ Yes

Your project is outside the scope of this key; however, the Service has developed interim guidance for the northern long-eared bat and tricolored bat for projects involving wind facility development or wind turbine operation. Review the guidance posted here for more information:  
<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>  
<https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus>

If you no longer wish to use this key for your project, you can delete your evaluation.

**ANHC**



**Sarah Huckabee Sanders**  
Governor  
**Shea Lewis**  
Secretary

Date: April 14, 2025  
Subject: Elements of Special Concern  
Connect Conway Project  
Faulkner County, Arkansas  
ANHC No.: P-CF..-25-027

Mr. Stuart Gower-Jackson  
Crafton Tull  
901 N. 47<sup>th</sup> Street, Suite 400  
Rogers, AR 72756

Dear Mr. Gower-Jackson:

Staff members of the Arkansas Natural Heritage Commission have reviewed our files for records indicating the occurrence of rare plants and animals, outstanding natural communities, natural or scenic rivers, or other elements of special concern within the boundaries of the City of Conway. The database review was requested in conjunction with the Connect Conway Project, a mixed-use pedestrian and bike trail project. The results of this review are provided as Geographic Information System (GIS) shapefiles. Explanatory information for the shapefiles is included.

Our records indicate the occurrence of the following species of state conservation concern within the city limits of Conway:

*Asclepias obovata*, savannah milkweed  
*Atractosteus spatula*, Alligator Gar  
*Carex opaca*, opaque prairie sedge  
*Nemastylis nuttallii*, Nuttall's pleat-leaf  
*Procambarus liberorum*, Osage Burrowing Crayfish  
*Rudbeckia maxima*, great coneflower  
*Spiranthes odorata*, fragrant ladies'-tresses  
*Streptanthus maculatus* ssp. *obtusifolius*, Arkansas twistflower

Savannah milkweed and opaque prairie sedge have been reported from the Jewel Moore Nature Reserve on the UCA campus, which is in proximity to some of the trail corridors. According to historic General Land Office (GLO) survey notes and maps, much of what is now central Conway was in prairie vegetation at the time of settlement. The Jewel Moore site represents one of the last remnants of the native prairie and woodland once found in the area. Ideally, trails at this site would be limited to foot traffic. Careful trail maintenance and monitoring should be a key consideration to protect prairie soils and vegetation at this location.



Osage burrowing crayfish has also been recorded in the vicinity of proposed trails. It was reported from a location south of the ballfields on Museum Road. This is a burrowing species that is not always tied to surface waters. Its natural habitat is likely flatwoods, wet prairie and savannah, and seasonally wet grasslands. Generally, urban development poses a risk to this species. Soil compaction, pesticide use, and hydrologic alterations can adversely impact this crayfish.

Five other species have been recorded within the city limits and are included in the data layer, although they are not in close proximity to the trail corridors. Additionally, several small glades within the steeper peripheral areas of the city limits have been identified from aerial photograph interpretation and are provided as a GIS shapefile. Glades are an important and declining habitat type in Arkansas. They occur where the bedrock is at or near the surface. They are characterized by areas of bare rock, expanses with grasses and forbs, and, where the soil is deeper, cedar trees. In the past, these areas were subject to wildfires, which maintained an open character and reduced the number of cedar trees. Glades are often more biologically diverse than surrounding forests, support rare species, and provide important wildlife habitat.

A list of elements of special concern recorded within a five-mile radius of the Conway city limits is enclosed for your reference. Represented on this list are elements for which we have records in our database. The list has been annotated to include those elements within a one-mile radius. A brief habitat description and link to the NatureServe Explorer website is also included. A legend is provided to help you interpret the codes used on this list.

Please keep in mind that the project area may contain important natural features of which we are unaware. Staff members of the Arkansas Natural Heritage Commission have not conducted a comprehensive survey in Conway. Our review is based on data available to the program at the time of the request. It should not be regarded as a final statement on the elements or areas under consideration. Because our files are updated constantly, you may want to check with us again at a later time.

Thank you for consulting us. It has been a pleasure to work with you on this study.

Sincerely,

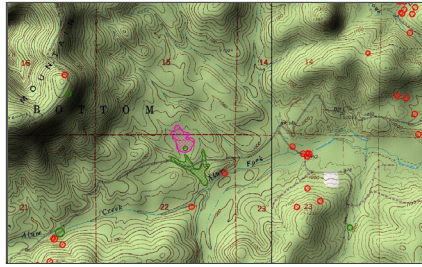
A handwritten signature in black ink that reads "Cindy Osborne". The script is cursive and fluid.

Cindy Osborne  
Data Manager/Environmental Review Coordinator

Enclosures: GIS Shapefile for sensitive elements and GIS shapefile for glades  
Documentation for sensitive element shapefile  
Element list  
Legend  
Data Agreement  
Invoice

## ANHCData

### Shapefile



### Tags

Elements of conservation concern, sensitive species, Arkansas Natural Heritage Commission

### Summary

This shapefile was created to share data on elements of conservation concern with entities requesting data through the Arkansas Natural Heritage Commission's Information Sharing Program.

### Description

#### Description of Data:

Occurrence data entered into the Natural Heritage Database represent known locations of elements which the Arkansas Natural Heritage Commission (ANHC) currently tracks. These elements include species considered either endangered, threatened, rare, peripheral, or status undetermined as well as outstanding examples of natural communities (terrestrial, palustrine and aquatic), and significant animal aggregation areas (colonial bird nesting sites). Generally speaking, the basic requirement for entering an occurrence into the natural diversity database is that the place marked as an occurrence must contribute to the survival of the element. The specific criterion used for each type of element depends on the basic biology of the element.

#### Contact Information:

Cindy Osborne, Data Manager/Environmental Review Coordinator

Arkansas Natural Heritage Commission

1100 North Street

Little Rock, AR 72201

Phone: 501-324-9762

Fax: 501-324-9618

e-mail: [Cindy.Osborne@Arkansas.gov](mailto:Cindy.Osborne@Arkansas.gov)

#### Source of Data:

Data entered into the database have been collected from literature sources, herbaria, museums, Universities and field surveys by staff biologists.

#### Mapping Information:

All mappable occurrence data entered into the natural diversity database are georeferenced using coordinates collected in the field, topographic maps, aerial imagery, or other resources. In some cases the actual mapped location represents a "best guess" based on the information available. The accuracy of mapped locations can vary from approximately one hundred feet to roughly five miles (the level of a 7.5' quadrangle). Close attention should be given to the "**precision**" code assignments. This code indicates the accuracy of the mapped location. Precision codes are described in greater detail below. This data set is a combination of "occurrence" and "observation" records acquired by the agency. Occurrence records have been reviewed and represent aggregated information on occupied habitat at a given location. Polygon representations have been created for some, but not all occurrence level records. Observation records are, essentially, draft data and are represented by points. Both occurrence and observation records are useful to have a better indication of the distribution of elements of conservation concern. In order to provide a single combined file of observation and occurrence records, those records represented only as points were converted to 100 foot buffered circles and combined with records represented by polygons. Where polygons for the same element overlapped, the records were electronically combined into a single aggregated record/polygon.

#### Descriptions of Fields in Data Table

##### MATCH

This is an identifying code for the record. For aggregated records, this is the code for the "master" record. This code can be used when requesting additional information on a given record.

##### ELCODE

Element Code. A unique code for the species or element.

##### DissID

This is an internal code used by ANHC to identify the shape

##### DISSELID

This is unique code used by ANHC to identify the shape for the element. This code can be used when requesting additional information on a given record.

##### EOCODE

Element Occurrence Code. A unique identifier for the most recent occurrence. This number identifies the most recent record and the one for which detailed information is list first. It may or may not be the same as the MATCH field.

##### SNAME

Scientific Name.

##### SCOMNAME

Common Name.

## GRANK

Global Rank. This is a conservation rank used by State Heritage Programs and NatureServe. The rank indicates the relative rarity of an element throughout its range. The following codes are used:

G1 = Critically imperiled globally. At a very high risk of extinction due to extreme rarity, very steep declines, very severe threats, or other factors.

G2 = Imperiled globally. At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

G3 = Vulnerable globally. At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

G4 = Apparently secure globally. At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

G5 = Secure globally. At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.

GH = Of historical occurrence, possibly extinct globally. Known from only historical occurrences but still some hope of rediscovery.

GU = Unrankable. Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

GX = Presumed extinct globally. Not located despite intensive searches and virtually no likelihood of rediscovery.

GNR = Unranked. The global rank not yet assessed.

GNA = Not Applicable. A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities.

T-RANKS= Intraspecific Taxon (trinomial) - The status of intraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles as those for GRANKS.

## SRANK

State Rank. This is a conservation rank used by State Heritage Programs and NatureServe. The rank indicates the relative rarity of an element throughout Arkansas. The following codes are used:

S1 = Critically imperiled in the state. At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.

S2 = Imperiled in the state. At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

S3 = Vulnerable in the state. At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

S4 = Apparently secure in the state. At a fairly low risk of extirpation in the jurisdiction due

to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

S5 = Secure in the state. At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

SH = Of historical occurrence in the state. Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.

SU = Unrankable in the state. Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SX = Presumed extirpated from the state. Species or ecosystem not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SNR = Unranked. The state rank not yet assessed.

SNA = Not Applicable. A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities.

#### General Ranking Notes

Q = A "Q" in the global rank indicates the element's taxonomic classification as a species is a matter of conjecture among scientists.

RANGES= Ranges are used to indicate a range of uncertainty about the status of the element.

? = A question mark is used to denote an inexact numeric rank.

B = Refers to the breeding population of a species in the state.

N = Refers to the non-breeding population of a species in the state.

#### STATESTAT

State Status Code. At present, Arkansas does not have a law providing special state protection to species considered endangered or threatened in Arkansas. However, lists of species of special concern have been developed by this program in cooperation with other government agencies, and professionals. Species appearing on these lists are believed to be rare in the state and are presently being inventoried by this agency. The following codes have been used in this field:

INV = Inventory Element; The Arkansas Natural Heritage Commission is currently conducting active inventory work on these elements. Available data suggests these elements are of conservation concern. These elements may include outstanding examples of Natural Communities, and animal aggregation areas as well as plants and animals which, according to current information, may be rare, peripheral, or of an undetermined status in the state. The ANHC is gathering detailed location information on these elements.



SE = State Endangered; this term is applied differently for plants and animals

Animals - These species are afforded protection under Arkansas Game and Fish Commission (AGFC) Regulation. The AGFC states that it is unlawful to import, transport, sell, purchase, hunt, harass, or possess any threatened or endangered species of wildlife or parts. The AGFC lists as endangered any wildlife species or subspecies endangered or threatened with extinction, listed or proposed as a candidate for listing by the U.S. Fish and Wildlife Service or any native species or subspecies listed as endangered by the Commission.

Plants - These species have been recognized by the Arkansas Natural Heritage Commission as being in danger of being extirpated from the state. This is an administrative designation with no regulatory authority.

ST = State Threatened; This term is applied only to plants. These species have been recognized by the Arkansas Natural Heritage Commission as being likely to become endangered in Arkansas in the foreseeable future, based on current inventory information. This is an administrative designation with no regulatory authority.

#### USES

U.S. Endangered Species Act status. This field provides information on whether the species is listed as Endangered or Threatened by the U.S. Fish and Wildlife Service. A blank indicates the element has no federal listing. The following codes are used:

C = Candidate species. The U.S. Fish and Wildlife Service has enough scientific information to warrant proposing these species for listing as endangered or threatened under the Endangered Species Act.

LE = Listed Endangered; the U.S. Fish and Wildlife Service has listed these species as endangered under the Endangered Species Act.

LT = Listed Threatened; the U.S. Fish and Wildlife Service has listed these species as threatened under the Endangered Species Act.

PE = Proposed Endangered; the U.S. Fish and Wildlife Service has proposed these species for listing as endangered.

PT = Proposed Threatened; the U.S. Fish and Wildlife Service has proposed these species for listing as threatened.

T/SA = Threatened (or Endangered) because of similarity of appearance.

E/SA

#### SWAP

State Wildlife Action Plan Species of Greatest Conservation Concern. A "Y" will appear in this field if it is listed in the State Wildlife Action Plan, otherwise the field will be blank.

#### LASTOBS

Last Observed Date. The date that the most recent observation falling within the polygon was last observed and recorded as extant in Arkansas Natural Heritage Commission files.

## FIRSTOBS

First Observed date. This is the date of the earliest observation record falling within the polygon.

## YEARSUM

Observation Years Summarized. If there are multiple observations falling within the polygon, this is an aggregated list of all the years for observation records in the polygon.

## COUNTYCODE

County Code. A four digit code for the county(s) in which the most recent observation within the polygon falls. The code is in the following format:

1st 4 letters of county name

Example: GARL = Garland County

## SITE

This is an informal site name applied to the location of the most recent observation within the polygon. This may be missing for many records.

## SITESUM

Summary of site names - If there are multiple records falling within the polygon, this is an aggregated list of all of the site names. Site names may be missing for some records or may appear as variations of the same name.

## PRECISION

Precision of mapped location of the most recent record falling in the polygon. All mappable occurrence data entered into the natural diversity database are mapped on topographic quadrangles and are assigned a township, range and section as well as latitude and longitude coordinates. In some cases the actual mapped location represents a "best guess" based on the information available. Careful attention should be paid to the precision code assignments to distinguish these "best guesses" from confirmed locations. The location given represents the centrum of the occurrence. The following codes are used:

S = Element is specifically mapped (within a three second radius, ~100 feet).

M = Element mapped to within one minute radius (1.5 mile).

G = Element is mapped to a general region identified by a geographic name on a U.S.G.S. quadrangle. This is often an administrative boundary and is usually confined to a single quadrangle.

TBA = A precision code has not been assigned to this observation (to-be-assigned).

## MAX\_Prec

Highest precision - If multiple observations fall within the polygon, this lists the most accurate precision code for a record falling in the polygon.

**QUADNAME**

Quadrangle Name. The name of the 7.5' topographic quadrangle(s) on which the occurrence falls. This information may not be completed for some observation records.

**TRS**

Township/Range/Section. The township, range, and section of the centerpoint of the most recent observation falling within the polygon. This information may not be completed for some observation records.

**TRSCOMM**

Township/Range/Section comments. Quarter/Quarter section or other descriptive information is entered in this field. Quarter/Quarter sections are usually entered in the following format:

NW4NW4 = the northwest quarter of the northwest quarter

**DIRECTSUM**

This field lists directions for the aggregated records by date. The most recent directions are listed first. Since the field is a limited text field, some directions may be truncated. If truncated a "++" will usually appear at the end of the field to indicate truncation.

**DESCSUM**

This field lists the habitat descriptions for the aggregated records by date. The most recent description is listed first. Since the field is a limited text field, some descriptions may be truncated. If truncated a "++" will usually appear at the end of the field to indicate truncation.

**DATASUM**

This field lists the occurrence data for the aggregated records by date. The most recent occurrence information (size, number of individuals, vigor, etc...) is listed first. Since this is a limited text field, some occurrence information may be truncated. If truncated a "++" will usually appear at the end of the field to indicate truncation.

**LASTSOURCE**

This will be the source of information listed on the most recent record falling within the polygon.

**LATNUM**

Latitude. The latitude of the centrum of the most recent record falling within the polygon.

**LONGNUM**

Longitude. The longitude of the centrum of the most recent record falling within the polygon.

**SUMCOOR**

Summary of coordinates - If there are multiple observations represented by the polygon this lists all of the centerpoint coordinates associated with those records.

## EORANK

Element Occurrence Rank. This is a code for the most recent record falling within the polygon indicating the relative value of the occurrence with respect to other occurrences of the element based on an assessment of the estimated viability or ecological integrity of the occurrences of a given element. The following codes are used:

A - Excellent estimated viability/ecological integrity.

A? - Possibly excellent estimated viability/ecological integrity.

AB - Excellent or good estimated viability/ecological integrity.

AC - Excellent, good, or fair estimated viability/ecological integrity.

B - Good estimated viability/ecological integrity.

B? - Possibly good estimated viability/ecological integrity.

BC - Good or fair estimated viability/ecological integrity.

BD - Good, fair, or poor estimated viability/ecological integrity.

C - Fair estimated viability/ecological integrity.

C? - Possibly fair estimated viability/ecological integrity.

CD - Fair or poor estimated viability/ecological integrity.

D - Poor estimated viability/ecological integrity.

D? - Possibly poor estimated viability/ecological integrity.

E - Verified extant (viability/ecological integrity not assessed).

F - Failed to find.

F? - Possibly failed to find.

H - Historical.

H? - Possibly historical.

X - Extirpated.

X? - Possibly extirpated.

U - Unrankable.

NR - Not ranked

## COMMENTS

Comments about the record.

## VER\_DATE

Version Date for the data set.

## TYPE

The type of element represented by the polygon.

**Credits**

These data were compiled by the Arkansas Natural Heritage Commission, Division of Arkansas Heritage, Arkansas Department of Parks, Heritage, and Tourism, Little Rock, AR.

**Use limitations**

This data set is provided under a data sharing agreement. Reproduction and/or distribution of the complete electronic data set or subsets thereof to any parties other than those intended or listed in the data sharing agreement is strictly prohibited without prior written permission from the Arkansas Natural Heritage Commission.

**Arkansas Natural Heritage Commission**  
**Division of Arkansas Heritage**  
**Arkansas Department of Parks, Heritage and Tourism**  
**Elements of Special Concern**  
**Within a Five-Mile Radius of the City of Conway, Arkansas**

| Scientific Name                   | Common Name               | Federal Status | State Status | Global Rank | State Rank  | Habitat                                                                              | NatureServe Link                                                                                                                                                                              |
|-----------------------------------|---------------------------|----------------|--------------|-------------|-------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Animals-Invertebrates</b>      |                           |                |              |             |             |                                                                                      |                                                                                                                                                                                               |
| <i>Atrytonopsis hianna</i>        | Dusted Skipper            | -              |              | G4G5        | S2S3        | prairies                                                                             | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.108091/Atrytonopsis_hianna">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.108091/Atrytonopsis_hianna</a>           |
| * <i>Cicindela hirticollis</i>    | beach-dune tiger beetle   | -              |              | G5          | S2S3        | open sandy habitat such as river sandbars                                            | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.117645/Cicindela_hirticollis">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.117645/Cicindela_hirticollis</a>       |
| <i>Crangonyx obliquus</i>         | an amphipod               | -              |              | G5          | S3?         | permanent bodies of water, preferring the smaller springs                            | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.816031/Crangonyx_obliquus">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.816031/Crangonyx_obliquus</a>             |
| * <i>Ellipsoptera macra</i>       | sandy stream tiger beetle | -              |              | G5          | S2S3        | sandbars in large rivers                                                             | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.112423/Ellipsoptera_macra">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.112423/Ellipsoptera_macra</a>             |
| <i>Lirceus garmani</i>            | an isopod                 | -              |              | GNR         | S1          | small stream                                                                         | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.55.203/Lirceus_garmani">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.55.203/Lirceus_garmani</a>                       |
| * <i>Procambarus liberorum</i>    | Osage Burrowing Crayfish  | -              |              | G3G4        | S3S4        | flatwoods and wet prairie & savannah, shale pan, open seasonally wet grassland       | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.872122/Procambarus_liberorum">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.872122/Procambarus_liberorum</a>       |
| <b>Animals-Vertebrates</b>        |                           |                |              |             |             |                                                                                      |                                                                                                                                                                                               |
| * <i>Anguilla rostrata</i>        | American Eel              | -              |              | G4          | S2S3        | large to medium rivers                                                               | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.102540/Anguilla_rostrata">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.102540/Anguilla_rostrata</a>               |
| * <i>Atractosteus spatula</i>     | Alligator Gar             | -              |              | G3G4        | S3          | sluggish pools of large rivers and their bayous, oxbow lakes, swamps, and backwaters | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.102977/Atractosteus_spatula">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.102977/Atractosteus_spatula</a>         |
| <i>Dryophytes avivoca</i>         | Bird-voiced Treefrog      | -              |              | G5          | S3          | permanent wooded swamps                                                              | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.106363/Dryophytes_avivoca">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.106363/Dryophytes_avivoca</a>             |
| * <i>Haliaeetus leucocephalus</i> | Bald Eagle                | -              |              | G5          | S3B,S4<br>N | ponds, lakes, and water holes, pine-oak forests, riparian areas                      | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.104470/Haliaeetus_leucocephalus">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.104470/Haliaeetus_leucocephalus</a> |
| * <i>Moxostoma pisolabrum</i>     | Pealip Redhorse           | -              |              | G5          | S3          | Medium to large rivers                                                               | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.790468/Moxostoma_pisolabrum">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.790468/Moxostoma_pisolabrum</a>         |



| Scientific Name                          | Common Name            | Federal Status | State Status | Global Rank | State Rank | Habitat                                                                                                                         | NatureServe Link                                                                                                                                                                                          |
|------------------------------------------|------------------------|----------------|--------------|-------------|------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ★ <i>Ophisaurus attenuatus</i>           | Slender Glass Lizard   | -              |              | G5          | S3         | prairies, woodlands, savanna                                                                                                    | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103178/Ophisaurus_attenuatus">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103178/Ophisaurus_attenuatus</a>                   |
| ★ <i>Pseudacris streckeri</i>            | Strecker's Chorus Frog | -              |              | G5          | S2         | sandy soil prairies, flooded fields in sandy soil                                                                               | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.102207/Pseudacris_streckeri">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.102207/Pseudacris_streckeri</a>                     |
| <i>Sternula antillarum athalassos</i>    | Interior Least Tern    | -              |              | G4T3 Q      | S3B        | wide river channels with barren to sparsely vegetated sandbars                                                                  | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103386/Sternula_antillarum_athalassos">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103386/Sternula_antillarum_athalassos</a> |
| <b>Plants-Vascular</b>                   |                        |                |              |             |            |                                                                                                                                 |                                                                                                                                                                                                           |
| <i>Amorpha ouachitensis</i>              | Ouachita indigo-bush   | -              |              | G3Q         | S3         | glades, open woodlands, rocky stream terraces, gravel/cobble bars having reliable soil moisture                                 | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.159298/Amorpha_ouachitensis">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.159298/Amorpha_ouachitensis</a>                     |
| ★ <i>Asclepias obovata</i>               | savannah milkweed      | -              |              | G5?         | S2         | prairie, savanna                                                                                                                | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.154255/Asclepias_obovata">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.154255/Asclepias_obovata</a>                           |
| ★ <i>Bergia texana</i>                   | Texas bergia           | -              |              | G5          | S2         | wet, moist soils along edges of rivers and pools                                                                                | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.160421/Bergia_texana">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.160421/Bergia_texana</a>                                   |
| ★ <i>Callirhoe alcaeoides</i>            | plains poppy-mallow    | -              |              | G5?         | S1?        | prairie, glade, woodland                                                                                                        | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.160828/Callirhoe_alcaeoides">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.160828/Callirhoe_alcaeoides</a>                     |
| <i>Carex decomposita</i>                 | cypress-knee sedge     | -              |              | G3G4        | S2         | swamps, marshes                                                                                                                 | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.154855/Carex_decomposita">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.154855/Carex_decomposita</a>                           |
| ★ <i>Carex opaca</i>                     | opaque prairie sedge   | -              |              | G4          | S2S3       | wet prairies                                                                                                                    | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.161690/Carex_bicknellii_var_opaca">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.161690/Carex_bicknellii_var_opaca</a>         |
| <i>Cirsium nuttallii</i>                 | Nuttall's thistle      | -              |              | G5          | S2?        | loamy sand in savanna habitat, also in sunny, open, and disturbed habitats such as roadside ditches, pastures and fallow fields | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.148705/Cirsium_nuttallii">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.148705/Cirsium_nuttallii</a>                           |
| <i>Dalea lanata</i> var. <i>lanata</i>   | woolly prairie-clover  | -              |              | G5TN R      | S2S3       | sand bars, sandy bottoms, sandy grasslands                                                                                      | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.143665/Dalea_lanata_var_lanata">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.143665/Dalea_lanata_var_lanata</a>               |
| <i>Dichanthelium arenicoloides</i>       | rosette grass          | -              |              | GNR         | SNR        | woodlands, flatwoods                                                                                                            |                                                                                                                                                                                                           |
| ★ <i>Dichanthelium chrysopsidifolium</i> | rosette grass          | -              |              | GNR         | SNR        | sandy uplands, drainages with seepage wetlands, and seasonally wet flats                                                        |                                                                                                                                                                                                           |
| <i>Dichanthelium consanguineum</i>       | blood rosette grass    | -              |              | G5          | SNR        | open seep                                                                                                                       | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.150769/Dichanthelium_consanguineum">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.150769/Dichanthelium_consanguineum</a>       |

| Scientific Name                                       | Common Name               | Federal Status | State Status | Global Rank | State Rank | Habitat                                                                                | NatureServe Link                                                                                                                                                                                                          |
|-------------------------------------------------------|---------------------------|----------------|--------------|-------------|------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ★ <i>Draba aprica</i>                                 | open-ground whitlow-grass | -              |              | G3          | S3         | glades, cliffs, and thin-soiled open woodlands                                         | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.132167/Draba_aprica">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.132167/Draba_aprica</a>                                                     |
| <i>Erysimum capitatum</i> var. <i>capitatum</i>       | western wallflower        | -              |              | G5TN R      | S2         | cliffs, glades and rocky open ground. Has been found in mature forest along blufflines | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.961265/Erysimum_capitatum_var_capitatum">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.961265/Erysimum_capitatum_var_capitatum</a>             |
| <i>Eustoma exaltatum</i>                              | catchfly prairie-gentian  | -              |              | G5          | S2         | riverbanks and possibly prairies                                                       | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.807364/Eustoma_exaltatum">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.807364/Eustoma_exaltatum</a>                                           |
| <i>Gymnopogon brevifolius</i>                         | short-leaf skeleton grass | -              |              | G5          | S2         | prairies, old field, savannas                                                          | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.141694/Gymnopogon_brevifolius">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.141694/Gymnopogon_brevifolius</a>                                 |
| <i>Heliotropium convolvulaceum</i>                    | phlox heliotrope          | -              |              | G5          | S2         | sandbars                                                                               | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.140711/Heliotropium_convolvulaceum">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.140711/Heliotropium_convolvulaceum</a>                       |
| <i>Hexalectris spicata</i> var. <i>spicata</i>        | crested-coralroot         | -              |              | G5T4 T5     | S2         | glades, open woodlands                                                                 | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.161417/Hexalectris_spicata_var_spicata">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.161417/Hexalectris_spicata_var_spicata</a>               |
| ★ <i>Lathyrus pusillus</i>                            | low vetchling             | -              |              | G5?         | S2         | prairies, glades, woodlands                                                            | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.149984/Lathyrus_pusillus">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.149984/Lathyrus_pusillus</a>                                           |
| ★ <i>Nemastylis nuttallii</i>                         | Nuttall's pleat-leaf      | -              |              | G3          | S3         | prairies, glades                                                                       | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.134466/Nemastylis_nuttallii">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.134466/Nemastylis_nuttallii</a>                                     |
| <i>Neviusia alabamensis</i>                           | Alabama snow-wreath       | -              |              | G3          | S2         | forested cliffs, talus slopes, streambanks                                             | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.128124/Neviusia_alabamensis">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.128124/Neviusia_alabamensis</a>                                     |
| <i>Perideridia americana</i>                          | eastern yampah            | -              |              | G4          | S2         | glades, open woodlands, prairies                                                       | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.131659/Perideridia_americana">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.131659/Perideridia_americana</a>                                   |
| <i>Platanthera peramoena</i>                          | purple fringeless orchid  | -              |              | G5          | S2         | bottomland hardwood forests, swamps                                                    | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.156892/Platanthera_peramoena">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.156892/Platanthera_peramoena</a>                                   |
| ★ <i>Polygala incarnata</i>                           | pink milkwort             | -              |              | G5          | S1S2       | prairies, savannas                                                                     | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.129073/Polygala_incarnata">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.129073/Polygala_incarnata</a>                                         |
| <i>Prenanthes aspera</i>                              | prairie rattlesnake-root  | -              |              | G4?         | S2S3       | glades, prairies, savannas, open woodlands                                             | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.161383/Prenanthes_aspera">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.161383/Prenanthes_aspera</a>                                           |
| <i>Ranunculus flabellaris</i>                         | yellow water crowfoot     | -              |              | G5          | S3         | marshes, swamps                                                                        | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.157274/Ranunculus_flabellaris">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.157274/Ranunculus_flabellaris</a>                                 |
| <i>Rhynchospora globularis</i> var. <i>globularis</i> | globe beaksedge           | -              |              | G5?T 5?     | S2         | wet prairies, savannas                                                                 | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.148171/Rhynchospora_globularis_var_globularis">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.148171/Rhynchospora_globularis_var_globularis</a> |
| ★ <i>Rudbeckia maxima</i>                             | great coneflower          | -              |              | G4?         | S3         | moist open areas in sandy soils                                                        | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.147110/Rudbeckia_maxima">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.147110/Rudbeckia_maxima</a>                                             |

| Scientific Name                                          | Common Name              | Federal Status | State Status | Global Rank | State Rank | Habitat                                       | NatureServe Link                                                                                                                                                                                                            |
|----------------------------------------------------------|--------------------------|----------------|--------------|-------------|------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ★ <i>Spiranthes odorata</i>                              | fragrant ladies'-tresses | -              |              | G5          | S1         | marshes, swamps, bottomland forests           | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.140657/Spiranthes_odorata">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.140657/Spiranthes_odorata</a>                                           |
| ★ <i>Streptanthus maculatus</i> ssp. <i>obtusifolius</i> | Arkansas twistflower     | -              |              | G3T3 Q      | S3         | rocky open woodlands, glades, talus           | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.131248/Streptanthus_maculatus_ssp_obtusifolius">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.131248/Streptanthus_maculatus_ssp_obtusifolius</a> |
| ★ <i>Trifolium carolinianum</i>                          | Carolina clover          | -              |              | G5          | S2         | woodlands, glades                             | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.134883/Trifolium_carolinianum">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.134883/Trifolium_carolinianum</a>                                   |
| ★ <i>Valerianella nuttallii</i>                          | Nuttall's cornsalad      | -              |              | G3          | S2         | shale glades and woodlands, rocky streambanks | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.149424/Valerianella_nuttallii">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.149424/Valerianella_nuttallii</a>                                   |
| <i>Valerianella ozarkana</i>                             | Ozark cornsalad          | -              |              | G3          | S3         | glades, open woodlands                        | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.148686/Valerianella_ozarkana">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.148686/Valerianella_ozarkana</a>                                     |
| ★ <i>Vernonia lettermannii</i>                           | Letterman's ironweed     | -              |              | G3          | S3         | rocky outcrops, floodplains, and river scours | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.132756/Vernonia_lettermannii">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.132756/Vernonia_lettermannii</a>                                     |
| ★ <i>Vicia ludoviciana</i> ssp. <i>ludoviciana</i>       | Louisiana vetch          | -              |              | G5TN R      | SH         | streambanks, grasslands, riparian woodlands   | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.133487/Vicia_ludoviciana_ssp_ludoviciana">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.133487/Vicia_ludoviciana_ssp_ludoviciana</a>             |

### Special Elements-Natural Communities

|                                                |   |  |     |    |                                                                                                                                                                                                                              |                                                                                                                                                                                                                             |
|------------------------------------------------|---|--|-----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>South-Central Interior Large Floodplain</i> | - |  | GNR | S3 | This system inhabits broad floodplains along large creeks and rivers that are usually inundated for at least part of each year. Flooding dynamics are an important factor in the development and maintenance of this system. | <a href="https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.722955/South-Central_Interior_Large_Floodplain">https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.722955/South-Central_Interior_Large_Floodplain</a> |
|------------------------------------------------|---|--|-----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Special Elements-Other

|                                             |   |  |     |     |                |
|---------------------------------------------|---|--|-----|-----|----------------|
| ★ <i>Colonial nesting site, water birds</i> | - |  | GNR | SNR | riparian areas |
|---------------------------------------------|---|--|-----|-----|----------------|

★ - These elements of special concern have been recorded within a one-mile radius of the study area.

## LEGEND

### STATUS CODES

#### FEDERAL STATUS CODES

|              |   |                                                                                                                                                                                                     |
|--------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C            | = | Candidate species. The U.S. Fish and Wildlife Service has enough scientific information to warrant proposing this species for listing as endangered or threatened under the Endangered Species Act. |
| LE           | = | Listed Endangered; the U.S. Fish and Wildlife Service has listed this species as endangered under the Endangered Species Act.                                                                       |
| LT           | = | Listed Threatened; the U.S. Fish and Wildlife Service has listed this species as threatened under the Endangered Species Act.                                                                       |
| -PD          | = | Proposed for Delisting; the U.S. Fish and Wildlife Service has proposed that this species be removed from the list of Endangered or Threatened Species.                                             |
| PE           | = | Proposed Endangered; the U.S. Fish and Wildlife Service has proposed this species for listing as endangered.                                                                                        |
| PT           | = | Proposed Threatened; the U.S. Fish and Wildlife Service has proposed this species for listing as threatened.                                                                                        |
| T/SA<br>E/SA | = | Threatened (or Endangered) because of similarity of appearance.                                                                                                                                     |

#### STATE STATUS CODES

|     |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| INV | = | Inventory Element - The Arkansas Natural Heritage Commission is currently conducting active inventory work on these elements. Available data suggests these elements are of conservation concern. These elements may include outstanding examples of Natural Communities or animal assemblages as well as plants and animals, which, according to current information, may be rare, peripheral, or of an undetermined status in the state. The ANHC is gathering detailed location information on these elements.                                                                                                                                                                                                                                                                                                                                             |
| WAT | = | Watch List Species; The Arkansas Natural Heritage Commission is not conducting active inventory work on these species, however, available information suggests they may be of conservation concern. The ANHC is gathering general information on status and trends of these elements. An “*” indicates the status of the species will be changed to “INV” if the species is verified as occurring in the state (this typically means the agency has received a verified breeding record for the species).                                                                                                                                                                                                                                                                                                                                                     |
| MON | = | Monitored Species; The Arkansas Natural Heritage Commission is currently monitoring information on these species. These species do not have conservation concerns at present. They may be new species to the state, or species on which additional information is needed. The ANHC is gathering detailed location information on these elements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| SE  | = | State Endangered; this term is applied differently for plants and animals.<br><br>Animals – These species are afforded protection under Arkansas Game and Fish Commission (AGFC) Regulation. The AGFC states that it is unlawful to import, transport, sell, purchase, hunt, harass or possess any threatened or endangered species of wildlife or parts. The AGFC lists as endangered any wildlife species or subspecies endangered or threatened with extinction, listed or proposed as a candidate for listing by the U.S. Fish and Wildlife Service or any native species or subspecies listed as endangered by the Commission.<br><br>Plants – These species have been recognized by the Arkansas Natural Heritage Commission as being in danger of being extirpated from the state. This is an administrative designation with no regulatory authority. |
| ST  | = | State Threatened; These plant species have been recognized by the Arkansas Natural Heritage Commission as being likely to become endangered in Arkansas in the foreseeable future, based on current inventory information. This is an administrative designation with no regulatory authority.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### DEFINITION OF RANKS

#### Global Ranks

|    |   |                                                                                                                                                                                                                                                        |
|----|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| G1 | = | Critically imperiled globally. At a very high risk of extinction due to extreme rarity, very steep declines, very severe threats or other factors.                                                                                                     |
| G2 | = | Imperiled globally. At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats or other factors.                                                                                |
| G3 | = | Vulnerable globally. At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.                                             |
| G4 | = | Apparently secure globally At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors. |

|                 |   |                                                                                                                                                                                                                                          |
|-----------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>G5</b>       | = | Secure globally. At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.                                                    |
| <b>GH</b>       | = | Of historical occurrence, possibly extinct globally. Known from only historical occurrences but still some hope of rediscovery.                                                                                                          |
| <b>GU</b>       | = | Unrankable. Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.                                                                                                      |
| <b>GX</b>       | = | Presumed extinct globally. Not located despite intensive searches and virtually no likelihood of rediscovery.                                                                                                                            |
| <b>GNR</b>      | = | Unranked. The global rank not yet assessed.                                                                                                                                                                                              |
| <b>GNA</b>      | = | Not Applicable. A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities.                                                                                      |
| <b>T-RANKS=</b> |   | Intraspecific Taxon (trinomial) - The status of intraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles as those for GRANKS. |

#### State Ranks

|            |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>S1</b>  | = | Critically imperiled in the state. At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>S2</b>  | = | Imperiled in the state. At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>S3</b>  | = | Vulnerable in the state. At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>S4</b>  | = | Apparently secure in the state. At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.                                                                                                                                                                                                                                                                                                                                                     |
| <b>S5</b>  | = | Secure in the state. At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>SH</b>  | = | Of historical occurrence in the state. Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction. |
| <b>SU</b>  | = | Unrankable in the state. Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>SX</b>  | = | Presumed extirpated from the state. Species or ecosystem not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>SNR</b> | = | Unranked. The state rank not yet assessed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>SNA</b> | = | Not Applicable. A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

#### General Ranking Notes

|                |   |                                                                                                                                    |
|----------------|---|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Q</b>       | = | A "Q" in the global rank indicates the element's taxonomic classification as a species is a matter of conjecture among scientists. |
| <b>RANGES=</b> |   | Ranges are used to indicate a range of uncertainty about the status of the element.                                                |
| <b>?</b>       | = | A question mark is used to denote an inexact numeric rank.                                                                         |
| <b>B</b>       | = | Refers to the breeding population of a species in the state.                                                                       |
| <b>N</b>       | = | Refers to the non-breeding population of a species in the state.                                                                   |