



## ATTACHMENT D — FRESHWATER MUSSEL SURVEY

Freshwater Mussel Survey and Comparison of Two Black River  
Alternative Crossings for ARDOT Job 100512  
Walnut Ridge - Missouri State Line (Future I-57) in  
Clay and Randolph Counties, Arkansas

Final Report

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Freshwater Mussel Survey and Comparison of Two Black River Alternative  
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### Introduction

Several endangered mussel species presently occur or have historically occurred in the Black River, Arkansas including *Epioblasma triquetra* (Rafinesque 1820), *Lampsilis abrupta* (Say 1831), *Potamilus leptodon* (Rafinesque 1820), and *Theliderma cylindrica* (Say 1817) (Harris *et al.* 2007, 2010; Bouldin *et al.* 2013, Christian *et al.* 2021).

Additionally, substantial mussel assemblages (mussel beds) are known to occur in the Black River that are extremely important to maintaining species richness and genetic diversity throughout the system (Rust 1993).

A mussel survey was performed to determine if federally protected mussel species exist within the area of potential effect for proposed four-lane highway facility alternative crossings of the Black River associated with Arkansas Department of Transportation Project 100512, Walnut Ridge - Missouri State Line (Future I-57). Two alternative river crossings, named Alternative 2 and Alternative 3, are proposed at sites on the Black River as illustrated in Figure 1. Alternative 2 is located approximately 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas. Alternative 3 is located approximately 9.55 river miles (15.4 river kilometers) downstream of and 4.57 air miles (7.35 air kilometers) SW of the U. S. Hwy 62 crossing of Black River east of Corning.

### Methods

A mussel survey of the proposed 400-foot (122-meter) wide Alternative 2 corridor was conducted during 16-17 October and 6 November 2021 and during 30-31 October 2021 for the Alternative 3 corridor. The surveyors utilized dive techniques with surface supplied air provided by a Brownies hookah rig apparatus supported from a boat mounted dive platform consisting of a 16-ft (4.9-m) Weldbilt jon-boat powered by a 30-horsepower Evinrude outboard motor. The diver was equipped with an AGA full face mask allowing diver to surface communication via Mach II-BUDS (diver) and an Ocean Tech STX 101 surface system. Communication was essential for the field assistant to direct the diver on transects in areas without current velocity and for the diver to provide

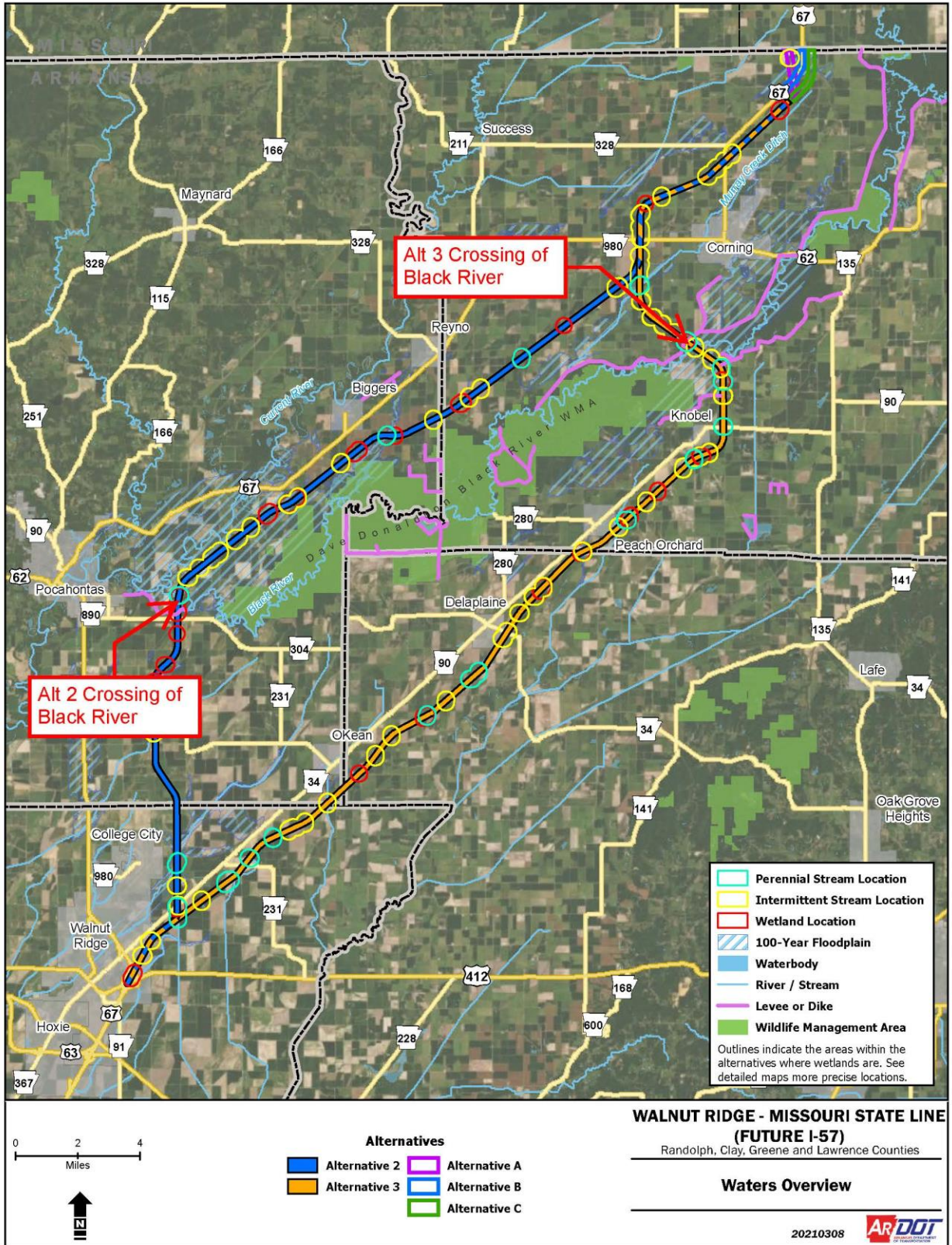


Figure 1. Mussel survey project locations.

mussel density, substrate, and river conditions data to the assistant. Water depths were determined with a Humminbird 560 Fishfinder boat mounted depth finder or a Sokkia fiberglass 25-ft (7.6-m) depth rod. Dive locations within the survey area were recorded utilizing a Garmin GPSMAP 64st global positioning satellite receiver. The diver provided substrate conditions for each search cell by estimating percent surface substrate composition using the modified Wentworth Scale.

The effort required to find protected species is often considerable, and they are rarely collected in quantitative samples (Kovalak *et al.* 1986). Overall, the qualitative timed-search approach with limited excavation may be the best for detecting mussel presence or demonstrating a reasonable probability of mussel absence (EPA 2013); therefore, our preferred survey method was qualitative timed searches.

Searches were conducted along the entire channel width of the Black River at both alternative corridor sites. The proposed alternative corridor crossings are each 400-ft (122-m) in width. Transects perpendicular to river flow were established at approximately 50-ft (15-m) intervals from the downstream to the upstream termini for each alternative. A tape measure was walked along the shoreline where feasible, and pin flags were placed at the upstream and downstream boundary for each search cell. Where vertical riverbanks prevented shoreline access, a Nikon PROSTAFF 7i laser rangefinder was used to measure distances for search cell limits. Cell boundaries in mid-river were marked by anchored buoys with their distance perpendicular from shore measured using the Nikon PROSTAFF 7i laser rangefinder from the anchored boat. GPS coordinates were recorded from the right descending bank (RDB) and left descending bank (LDB) pin flags for the transects established at 50-ft (15.2-m) intervals and at the mid-river buoys of the transects at 100-ft (30.5-m) intervals. The perpendicular transects and centerline points were used to establish 16 rectangular search cells at each alternative crossing. The search cells were abutted end to end so that the entire proposed corridor width of the Black River at each alternative crossing was surveyed.

Survey methodology consisted of tactile searches using a zigzag pattern (near shore to mid-river) from upstream to downstream within each search cell. Search cells were each approximately 50-feet (15 m) long (upstream to downstream) and ranged in width (shoreline to midchannel) from approximately 66 to 82 ft (20 to 25m) at Alternative 2 and 92 to 112 ft (28 to 34 m) at Alternative 3. Search time was recorded for each of the 16 search cells at each proposed crossing. Cell searches began at the downstream limit of the survey areas (cells 1 and 2) and proceeded upstream until completion of all cells. For

Alternative 2 and Alternative 3, all cells along the RDB (odd numbered cells) were searched on the first day at the site, and all cells along the LDB (even numbered sites) were searched on the second day. Alternative 3 required additional search time on a third day to complete the survey effort.

Mussels were identified to species, enumerated, and any federally listed species were measured for length, width, and height to the nearest 0.1 mm with digital calipers and photographed. Nomenclature generally follows Williams *et al.* (2017) except where modified by recent research as documented by the FMCS Common and Scientific Names subcommittee (FMCS 2022). Catch per unit effort (CPUE) values were calculated as the number of live mussels obtained per 10 minutes of search effort. Cumulative species richness was plotted against cumulative search time to determine where the plot reached horizontal stability signifying the majority of species were recovered. Ecological Specialists, Inc. (2006) were able to reach species richness asymptotic values in 170 minutes and 270 minutes search time during surveys of two low density mussel concentrations in the White River, DeValls Bluff, AR. Those survey conditions were similar to conditions for the Black River survey sites. Metcalfe-Smith *et al.* (2000) found that 4.5-hrs search time was generally sufficient to recover ~93% of species in their survey rivers. For our survey, three consecutive 20-minute search intervals with no additional species added (after at least 210 minutes search time) was considered the termination point for the survey.

## Results

Tables 1 and 2 summarize the results of 16 dive searches conducted during the survey at Alternative 2 and Alternative 3, respectively. Individual data sheets for each dive search at Alternative 2 and Alternative 3 are found in Appendix A and Appendix B, respectively. The locations of Alternative 2 and Alternative 3 search cells are illustrated in Figures 2 and 3, respectively.

A total of 609 live mussels representing 23 taxa were encountered during 334 minutes (~5.6 hours) of search time for Alternative 2. Alternative 2 catch per 10-minute effort ranged from 3.6 to 38.2 with a mean of 18.2. The cumulative species versus cumulative time searched is illustrated in Figure 4a, and horizontal stability (at 23 species) was reached after approximately 180 minutes search time. Mussel densities were greatest along the right descending bank in search cells 3, 5, 7, 9, 11, 13. Maximum density in the survey area was estimated at approximately 10 live mussels per square meter in search

Search Cell	1	2	3	4	5	6	7	8	9	10	11
Species											
<i>Amblema plicata</i>	0	1	7	0	12	0	7	0	2	0	7
<i>Cyclonaias pustulosa</i>	10	6	28	4	43	4	45	2	66	3	50
<b><i>Cyprogenia aberti</i></b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<i>Ellipsaria lineolata</i>	0	0	0	0	0	0	2	0	0	0	2
<i>Fusconaia flava</i>	2	0	5	0	8	0	7	0	0	0	4
<i>Lampsilis cardium</i>	0	0	0	9	2	5	2	3	4	3	1
<i>Lampsilis teres</i>	0	2	0	6	2	7	0	6	0	9	0
<i>Lasmigona complanata</i>	0	1	1	0	0	0	0	0	0	0	2
<i>Ligumia recta</i>	0	0	0	0	0	0	0	0	1	0	0
<i>Megalonaias nervosa</i>	0	0	1	0	4	0	0	0	0	0	0
<i>Obliquaria reflexa</i>	1	0	2	0	1	2	4	0	2	1	8
<i>Pleurobema sintoxia</i>	0	0	0	0	0	0	1	0	0	0	1
<i>Potamilus fragilis</i>	0	1	1	0	2	0	1	1	1	0	1
<i>Potamilus ohioensis</i>	0	2	0	0	0	0	0	0	0	0	0
<i>Potamilus purpuratus</i>	2	2	8	0	6	1	1	5	0	1	0
<i>Quadrula quadrula</i>	0	0	0	0	0	0	1	0	0	0	0
<i>Reginaia ebenus</i>	0	0	0	0	0	1	5	0	6	0	2
<i>Strophitus undulatus</i>	0	0	0	0	0	0	1	0	0	0	0
<b><i>Theliderma cylindrica</i></b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<i>Theliderma metanevra</i>	0	0	0	0	0	0	1	0	0	0	0
<i>Theliderma nobilis</i>	0	0	0	0	0	0	0	0	1	0	2
<i>Tritogonia verrucosa</i>	0	0	3	0	0	0	1	0	0	0	2
<i>Truncilla truncata</i>	1	0	0	0	1	1	2	0	1	0	2
Total Live	16	16	56	20	81	21	82	17	84	17	84
Search Time (minutes)	14	17	23	20	22	22	21	22	22	22	24
Catch Per Unit Effort (10 min)	11.4	9.4	24.3	10.0	36.8	9.5	39.0	7.7	38.2	7.7	35.0

Table 1. Alternative 2 search cell results.

Search Cell	12	13	14	15	16	Total Live	% Total Live	Freq Occur	% Freq Occur
Species									
<i>Amblema plicata</i>	0	5	0	0	0	41	6.7	7	43.8
<i>Cyclonaias pustulosa</i>	7	17	13	2	2	302	49.6	16	100.0
<b><i>Cyprogenia aberti</i></b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0.2</b>	<b>1</b>	<b>6.3</b>
<i>Ellipsaria lineolata</i>	0	0	0	0	0	4	0.7	2	12.5
<i>Fusconaia flava</i>	0	1	0	0	0	27	4.4	6	37.5
<i>Lampsilis cardium</i>	6	0	4	0	2	41	6.7	11	68.8
<i>Lampsilis teres</i>	7	0	5	0	0	44	7.2	8	50.0
<i>Lasmigona complanata</i>	0	1	0	0	0	5	0.8	4	25.0
<i>Ligumia recta</i>	0	0	0	0	0	1	0.2	1	6.3
<i>Megalonaias nervosa</i>	0	0	0	0	0	5	0.8	2	12.5
<i>Obliquaria reflexa</i>	1	8	4	0	0	34	5.6	11	68.8
<i>Pleurobema sintoxia</i>	0	0	0	0	0	2	0.3	2	12.5
<i>Potamilus fragilis</i>	0	1	0	0	0	9	1.5	8	50.0
<i>Potamilus ohioensis</i>	0	0	0	1	0	3	0.5	2	12.5
<i>Potamilus purpuratus</i>	3	12	2	2	5	50	8.2	13	81.3
<i>Quadrula quadrula</i>	0	0	0	0	0	1	0.2	1	6.3
<i>Reginaia ebenus</i>	0	0	0	0	0	14	2.3	4	25.0
<i>Strophitus undulatus</i>	0	0	0	0	0	1	0.2	1	6.3
<b><i>Theliderma cylindrica</i></b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0.3</b>	<b>2</b>	<b>12.5</b>
<i>Theliderma metanevra</i>	0	0	0	0	0	1	0.2	1	6.3
<i>Theliderma nobilis</i>	0	1	0	0	0	4	0.7	3	18.8
<i>Tritogonia verrucosa</i>	0	3	0	0	0	9	1.5	4	25.0
<i>Truncilla truncata</i>	0	0	0	0	0	8	1.3	6	37.5
Total	24	49	28	5	9	609	100.1		
Search Time (minutes)	23	23	30	14	15	334	100.0		
Catch Per Unit Effort (10 min)	10.4	21.3	9.3	3.6	6.0	18.2	100.0		

Table 1 (continued). Alternative 2 search cell results. Freq Occur = Frequency of Occurrence, % Freq Occur = % Frequency of Occurrence.



Search Cell	1	2	3	4	5	6	7	8	9	10	11
Species											
<i>Amblema plicata</i>	4	5	11	3	0	10	20	5	19	2	64
<i>Arcidens confragosus</i>	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclonaias nodulata</i>	0	0	0	0	0	0	1	0	3	1	0
<i>Cyclonaias pustulosa</i>	3	1	2	6	3	3	5	3	4	2	5
<i>Fusconaia flava</i>	0	0	0	1	0	1	1	0	0	0	0
<i>Lampsilis teres</i>	2	0	2	0	0	1	2	0	0	0	0
<i>Lasmigona complanata</i>	0	0	1	0	0	1	2	0	0	0	0
<i>Megalonaias nervosa</i>	0	0	0	0	0	0	0	0	1	0	0
<i>Obliquaria reflexa</i>	2	2	5	0	6	0	3	0	6	1	15
<i>Plectomerus dombeyanus</i>	0	0	0	0	0	0	1	0	0	0	0
<i>Potamilus fragilis</i>	0	0	0	0	0	0	1	0	1	0	3
<i>Potamilus ohioensis</i>	0	0	0	1	0	0	1	1	1	2	0
<i>Potamilus purpuratus</i>	8	8	17	12	2	11	6	7	11	0	4
<i>Pyganodon grandis</i>	0	0	0	0	0	0	0	0	0	0	1
<i>Quadrula quadrula</i>	0	0	0	0	0	0	0	0	0	0	1
<i>Truncilla truncata</i>	0	0	0	0	0	0	0	0	1	0	0
Total	19	16	38	23	11	27	43	16	47	8	93
Search Time (minutes)	17	18	18	19	17	20	21	17	18	17	17
Catch Per Unit Effort (10 min)	11.2	8.9	21.1	12.1	6.5	13.5	20.5	9.4	26.1	4.7	54.7

Search Cell	12	13	14	15	16	Total Live	% Total Live	Freq Occur	% Freq Occur
Species									
<i>Amblema plicata</i>	11	73	4	40	3	274	48.7	15	93.8
<i>Arcidens confragosus</i>	0	0	0	1	0	1	0.2	1	6.3
<i>Cyclonaias nodulata</i>	0	0	0	0	3	8	1.4	5	31.3
<i>Cyclonaias pustulosa</i>	7	7	2	4	4	61	10.8	16	100.0
<i>Fusconaia flava</i>	0	2	0	2	1	8	1.4	6	37.5
<i>Lampsilis teres</i>	0	0	0	1	0	8	1.4	5	31.3
<i>Lasmigona complanata</i>	0	0	0	0	0	4	0.7	3	18.8
<i>Megalonaias nervosa</i>	1	0	0	0	0	2	0.4	2	12.5
<i>Obliquaria reflexa</i>	0	12	1	10	1	64	11.4	12	75.0
<i>Plectomerus dombeyanus</i>	0	0	0	0	0	1	0.2	1	6.3
<i>Potamilus fragilis</i>	0	0	2	0	1	8	1.4	5	31.3
<i>Potamilus ohioensis</i>	2	2	0	5	0	15	2.7	8	50.0
<i>Potamilus purpuratus</i>	0	6	1	11	0	104	18.5	13	81.3
<i>Pyganodon grandis</i>	0	0	0	0	0	1	0.2	1	6.3
<i>Quadrula quadrula</i>	0	0	0	0	0	1	0.2	1	6.3
<i>Truncilla truncata</i>	0	0	0	1	1	3	0.5	3	18.8
Total	21	102	10	75	14	563	100.1	16	100.0
Search Time (minutes)	15	17	16	17	17	281	100.0		
Catch Per Unit Effort (10 min)	14.0	60.0	6.3	44.1	8.2	20.0	100.0		

Table 2. Alternative 3 search cell results. Freq Occur = Frequency of Occurrence, % Freq Occur = % Frequency of Occurrence.

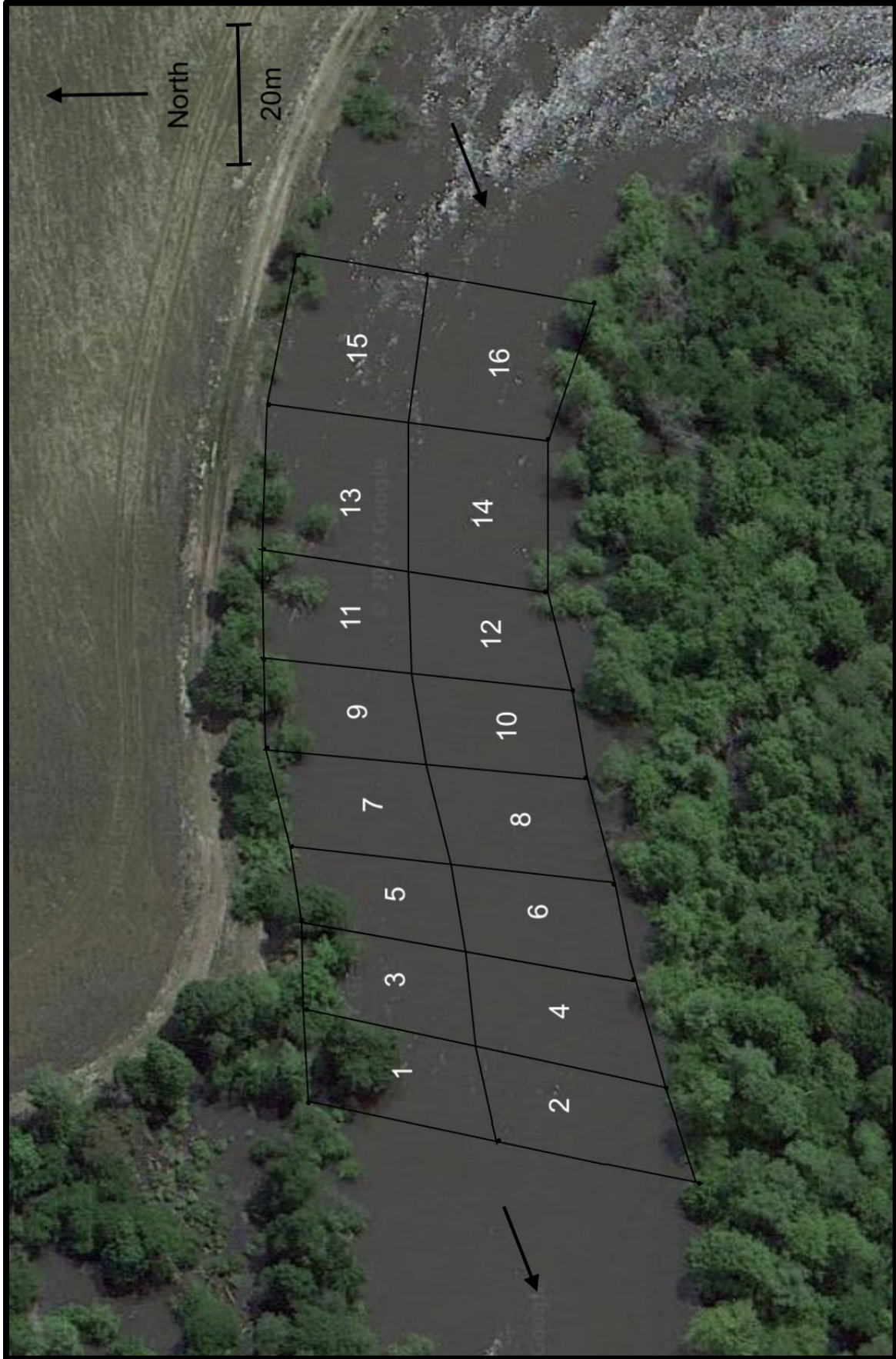


Figure 2. Alternative 2 search cell locations.

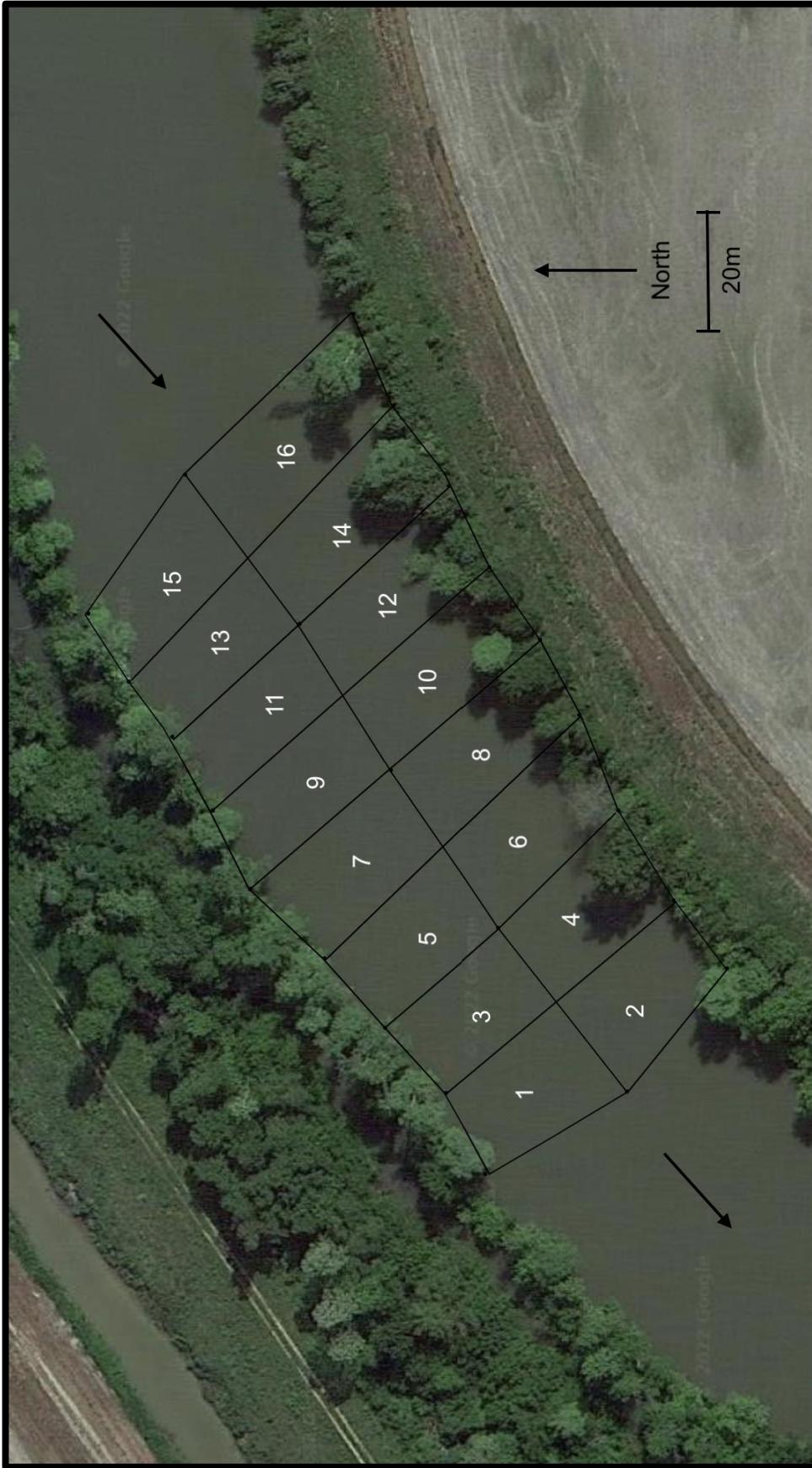


Figure 3. Alternative 3 search cell locations.

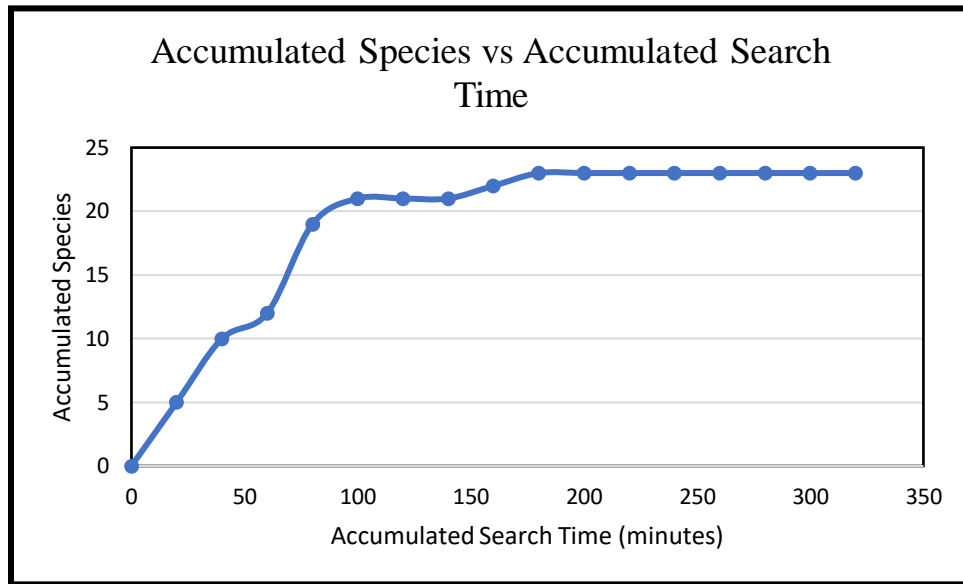


Figure 4a. Alternative 2 cumulative species versus cumulative search time.

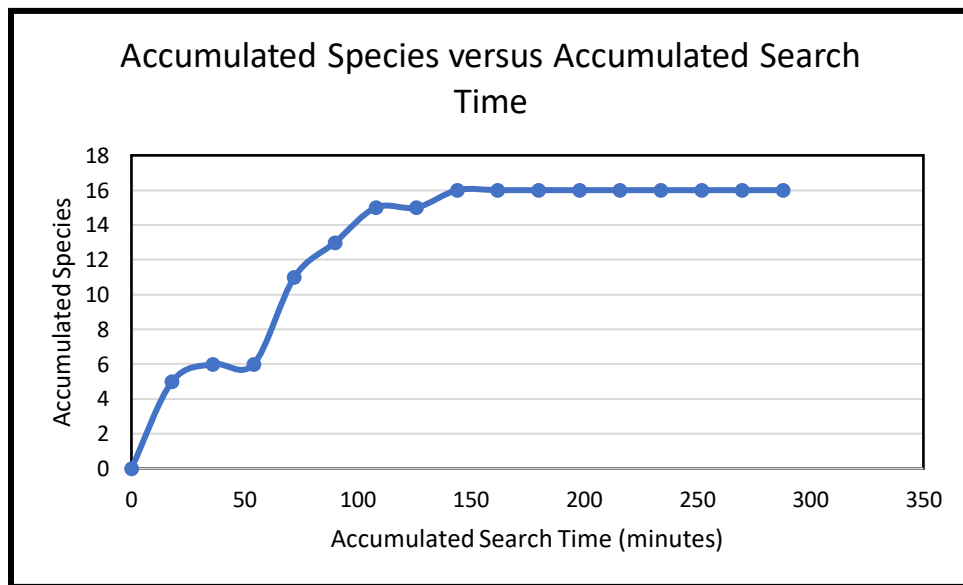


Figure 4b. Alternative 3 cumulative species versus cumulative search time.

cells 5, 7, 9, 11 along the right descending bank. The mussel assemblage at Alternative 2 was dominated by *Cyclonaias pustulosa* (302 of 609 individuals) representing 49.6% of the live mussels found. The next most abundant species was *Potamilus purpuratus* at 8.2% (50 of 609 individuals). The federally protected Rabbitsfoot (*Theliderma cylindrica*), listed as a Threatened species, was represented at Alternative 2 by two live specimens that accounted for 0.3% of the live mussels collected (Figure 5).

A total of 563 live mussels representing 16 taxa were found during 281 minutes (~4.7 hours) of dive search time at Alternative 3. Alternative 3 CPUE ranged from 4.7 to 60.0 with a mean of 20.1. Cumulative species versus cumulative time searched reached horizontal stability (16 species) after approximately 150 minutes search time (see Figure 4b). Mussel densities were greatest along the right descending bank in search cells 11, 13, 15, and maximum density was estimated at approximately 10/m<sup>2</sup> in portions of these cells. *Amblema plicata* was the dominant species at Alternative 3 representing 48.7% (274 of 563 live individuals) of the mussel fauna, and *Potamilus purpuratus* composed 18.5% (104 of 563). Two additional species comprised >10% of live mussels encountered at Alternative 3, and these were *Obliquaria reflexa* (11.4%) and *Cyclonaias pustulosa* (10.8%).

### Discussion and Conclusions

Alternatives 2 and 3 occur in relatively different riverine habitats for mussels. Alternative 2 is in and immediately downstream of a bendway with the outside portion of the bendway possessing moderate to swift current velocities and more armored substrates composed of rock, gravel, sand, and scoured hard clay. The inside portion of the Alternative bendway has relatively slower current velocity and fine sediments (silt and sand) as the primary substrates. At the downstream terminus of Alternative 2, water depth is shallower and current velocity has moderated. In comparison with Alternative 3, Alternative 2 provides more physical habitat diversity potentially accounting for its greater species richness. Alternative 3 is in a straight reach of the river with a wider channel, slower current velocity and deeper water depth compared to Alternative 2. Alternative 3 provides less habitat diversity and is almost lentic in its physical characteristics.

Both Alternatives were dominated by mussel species that have widespread geographic distributions and are considered relatively stable from a conservation status perspective. Alternative 2 has 20 of 23 species (~87%) that are considered Secure (S5) or Apparently Secure (S4) in Arkansas (Harris and Posey 2015). The remaining three species at Alternative 2, *Pleurobema sintoxia*, *Theliderma cylindrica*, *T. nobilis* were all ranked



Figure 5. *Theliderma cylindrica*. Upper: Alternative 2, Search Cell 2. Lower: Alternative 2, Search Cell 4.

Vulnerable (S3) (Harris and Posey 2015) and comprised 1.3% (8 of 609) of the live mussels collected. Mussels at Alternative 3 were all Secure (S5) or Apparently Secure (S4) species; therefore, all live specimens collected were from common and widespread species.

Mussel habitat at both Alternative crossings has likely been affected by anthropogenic activities. Farming occurs up to the edge of the right descending bank at Alternative 2. There appears to be ongoing bank failure which has contributed treefall and large woody debris deposition causing substrate scouring and likely displacement of mussels in the moderate to swift flow velocity of this outside bendway. This is the likely cause of large numbers of dead shells at Alternative 2 search cells 3, 5, and 7. Similarly, Alternative 3 has farming activities adjacent to the left descending bank, and a levee is present near the bank edge. Large woody debris is prevalent in the channel along the left descending bank for the length of Alternative 3 and likely contributes to sediment deposition in the extremely slow flow velocity at this site.

Design mitigation appears feasible at both proposed Alternative crossings. Spanning the right descending half of the Alternative 2 channel should minimize adverse impacts to the mussel fauna at this crossing. Spanning the right descending third to half of the Alternative 3 channel should minimize adverse effects to mussels at this crossing. Timely implementation and maintenance of effective erosion control measures during construction at either alternative will be particularly important to minimizing adverse effects to Black River mussel resources because of construction of the proposed project.

#### Acknowledgements

Anna M. Pieri was field assistant for the project and is responsible for quality control and bringing the survey to completion. Ron Redman of Mitigation Surveying Services, LLC and Ryan Mountain of Garver provided administrative and logistical support.

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## Appendix A

### Field Data Sheets (Ordered by Search Cell Number)

#### Alternative 2 – Black River

Site Number: Search Cell 1

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 6 November 2021	Drainage: White River	
County: Randolph	Quad: NA	
Substrate: clay, silt, large woody debris, sand	Width: 24.5 - 26 m	
Latitude: 36.248542	Longitude: -90.903592	
Collectors: J. L. Harris, A. M. Pieri		
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.		
	Live	Dead
<i>Actinonaias ligamentina</i>		<i>Margaritifera hembeli</i>
<i>Alasmidonta marginata</i>		<i>Megalonaias nervosa</i>
<i>Alasmidonta viridis</i>		<i>Obliquaria reflexa</i>
<i>Amblema plicata</i>	10	<i>Obovaria arkansasensis</i>
<i>Arcidens confragosus</i>		<i>Obovaria</i> sp. cf <i>arkansasensis</i>
<i>Arcidens wheeleri</i>		<i>Obovaria olivaria</i>
<i>Cambarunio hesperus</i>		<i>Plectomerus dombeyanus</i>
<i>Cumberlandia monodonta</i>		<i>Pleurobema cordatum</i>
<i>Cyclonaias nodulata</i>		<i>Pleurobema riddellii</i>
<i>Cyclonaias pustulosa</i>		<i>Pleurobema</i> sp. cf <i>riddellii</i>
<i>Cyclonaias tuberculata</i>		<i>Pleurobema rubrum</i>
<i>Cyprogenia aberti</i>		<i>Pleurobema sintoxia</i>
<i>Ellipsaria lineolata</i>		<i>Potamilus alatus</i>
<i>Epioblasma curtisii</i>		<i>Potamilus capax</i>
<i>Epioblasma triquetra</i>		<i>Potamilus fragilis</i>
<i>Epioblasma turgidula</i>		<i>Potamilus leptodon</i>
<i>Euryntia dilatata</i>		<i>Potamilus ohioensis</i>
<i>Fusconaia flava</i>	2	<i>Potamilus purpuratus</i>
<i>Fusconaia ozarkensis</i>		<i>Ptychobranthus occidentalis</i>
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )		<i>Pyganodon grandis</i>
<i>Glebula rotundata</i>		<i>Quadrula fragosa</i>
<i>Lampsilis abrupta</i>		<i>Quadrula quadrula</i>
<i>Lampsilis cardium</i>		<i>Reginaia ebenus</i>
<i>Lampsilis hydiana</i>		<i>Sagittunio subrostratus</i>
<i>Lampsilis ornata</i>		<i>Simpsonaias ambigua</i>
<i>Lampsilis powellii</i>		<i>Strophitus undulatus</i>
<i>Lampsilis rafinesqueana</i>		<i>Theliderma cylindrica</i>
<i>Lampsilis reeveiana</i>		<i>Theliderma metanevra</i>
<i>Lampsilis sietmani</i>		<i>Toxolasma lividum</i>
<i>Lampsilis siliquoidea</i>		<i>Toxolasma parvum</i>
<i>Lampsilis</i> sp. A cf <i>hydiana</i>		<i>Toxolasma texasiense</i>
<i>Lampsilis</i> sp. B cf <i>hydiana</i>		<i>Tritogonia nobilis</i>
<i>Lampsilis streckeri</i>		<i>Tritogonia verrucosa</i>
<i>Lampsilis teres</i>		<i>Truncilla donaciformis</i>
<i>Lasmigona costata</i>		<i>Truncilla truncata</i>
<i>Lasmigona complanata</i>		<i>Unio merus declivis</i>
<i>Leaunio lienosus</i>		<i>Unio merus tetralasmus</i>
<i>Ligumia recta</i>		<i>Utterbackia imbecillis</i>
		<i>Utterbackiana suborbiculata</i>
<i>Corbicula fluminea</i> (invasive)		<i>Venustaconcha ellipsiformis</i>
<i>Dreissena polymorpha</i> (invasive)		<i>Venustaconcha pleasii</i>
Start Search: 1354	Stop Search: 1408	

Notes: Right descending bank. Lots of substrate scour from fallen tree, large woody debris on descending slope. Most live mussels found at toe of slope. Water depth 2.4 - 3.0 m. Water velocity slow to moderate. Pic 6160 upstream, pic 6161 downstream.

Site Number: Search Cell 2

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 6 November 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: silt, sand			Width: 24.5 - 26 m		
Latitude: 36.248290			Longitude: -90.903654		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>		
<i>Amblema plicata</i>	1		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	6		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	1	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>	2	
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	2	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>	1	
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	2		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>	1		<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1237			Stop Search: 1254		

Notes: Left descending bank. Sand descending slope mixed with some woody and organics. Mostly sand from thalweg out - thalweg at toe of slope - deepest part of cell. Water depth 2.1 m. Water velocity moderate. Pics 6154 downstream, pic 6155 across channel to RDB. *Theliderma cylindrica*: L 103.6, W 37.1, H 46.5. Pics 6156-6159.

Site Number: Search Cell 3

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 16 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: clay, large woody debris, sand			Width: 24.5 - 25 m		
Latitude: 36.24860			Longitude: -90.90336		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>	1	
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	2	
<i>Amblema plicata</i>	7		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	28		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	1	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>		
<i>Fusconaia flava</i>	5		<i>Potamilus purpuratus</i>	8	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranthus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>	3	
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>	1		<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1130			Stop Search: 1152		

Notes: Right descending bank. Clay substrate on descending bank out to thalweg with large chunks of hard clay (boulder size), large woody debris with sand fill in spaces. Scour holes present with lots of dead shell material. Water depth 2.4 - 3.0 m. Water velocity moderate. Max density ca. 10/m<sup>2</sup>.

Site Number: Search Cell 4

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 17 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: silt, sand			Width: 24.5 - 25 m		
Latitude: 36.24807			Longitude: -90.90357		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>		
<i>Amblema plicata</i>			<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	4		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>		
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>	9		<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>	1	
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	6		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1044			Stop Search: 1104		

Notes: Left descending bank. Thalweg at toe of slope, trough filled with silt and mussels. More sand towards mid-channel. Mussel density <math><1/m^2</math>, scattered. Water depth 1.5 m. Water velocity slow to moderate. Pics 6060, 6064 upstream, pics 6061-6062 downstream. *Theliderma cylindrica*: L 107.7, W 38.5, H 46.4. Pics 6065 - 6066.

Site Number: Search Cell 5

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 16 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: clay, large woody debris, silt, sand			Width: 25 - 26 m		
Latitude: 36.24860			Longitude: -90.90336		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>	4	
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	1	
<i>Amblema plicata</i>	12		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	43		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	2	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>		
<i>Fusconaia flava</i>	8		<i>Potamilus purpuratus</i>	6	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranhus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>	2		<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	2		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>	1	
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1208			Stop Search: 1230		

Notes: Right descending bank. Clay substrate on descending slope out to thalweg - more large woody debris against bank wall than Cell 3. Toe of slope with hard gravel / clay substrate with sand fill. Water depth 1.8 - 2.4 m. Water velocity moderate. Max density ca. 10/m<sup>2</sup>.

Site Number: Search Cell 6

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 17 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: silt, sand/gravel			Width: 25 - 26 m		
Latitude: 36.24814			Longitude: -90.90323		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	2	
<i>Amblema plicata</i>			<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	4		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Eurynia dilatata</i>			<i>Potamilus ohioensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	1	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>	5		<i>Reginaia ebenus</i>	1	
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	7		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>	1	
<i>Lasmigona complanata</i>			<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1126			Stop Search: 1148		

Notes: Left descending bank. Thalweg at toe of slope, trough filled with silt. More coarse sand with loose gravel in mid-channel thalweg. Mussel density <math><1/m^2</math>, scattered. Water depth 1.5 m. Water velocity slow to moderate.

Site Number: Search Cell 7

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 16 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: clay, large woody debris, sand			Width: 25 - 26 m		
Latitude: 36.24842			Longitude: -90.90291		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	4	
<i>Amblema plicata</i>	7		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	45		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>	1		<i>Pleurobema sintoxia</i>	1	
<i>Ellipsaria lineolata</i>	2		<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	1	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Eurynia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>	7		<i>Potamilus purpuratus</i>	1	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranthus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>	1	
<i>Lampsilis cardium</i>	2		<i>Reginaia ebenus</i>	5	
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>	1	
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>	1	
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>	1	
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>	2	
<i>Lasmigona complanata</i>			<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1538			Stop Search: 1559		

Notes: Right descending bank. Lots of large woody debris against bank slope, thalweg to mid-channel with hard gravel / clay substrate. Lots of dead shell material. Water depth 2.4 - 3.7 m. Water velocity moderate. Max density ca. 10/m<sup>2</sup>, more commonly 3-5/m<sup>2</sup> in cell.



Site Number: Search Cell 8

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 17 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: silt, sand, large woody debris			Width: 26 - 26.5 m		
Latitude: 36.24818			Longitude: -90.90306		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>		
<i>Amblema plicata</i>			<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	2		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	1	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Eurynia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	5	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranhus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>	3		<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	6		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1201			Stop Search: 1123		
Notes: Left descending bank. Thalweg at toe of slope, trough filled with silt. Large woody debris in mid-channel with dead shell and sandy substrate. Mussel density <1/m <sup>2</sup> , scattered. Water depth 1.5 m. Water velocity moderate. Pics 6067 downstream, 6068 upstream, 6069 toward right descending bank.					

Site Number: Search Cell 9

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 16 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: clay, gravel, sand, large woody debris			Width: 24 - 26.5 m		
Latitude: 36.24842			Longitude: -90.90291		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	2	
<i>Amblema plicata</i>	2		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	66		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	1	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Eurynia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>		
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>	4		<i>Reginaia ebenus</i>	6	
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>	1	
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>	1	
<i>Lasmigona complanata</i>			<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>	1		<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1440			Stop Search: 1502		

Notes: Right descending bank. Not as much large woody debris, toe of slope to mid-channel with hard packed gravel /clay/sand substrate. Water depth 2.4 - 3.7 m. Water velocity moderate. Density ca. 5-7/m<sup>2</sup> - patchy due to large woody debris and sand. Pic 6058 RDB, pic 6059 LDB.

Site Number: Search Cell 10					
Arkansas Freshwater Bivalves Field Data Sheet					
Date: 17 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: silt, sand			Width: 24 - 26.5 m		
Latitude: 36.24820			Longitude: -90.90292		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	1	
<i>Amblema plicata</i>			<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	3		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	1	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchnus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>	3		<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	9		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1322			Stop Search: 1344		
Notes: Left descending bank. Thalweg at toe of slope, not as silty on descending slope. More sand all the way to mid-channel. Mussel density <1/m <sup>2</sup> , scattered. Water depth 1.5 m. Water velocity moderate. Pics 6067 downstream, 6068 upstream, 6069 toward right descending bank.					

Site Number: Search Cell 11

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 16 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: hard clay, gravel, sand			Width: 23.5 - 24 m		
Latitude: 36.24851			Longitude: -90.90255		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	8	
<i>Amblema plicata</i>	7		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	50		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>	1	
<i>Ellipsaria lineolata</i>	2		<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	1	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>		
<i>Fusconaia flava</i>	4		<i>Potamilus purpuratus</i>		
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchnus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>	1		<i>Reginaia ebenus</i>	2	
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>	2	
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>	2	
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>	2	
<i>Lasmigona complanata</i>	2		<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1400			Stop Search: 1424		

Notes: Right descending bank. Gravel/clay mix in center of cell, 1-2 m wide strip with ca. 10/m<sup>2</sup> density. Descending bank slope with hard clay substrate, mid-channel with some sand present. Water depth 2.4 - 3.7 m. Water velocity moderate. Density ca. 5-7/m<sup>2</sup> - patchy due to large woody debris and sand. Pic 6058 RDB, pic 6059 LDB.

Site Number: Search Cell 12

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 17 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: silt, small woody debris, large woody debris			Width: 23.5 - 24 m		
Latitude: 36.24823			Longitude: -90.90276		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	1	
<i>Amblema plicata</i>			<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	7		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	3	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>	6		<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	7		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1402			Stop Search: 1425		

Notes: Left descending bank. Thalweg at toe of slope, silty substrate with mussels. Small woody debris all the way to mid-channel, large woody debris in midchannel. Mussel density <math><1/m^2</math>, scattered. Water depth 1.8 m. Water velocity moderate. Pics 6073 downstream, 6072 upstream, 6071 downstream.

Site Number: Search Cell 13

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 16 October 2021	Drainage: White River	
County: Randolph	Quad: NA	
Substrate: hard clay, large woody debris, sand	Width: 20 - 23.5 m	
Latitude: 36.24851	Longitude: -90.90255	
Collectors: J. L. Harris, A. M. Pieri		
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.		
	Live	Dead
<i>Actinonaias ligamentina</i>		<i>Margaritifera hembeli</i>
<i>Alasmidonta marginata</i>		<i>Megalonaias nervosa</i>
<i>Alasmidonta viridis</i>		<i>Obliquaria reflexa</i>
<i>Amblema plicata</i>	5	<i>Obovaria arkansasensis</i>
<i>Arcidens confragosus</i>		<i>Obovaria</i> sp. cf <i>arkansasensis</i>
<i>Arcidens wheeleri</i>		<i>Obovaria olivaria</i>
<i>Cambarunio hesperus</i>		<i>Plectomerus dombeyanus</i>
<i>Cumberlandia monodonta</i>		<i>Pleurobema cordatum</i>
<i>Cyclonaias nodulata</i>		<i>Pleurobema riddellii</i>
<i>Cyclonaias pustulosa</i>	17	<i>Pleurobema</i> sp. cf <i>riddellii</i>
<i>Cyclonaias tuberculata</i>		<i>Pleurobema rubrum</i>
<i>Cyprogenia aberti</i>		<i>Pleurobema sintoxia</i>
<i>Ellipsaria lineolata</i>		<i>Potamilus alatus</i>
<i>Epioblasma curtisii</i>		<i>Potamilus capax</i>
<i>Epioblasma triquetra</i>		<i>Potamilus fragilis</i>
<i>Epioblasma turgidula</i>		<i>Potamilus leptodon</i>
<i>Euryntia dilatata</i>		<i>Potamilus ohioensis</i>
<i>Fusconaia flava</i>	1	<i>Potamilus purpuratus</i>
<i>Fusconaia ozarkensis</i>		<i>Ptychobranchnus occidentalis</i>
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )		<i>Pyganodon grandis</i>
<i>Glebula rotundata</i>		<i>Quadrula fragosa</i>
<i>Lampsilis abrupta</i>		<i>Quadrula quadrula</i>
<i>Lampsilis cardium</i>		<i>Reginaia ebenus</i>
<i>Lampsilis hydiana</i>		<i>Sagittunio subrostratus</i>
<i>Lampsilis ornata</i>		<i>Simpsonaias ambigua</i>
<i>Lampsilis powellii</i>		<i>Strophitus undulatus</i>
<i>Lampsilis rafinesqueana</i>		<i>Theliderma cylindrica</i>
<i>Lampsilis reeveiana</i>		<i>Theliderma metanevra</i>
<i>Lampsilis sietmani</i>		<i>Toxolasma lividum</i>
<i>Lampsilis siliquoidea</i>		<i>Toxolasma parvum</i>
<i>Lampsilis</i> sp. A cf <i>hydiana</i>		<i>Toxolasma texasiense</i>
<i>Lampsilis</i> sp. B cf <i>hydiana</i>		<i>Tritogonia nobilis</i>
<i>Lampsilis streckeri</i>		<i>Tritogonia verrucosa</i>
<i>Lampsilis teres</i>		<i>Truncilla donaciformis</i>
<i>Lasmigona costata</i>		<i>Truncilla truncata</i>
<i>Lasmigona complanata</i>	1	<i>Uniomereus declivis</i>
<i>Leaunio lienosus</i>		<i>Uniomereus tetralasmus</i>
<i>Ligumia recta</i>		<i>Utterbackia imbecillis</i>
		<i>Utterbackiana suborbiculata</i>
<i>Corbicula fluminea</i> (invasive)		<i>Venustaconcha ellipsiformis</i>
<i>Dreissena polymorpha</i> (invasive)		<i>Venustaconcha pleasii</i>
Start Search: 1320	Stop Search: 1343	

Notes: Right descending bank. Hard compact clay throughout, density ca. 1-2/m<sup>2</sup> throughout but somewhat spotty. Large woody debris towards center channel with sand slope coming in from mid-channel. Water depth 2.4 - 3.0 m. Water velocity moderate. Pic 6056 upstream, pic 6057 downstream.

Site Number: Search Cell 14

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 17 October 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: silt, sand, large woody debris			Width: 20 - 23.5 m		
Latitude: 36.24825			Longitude: -90.90261		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	4	
<i>Amblema plicata</i>			<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	13		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	2	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>	4		<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	5		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1442			Stop Search: 1512		

Notes: Left descending bank. Descending slope with mostly large woody debris. Thalweg with silt, then all sand out to midchannel. Mussel density <math><1/m^2</math>, scattered. Water depth 2.4 - 3.0 m. Water velocity moderate. Pics 6073 downstream, 6072 upstream, 6071 downstream.

Site Number: Search Cell 15

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 6 November 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: clay pebbles, clay/silt, large woody debris			Width: 19 - 20 m		
Latitude: 36.248384			Longitude: -90.902242		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>		
<i>Amblema plicata</i>			<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	2		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>	1	
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	2	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranhus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1428			Stop Search: 1442		

Notes: Right descending bank. Lots large woody debris on descending slope and thalweg. Toe of slope with clay balls, mid-channel is scoured with substrate firm packed clay/mud. Water depth 3.0 - 3.7 m. Water velocity moderate to swift. Pic 6162 downstream.



Site Number: Search Cell 16

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 6 November 2021			Drainage: White River		
County: Randolph			Quad: NA		
Substrate: silt, sand			Width: 19 - 20 m		
Latitude: 36.248384			Longitude: -90.902242		
Collectors: J. L. Harris, A. M. Pieri					
Location: Black River ca. 1.6 river kilometers upstream of the confluence of Black River and Current River and approximately 3.74 air miles (6.0 air kilometers) ESE of the U. S. Hwy 63 crossing of Black River in Pocahontas.					
	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>		
<i>Amblema plicata</i>			<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	2		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	5	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranhus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>	2		<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1202			Stop Search: 1217		
Notes: Left descending bank. Silt/sand descending slope, waves of sand out to mid-channel. Water depth 1.8 m. Water velocity moderate. Pics 6152-6153 downstream.					

## Appendix B

Field Data Sheets (Ordered by Search Cell Number)

Alternative 3 – Black River

Site Number: Search Cell 1

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 30 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, clay	Width: 27 - 28.5 m
Latitude: 36.36285	Longitude: -90.60875
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	2	
<i>Amblema plicata</i>	4		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	3		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	8	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranhus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	2		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1228			Stop Search: 1245		

Notes: Right descending bank. Clay/silt substrate on descending slope, sharp decline to toe of slope. Silt depth ca. 15 cm. No visibility. Max water depth 4.6 m. Water velocity slow. Mussel density <1.0/m<sup>2</sup>.

Site Number: Search Cell 2

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 31 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, large woody debris	Width: 27 - 28.5 m
Latitude: 36.36321	Longitude: -90.60913
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	2	
<i>Amblema plicata</i>	5		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	1		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	8	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranthus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1036			Stop Search: 1054		

Notes: Left descending bank. Substantial tree fall against bank. Silt substrate, very steep slope - almost vertical - to toe of slope. Mussels buried into vertical wall. Silt depth more than 15 cm from toe of slope to mid-channel. No visibility. Max water depth 4.6 - 6.1 m. Water velocity not detectable. Mussel density < 1.0/m<sup>2</sup>. Pic 6139 upstream, pic 6138 downstream.

Site Number: Search Cell 3

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 30 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, clay	Width: 27 - 28 m
Latitude: 36.36327	Longitude: -90.60898
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	5	
<i>Amblema plicata</i>	11		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	2		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Eurynia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	17	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	2		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>	1		<i>Uniomerus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomerus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1301			Stop Search: 1319		

Notes: Right descending bank. Clay/silt substrate on descending slope, sharp decline to toe of slope. Silt depth ca. 15 cm. No visibility. Max water depth 4.6 m. Water velocity slow. Mussel density <1.0/m<sup>2</sup>.

Site Number: Search Cell 4

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 31 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, large woody debris	Width: 27 - 28 m
Latitude: 36.36303	Longitude: -90.60839
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>		
<i>Amblema plicata</i>	3		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	6		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>	1	
<i>Fusconaia flava</i>	1		<i>Potamilus purpuratus</i>	12	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchnus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1107			Stop Search: 1126		

Notes: Left descending bank. Substantial tree fall against bank. Silt substrate, very steep slope - almost vertical - to toe of slope. Mussels buried into vertical wall. Silt depth more than 15 cm from toe of slope to mid-channel. No visibility. Max water depth 4.6 - 6.1 m. Water velocity not detectable. Mussel density < 1.0/m<sup>2</sup>. Pic 6139 upstream, pic 6138 downstream.

Site Number: Search Cell 5

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 30 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, clay	Width: 28 m
Latitude: 36.36336	Longitude: -90.60886
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	6	
<i>Amblema plicata</i>			<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	3		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	2	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1333			Stop Search: 1350		

Notes: Right descending bank. Clay/silt substrate on descending slope, sharp decline to toe of slope. Silt depth ca. 15 cm. No visibility. Max water depth 4.6 m. Water velocity slow. Increased amount of dead shell at toe of slope. Mussel density <math><1.0/m^2</math>. Pic 6116 upstream, Pic 6115 downstream. LDB pic 6117.

Site Number: Search Cell 6

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 31 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, large woody debris	Width: 28 m
Latitude: 36.36303	Longitude: -90.60839
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>		
<i>Amblema plicata</i>	10		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	3		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>	1		<i>Potamilus purpuratus</i>	11	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchnus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	1		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>	1		<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1152			Stop Search: 1212		

Notes: Left descending bank. Substantial tree fall against bank. Silt substrate, steep slope - small flat area about halfway to toe of slope. Mussels buried into vertical wall. Silt depth more than 15 cm from toe of slope to mid-channel. No visibility. Max water depth 4.6 - 6.1 m. Water velocity not detectable. Mussel density < 1.0/m<sup>2</sup>. Pic 6141 upstream, pic 6140 downstream.



Site Number: Search Cell 7

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 30 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, clay	Width: 28 - 31 m
Latitude: 36.36345	Longitude: -90.60873
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	3	
<i>Amblema plicata</i>	20		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>	1	
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>	1		<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	5		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	1	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>	1	
<i>Fusconaia flava</i>	1		<i>Potamilus purpuratus</i>	6	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranhus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	2		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>	2		<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1422			Stop Search: 1443		

Notes: Right descending bank. Clay/silt substrate on descending slope, more gentle decline to toe of slope. Silt depth ca. 15 cm. No visibility. Max water depth 4.6 m. Water velocity slow. Mussel density <1.0/m<sup>2</sup>. Pic 6119-6120 upstream/RDB, Pic 6118 downstream.

Site Number: Search Cell 8

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 31 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, large woody debris	Width: 28 - 31 m
Latitude: 36.36307	Longitude: -90.60828
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>		
<i>Amblema plicata</i>	5		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	3		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>	1	
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>		
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1225; 1244			Stop Search: 1235; 1253		

Notes: Left descending bank. Substantial tree fall against bank. Silt substrate, steep slope. Got tangled in debris so had to stop initial dive and then begin again. Silt depth more than 15 cm from toe of slope to mid-channel. No visibility. Max water depth 4.6 - 6.1 m. Water velocity not detectable. Mussel density < 1.0/m<sup>2</sup>. Pic 6142 upstream, pic 6143 downstream.

Site Number: Search Cell 9

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 30 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, clay, large woody debris	Width: 31 - 31.5 m
Latitude: 36.36356	Longitude: -90.60860
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>	1	
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	6	
<i>Amblema plicata</i>	19		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>	3		<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	4		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	1	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>	1	
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	11	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchnus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>	1	
<i>Lasmigona complanata</i>			<i>Uniomereus declivis</i>		
<i>Leaunio lienosus</i>			<i>Uniomereus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1457			Stop Search: 1515		

Notes: Right descending bank. Clay/silt substrate on descending slope, flat area extends ca. 15 m toward midchannel. More large woody debris present. Silt depth ca. 15 cm. No visibility. Max water depth 4.6 m. Water velocity slow. Mussel density <1.0/m<sup>2</sup>. Pic 6123 upstream, Pics 6121-6122 downstream.

Site Number: Search Cell 10

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 31 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt	Width: 31 - 31.5 m
Latitude: 36.36313	Longitude: -90.60814
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	1	
<i>Amblema plicata</i>	2		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>	1		<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	2		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>	2	
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>		
<i>Fusconaia ozarkensis</i>			<i>Ptychobranhus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1305			Stop Search: 1322		

Notes: Left descending bank. Silt substrate - gelatinous to the touch, steep slope. Silt depth more than 15 cm from toe of slope to mid-channel. No visibility. Max water depth 4.6 - 6.1 m. Water velocity not detectable. Mussel density < 1.0/m<sup>2</sup>.

Site Number: Search Cell 11

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 30 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, clay, large woody debris	Width: 29.5 - 31.5 m
Latitude: 36.36358	Longitude: -90.60843
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	15	
<i>Amblema plicata</i>	64		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	5		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	3	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Eurynia dilatata</i>			<i>Potamilus ohioensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	4	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>	1	
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>	1	
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1527			Stop Search: 1544		

Notes: Right descending bank. Clay/silt substrate on gentle descending slope, flat area extends ca. 15 m toward midchannel. More large woody debris present. Silt depth ca. 15 cm. No visibility. Max water depth 4.6 - 4.9 m. Water velocity slow. Mussel density approaching 10.0/m<sup>2</sup> in scattered areas. Pic 6126 upstream, pic 6127, RDB, pic 6124 downstream, pic 6125 LDB.

Site Number: Search Cell 12

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 31 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt	Width: 29.5 - 31.5 m
Latitude: 36.36319	Longitude: -90.60797
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>	1	
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>		
<i>Amblema plicata</i>	11		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	7		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Eurynia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	1	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1332			Stop Search: 1347		

Notes: Left descending bank. Silt substrate - gelatinous to the touch, steep slope. Silt depth more than 15 cm from toe of slope to mid-channel. No visibility. Max water depth 6.1 m. Water velocity not detectable. Mussel density < 1.0/m<sup>2</sup>. Pic 6146 upstream, pic 6145 LDB, pic 6144 downstream.

Site Number: Search Cell 13

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 30 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, clay, large woody debris	Width: 29.5 - 34.5 m
Latitude: 36.36369	Longitude: -90.60830
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	12	
<i>Amblema plicata</i>	73		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	7		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>	2	
<i>Fusconaia flava</i>	2		<i>Potamilus purpuratus</i>	6	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranhus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1559			Stop Search: 1617		

Notes: Right descending bank. Clay/silt substrate on gentle descending slope, flat area extends ca. 15 m toward midchannel. More large woody debris present, large log parallel to bank at toe of slope. Silt depth ca. 15 cm. No visibility. Max water depth 4.6 - 4.9 m. Water velocity slow. Mussel density approaching 10.0/m<sup>2</sup> in some spots. Pic 6129 upstream, pic 6128 RDB, pic 6130 downstream.

Site Number: Search Cell 14

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 31 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, large woody debris	Width: 29.5 - 34.5 m
Latitude: 36.36327	Longitude: -90.60783
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	1	
<i>Amblema plicata</i>	4		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	2		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	2	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohioensis</i>		
<i>Fusconaia flava</i>			<i>Potamilus purpuratus</i>	1	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>		
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1425			Stop Search: 1441		

Notes: Left descending bank. Silt substrate - gelatinous to the touch, steep slope. Large woody debris dominant against bank to toe of slope. Silt depth more than 15 cm from toe of slope to mid-channel. No visibility. Max water depth 6.1 m. Water velocity slow. Mussel density < 1.0/m<sup>2</sup>. Pic 6147 upstream, pic 6146 downstream.



Site Number: Search Cell 15

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 30 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, clay, large woody debris	Width: 34 - 34.5 m
Latitude: 36.36371	Longitude: -90.60818
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	10	
<i>Amblema plicata</i>	40		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>	1		<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>			<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	4		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>		
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>	5	
<i>Fusconaia flava</i>	2		<i>Potamilus purpuratus</i>	11	
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>	1		<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>	1	
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1633			Stop Search: 1650		

Notes: Right descending bank. Clay/silt substrate on gentle descending slope, flat area extends ca. 15 m toward midchannel. More large woody debris present, large log parallel to bank at toe of slope. Silt depth deeper than 15 cm in mid-channel area - thick. No visibility. Max water depth 4.6 - 4.9 m. Water velocity slow. Mussel density approaching 10/m<sup>2</sup> in some spots. Pic 6131 upstream, pic 6132 downstream.

Site Number: Search Cell 16

## Arkansas Freshwater Bivalves Field Data Sheet

Date: 31 October 2021	Drainage: White River
County: Clay	Quad: NA
Substrate: silt, large woody debris	Width: 34 - 34.5 m
Latitude: 36.36330	Longitude: -90.60769
Collectors: J. L. Harris, A. M. Pieri	
Location: Black River approximately 15.4 river kilometers downstream of and 7.35 air kilometers SW of the U. S. Hwy 62 crossing of Black River east of Corning.	

	Live	Dead		Live	Dead
<i>Actinonaias ligamentina</i>			<i>Margaritifera hembeli</i>		
<i>Alasmidonta marginata</i>			<i>Megalonaias nervosa</i>		
<i>Alasmidonta viridis</i>			<i>Obliquaria reflexa</i>	1	
<i>Amblema plicata</i>	3		<i>Obovaria arkansasensis</i>		
<i>Arcidens confragosus</i>			<i>Obovaria</i> sp. cf <i>arkansasensis</i>		
<i>Arcidens wheeleri</i>			<i>Obovaria olivaria</i>		
<i>Cambarunio hesperus</i>			<i>Plectomerus dombeyanus</i>		
<i>Cumberlandia monodonta</i>			<i>Pleurobema cordatum</i>		
<i>Cyclonaias nodulata</i>	3		<i>Pleurobema riddellii</i>		
<i>Cyclonaias pustulosa</i>	4		<i>Pleurobema</i> sp. cf <i>riddellii</i>		
<i>Cyclonaias tuberculata</i>			<i>Pleurobema rubrum</i>		
<i>Cyprogenia aberti</i>			<i>Pleurobema sintoxia</i>		
<i>Ellipsaria lineolata</i>			<i>Potamilus alatus</i>		
<i>Epioblasma curtisii</i>			<i>Potamilus capax</i>		
<i>Epioblasma triquetra</i>			<i>Potamilus fragilis</i>	1	
<i>Epioblasma turgidula</i>			<i>Potamilus leptodon</i>		
<i>Euryntia dilatata</i>			<i>Potamilus ohiensis</i>		
<i>Fusconaia flava</i>	1		<i>Potamilus purpuratus</i>		
<i>Fusconaia ozarkensis</i>			<i>Ptychobranchus occidentalis</i>		
<i>Fusconaia</i> cf <i>flava</i> ( <i>sampsoniana</i> )			<i>Pyganodon grandis</i>		
<i>Glebula rotundata</i>			<i>Quadrula fragosa</i>		
<i>Lampsilis abrupta</i>			<i>Quadrula quadrula</i>		
<i>Lampsilis cardium</i>			<i>Reginaia ebenus</i>		
<i>Lampsilis hydiana</i>			<i>Sagittunio subrostratus</i>		
<i>Lampsilis ornata</i>			<i>Simpsonaias ambigua</i>		
<i>Lampsilis powellii</i>			<i>Strophitus undulatus</i>		
<i>Lampsilis rafinesqueana</i>			<i>Theliderma cylindrica</i>		
<i>Lampsilis reeveiana</i>			<i>Theliderma metanevra</i>		
<i>Lampsilis sietmani</i>			<i>Toxolasma lividum</i>		
<i>Lampsilis siliquoidea</i>			<i>Toxolasma parvum</i>		
<i>Lampsilis</i> sp. A cf <i>hydiana</i>			<i>Toxolasma texasiense</i>		
<i>Lampsilis</i> sp. B cf <i>hydiana</i>			<i>Tritogonia nobilis</i>		
<i>Lampsilis streckeri</i>			<i>Tritogonia verrucosa</i>		
<i>Lampsilis teres</i>			<i>Truncilla donaciformis</i>		
<i>Lasmigona costata</i>			<i>Truncilla truncata</i>	1	
<i>Lasmigona complanata</i>			<i>Unio merus declivis</i>		
<i>Leaunio lienosus</i>			<i>Unio merus tetralasmus</i>		
<i>Ligumia recta</i>			<i>Utterbackia imbecillis</i>		
			<i>Utterbackiana suborbiculata</i>		
<i>Corbicula fluminea</i> (invasive)			<i>Venustaconcha ellipsiformis</i>		
<i>Dreissena polymorpha</i> (invasive)			<i>Venustaconcha pleasii</i>		
Start Search: 1511			Stop Search: 1529		

Notes: Left descending bank. Silt substrate - gelatinous to the touch, steep slope. Large woody debris dominant against bank to toe of slope. Silt depth more than 15 cm from toe of slope to mid-channel. No visibility. Max water depth 6.1 m. Water velocity slow. Mussel density < 1.0/m<sup>2</sup>. Pic 6151 upstream, pic 6149 downstream, pic 6150 LDB .



## ATTACHMENT E — PONDBERRY SURVEY MEMO



Survey for Pondberry (*Lindera melissifolia*) within Suitable  
Habitat of the Preferred alternative for Future I-57

Lawrence, Randolph, and Clay Counties  
Arkansas

Prepared by Garver for the Arkansas Department of  
Transportation (ARDOT)

April 2022



# Pondberry Survey Memo

## Summary

Species:	Pondberry ( <i>Lindera melissifolia</i> )
Date(s) of Survey:	April 19, 2022
Project Location:	Future I-57 Preferred Alternative (Randolph, Clay, Greene, and Lawrence Counties, Arkansas)
Surveyor(s):	Bill McAbee of Garver
Findings:	No pondberry was found

## Project Description and General Project Area

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is proposing to construct a fully-controlled access interstate facility from Walnut Ridge to the state line within Clay, Lawrence, and Randolph counties, Arkansas (ARDOT Job Number 100512). The Preferred Alternative begins at the Highway (Hwy.) 67/Hwy. 412 interchange at Walnut Ridge, Arkansas and ends on Hwy. 67 at the Arkansas-Missouri State line, a distance of approximately 42 miles. The alignment is almost entirely on new location and generally lies between Hwy. 67 and the Dave Donaldson Black River Wildlife Management Area (Black River WMA). The proposed action would involve construction of a four-lane divided highway with a depressed grass median and up to a 400-foot-wide right of way. Additionally, the proposed action would include construction of a new bridge spanning the Black River as well as several box culverts and cross drains throughout the remainder of project length to accommodate the new roadway.

The Preferred Alternative, which is comprised of Alternatives 2 and C, is located in Clay, Lawrence, and Randolph Counties in northeast Arkansas from Walnut Ridge in Arkansas to the Missouri State line. The project occurs within the Mississippi Alluvial Plain ecoregion, which is characterized as mostly a flat, broad alluvial plain with river terraces and levees providing the main elements of relief (Woods et al., 2004). Despite its length, the project limits contain a relatively homogeneous landscape due to its flat topography and abundance of agricultural practices.

## Survey and Memo Purpose

Due to the presence of potentially suitable habitat within the project limits, a survey for the Federally endangered pondberry (*Lindera melissifolia*) is required. In 2022, the U.S. Fish and Wildlife Service (USFWS) confirmed that the required pondberry survey need only be conducted in areas that have suitable habitat and that a habitat assessment can be used to rule out areas that are not suitable due to solid type, too wet, etc. Thus, a pondberry survey of the Preferred Alternative was conducted April 19, 2022 within areas identified a containing potentially suitable habitat.

The purpose of this memo is to summarize the results of the April 2022 pondberry survey.

## Species Information

### Species Description

Pondberry is a member of the Lauraceae family and is also referred to as the southern spicebush. Pondberry, *Lindera melissifolia*, is a deciduous shrub, growing from less than 1 ft. (30 cm) to,

## Future I-57 DEIS: Pondberry Survey Memo



infrequently, more than 6 ft. (2 m) in height (NatureServe, 2022). Leaves are aromatic, alternate, elliptical, somewhat thin and membranaceous, with entire margins. Shrubs usually are sparsely branched, with fewer branches on smaller plants. Plants are rhizomatous, frequently propagating by vegetative sprouts and forming clonal colonies. Plants are dioecious (each plant is either a male or a female) and produce clusters of small, yellow flowers in early spring prior to leaf development from buds on branches produced from the growth during the preceding year (NatureServe, 2022). Fruits are drupes that green when immature and ripen to red by fall.

### Life History

According to NatureServe (2022), pondberry can apparently occupy a variety of habitats as long as hydrological requirements are met. The species occurs in seasonally flooded wetlands such as floodplain/bottomland hardwood forests and forested swales, on the bottoms and edges of shallow seasonal ponds in old dune fields, along the margins of ponds and depressions in pinelands, around the edges of sinkholes in coastal areas with karst topography, and along the borders of Sphagnum bogs. Usually in shade, but tolerates full sun.

Habitat preferences for the pondberry within the project area include forested depressional wetland habitats that are seasonally flooded and that provide shade. These locations with suitable habitat are shown on **Baker, B.** 2018. Final report on *Lindera melissifolia* (Walter) Blume [Pondberry] survey and research work in Arkansas, 2017. Unpublished report to U.S. Fish and Wildlife Service. 60 pp.

NatureServe. 2022. NatureServe Explorer [web application]. NatureServe, Arlington, Virginia. Available online at: <https://explorer.natureserve.org/>. (Accessed: April 19, 2022).

U.S. Fish and Wildlife Service (USFWS). 2021. Pondberry (*Lindera melissifolia*) 5-Year Review: Summary and Evaluation Available online at: [https://ecos.fws.gov/docs/tess/species\\_nonpublish/3612.pdf](https://ecos.fws.gov/docs/tess/species_nonpublish/3612.pdf)

Woods A.J., T.L. Foti, S.S. Chapman, J.M. Omernik, J.A. Wise, E.O. Murray, W.L. Prior, J.B. Pagan Jr., J.A. Comstock, and M. Radford. 2004. Ecoregions of Arkansas (color poster with map, descriptive text, summary tables, and photographs). Reston, Virginia, U.S. Geological Survey (map scale 1:1,000,000).

### Status and Distribution

According to the 5-year review by USFWS (2021), the status review results indicate that of Arkansas's 24 known populations, 6 are extirpated, 1 exists only in cultivation (no longer extant in the wild), 5 (all on state- or federally owned or managed conservation lands) have been confirmed extant, and 12 (all on private lands, including 2 protected by conservation easements) are of uncertain status. Pondberry monitoring and surveys in Arkansas confirmed the continued existence of pondberry at the Stateline Sand Ponds Natural Area (NA) in Clay County (this population is shared by adjacent conservation lands in Ripley County, Arkansas), although the population is in apparent decline (Baker, 2018). Of the 12 populations found on private lands that are of uncertain status, recent aerial imagery indicates that habitat remains intact, suggesting that these populations may yet persist. These populations are found in Clay (1 population), Lawrence (2), Jackson (8), and Woodruff (1) counties.

No known pondberry occurrence records were found within the Preferred Alternative; however, known populations have been identified by the Arkansas Natural Heritage Commission (ANHC) within a forested area located approximately 1.8 miles south of O'Kean and 0.17 mile west of Lawrence



County Road 603 (Main Street). This known population is approximately 4.7 miles from the Preferred Alternative.

## Survey Methods

A pedestrian survey was conducted on April 19, 2022, for pondberry in 12 separate locations previously identified as possible pondberry habitat. These locations are shown on **Baker, B.** 2018. Final report on *Lindera melissifolia* (Walter) Blume [Pondberry] survey and research work in Arkansas, 2017. Unpublished report to U.S. Fish and Wildlife Service. 60 pp.

NatureServe. 2022. NatureServe Explorer [web application]. NatureServe, Arlington, Virginia. Available online at: <https://explorer.natureserve.org/>. (Accessed: April 19, 2022).

U.S. Fish and Wildlife Service (USFWS). 2021. Pondberry (*Lindera melissifolia*) 5-Year Review: Summary and Evaluation Available online at: [https://ecos.fws.gov/docs/tess/species\\_nonpublish/3612.pdf](https://ecos.fws.gov/docs/tess/species_nonpublish/3612.pdf)

Woods A.J., T.L. Foti, S.S. Chapman, J.M. Omernik, J.A. Wise, E.O. Murray, W.L. Prior, J.B. Pagan Jr., J.A. Comstock, and M. Radford. 2004. Ecoregions of Arkansas (color poster with map, descriptive text, summary tables, and photographs). Reston, Virginia, U.S. Geological Survey (map scale 1:1,000,000).

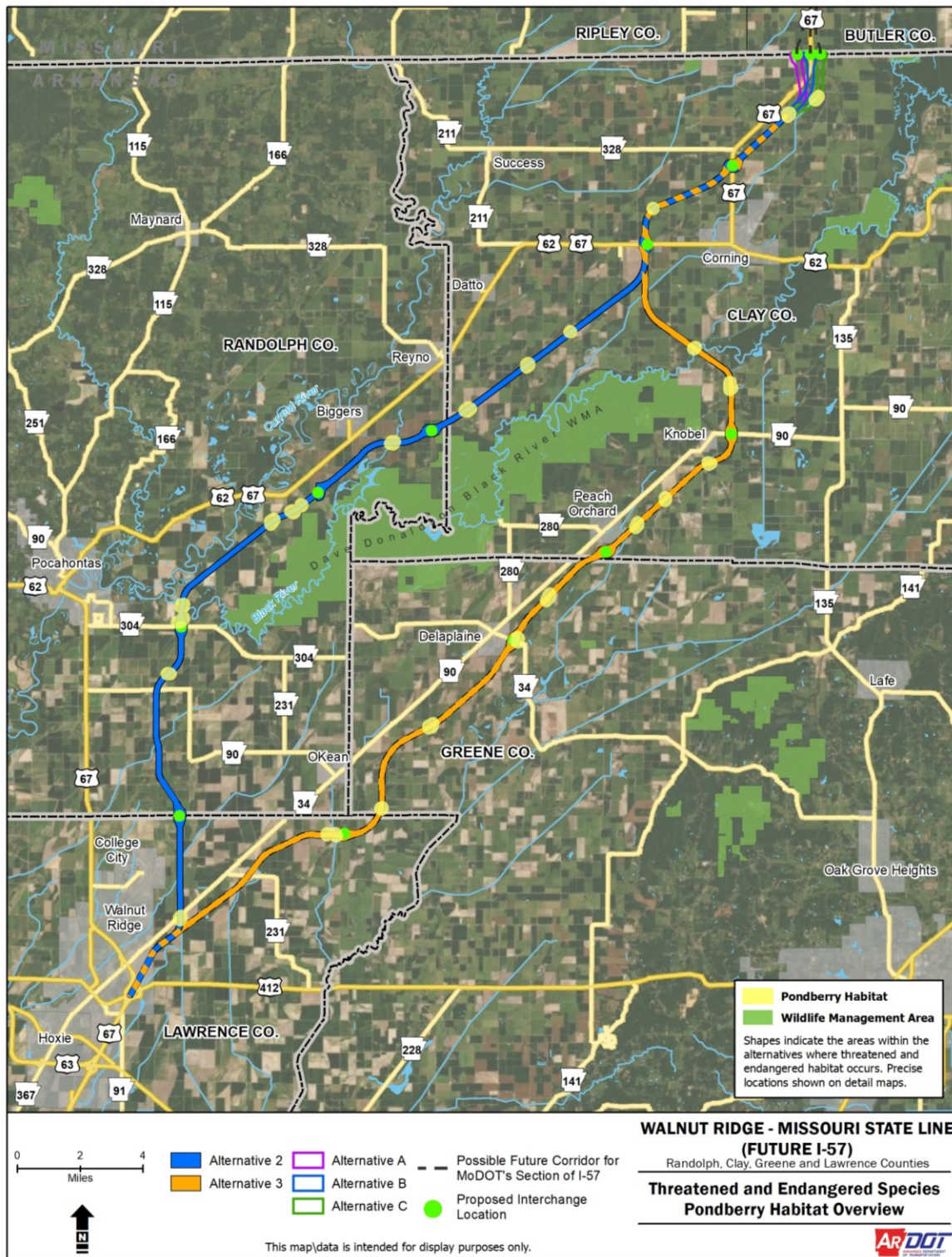
. Only the Preferred Alternative (Alternatives 2 and C) were surveyed per USFWS.

Survey sites were relatively small ranging for a few hundred square feet to approximately five acres. Conditions during the survey were clear and sunny with temperatures ranging from 45-65 degrees Fahrenheit. The hydrological conditions ranged from saturated soils to complete site inundation. The Black River was out of its banks at the time of the survey. One survey location north of the Black River and two survey locations just south of the Black River were inundated and survey was not possible.

Future I-57 DEIS: Ponderberry Survey Memo



Figure 1: Federally-listed Ponderberry Habitat Locations





## Future I-57 DEIS: Pondberry Survey Memo



Spring growth had began and most plants were either flowering or had developed foliage to aide in species identification.

Smaller sites less than 3 acres were visually inspected up to 100% surface area. In larger tracts greater than 3 acres, the surveyor targeted depressional wetlands within forested areas and attempts were made to conduct 100% visual inspections of these depressional areas by a single observer. Thus, portions of some sites may have only been partially inspected. If any suspect plants would have been identified the location would have been documented with handheld GPS and a subsequent visit would have been conducted later in spring when additional diagnostic features of the plants could confirm species identity.

### Survey Results

Nine locations were surveyed within the Preferred Alternative. No populations of pondberry were observed. The survey, which investigated approximately 37 acres over a period of 8 hours, is considered thorough and had a level of effort comparable to other surveys conducted for the species.

### Literature Cited

- Baker, B. 2018. Final report on *Lindera melissifolia* (Walter) Blume [Pondberry] survey and research work in Arkansas, 2017. Unpublished report to U.S. Fish and Wildlife Service. 60 pp.
- NatureServe. 2022. NatureServe Explorer [web application]. NatureServe, Arlington, Virginia. Available online at: <https://explorer.natureserve.org/>. (Accessed: April 19, 2022).
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- Woods A.J., T.L. Foti, S.S. Chapman, J.M. Omernik, J.A. Wise, E.O. Murray, W.L. Prior, J.B. Pagan Jr., J.A. Comstock, and M. Radford. 2004. Ecoregions of Arkansas (color poster with map, descriptive text, summary tables, and photographs). Reston, Virginia, U.S. Geological Survey (map scale 1:1,000,000).