

GEOLOGICAL SURVEY OF ALABAMA

Berry H. (Nick) Tew, Jr.
State Geologist

WATER INVESTIGATIONS PROGRAM

Patrick E. O'Neil
Director

**RESULTS OF ANALYSIS OF THE FRESHWATER MUSSEL
FAUNA IN THE ALABAMA RIVER DOWNSTREAM OF
CLAIBORNE AND MILLERS FERRY LOCKS AND DAMS,
2006-07**

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By
Stuart W. McGregor¹ and Jeffrey T. Garner²

¹Geological Survey of Alabama, Water Investigations Program

²Alabama Department of Conservation and Natural Resources,

Division of Wildlife and Freshwater Fisheries

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ABSTRACT

During the summers of 2006 and the authors, diving with the aid of a surface air source, searched for mussels in the Alabama River downstream of Claiborne and Millers Ferry Locks and Dams. The primary purpose was to document the current status of three federally listed species of mussels, *Pleurobema decisum*, *Pleurobema taitianum*, and *Potamilus inflatus*, and secondarily to document other species in those reaches. About 14.4 hours of bottom time was expended downstream of Claiborne and about 10 hours was expended downstream of Millers Ferry. The Claiborne reach yielded an aggregate total of 3,054 mussels live or fresh dead among 19 species, with a catch per unit effort of 212.1 mussels per hour. The Millers Ferry reach yielded an aggregate total of 4,489 mussels live or fresh dead among 17 species, with a catch per unit effort of 448.9 mussels per hour. No federally listed endangered or threatened species were encountered in either reach. One species of highest conservation priority in Alabama, the delicate spike, *Elliptio arctata*, was collected in the Claiborne reach, and individuals of moderate conservation priority in Alabama were collected in both reaches: the monkeyface, *Quadrula metanevra*, and the fawnsfoot, *Truncilla donaciformis*.

INTRODUCTION

The diversity of the freshwater mussel fauna of the Mobile River basin is second only to that of the Tennessee River. The pre-impoundment fauna included more than 40 species and was noteworthy for numerous endemic species. Such diversity is attributed to the presence of numerous aquatic habitats related to variations in physiography, the geological antiquity of the basin providing ample time for speciation, and the abundance of fresh water in the basin (Williams, 1982; McCullagh and others, 2001). However, significant changes in the quality of water and habitat in the basin resulting from human

activity have occurred, including impoundment, eutrophication, sedimentation, pollution, and channel modifications, causing a drastic decline in the mussel fauna (Hartfield, 1994; Mott and Hartfield, 1994).

In 2006 and 2007 the Geological Survey of Alabama was contracted by the Alabama Department of Conservation and Natural Resources to assess the current mussel fauna in the main river channel downstream of Claiborne and Millers Ferry Locks and Dams on the Alabama River, especially federally listed species and species of conservation priority in Alabama. Sampling effort during the first year emphasized the tailwater of Claiborne Lock and Dam (McGregor and Garner, 2006), while sampling effort this year was limited to the tailwater of Millers Ferry Lock and Dam. This report summarizes results of field efforts, which were funded by Section Six of the Endangered Species Act.

STUDY AREA

The Alabama River drains 6,023 square miles of the Mobile River basin and has three dams on the main stem (fig. 1) (Mettee and others, 1996). From downstream to upstream these include Claiborne, Millers Ferry, and Robert F. Henry. During the 2006 field season, sampling effort was concentrated downstream of Claiborne Lock and Dam from about Alabama River mile (ARM) 38.0 upstream to about ARM 71.0, a short distance downstream of the dam (fig. 1, table 1). During the 2007 field season, sampling effort was concentrated downstream of Millers Ferry Lock and Dam from about ARM 105.4 upstream to about ARM 131.7, just downstream of the dam (fig. 1, table 1).

METHODS

The objective of this study was to ascertain the presence of federally listed endangered or threatened species and/or species of conservation priority in Alabama historically known to occur in the Alabama River. Mussels were collected by hand while diving with the aid of a surface air source. Due to the nature of the project and limited sampling time and resources, a generally qualitative sampling protocol (timed search) was employed, with emphasis on sampling habitats favored by target species (Strayer and Smith, 2003). Sampling time was dictated by the habitat or fauna encountered at each station. If a meager fauna or poor quality habitat was encountered, we aborted our efforts there and moved to another potential sampling station. Those stations with greater

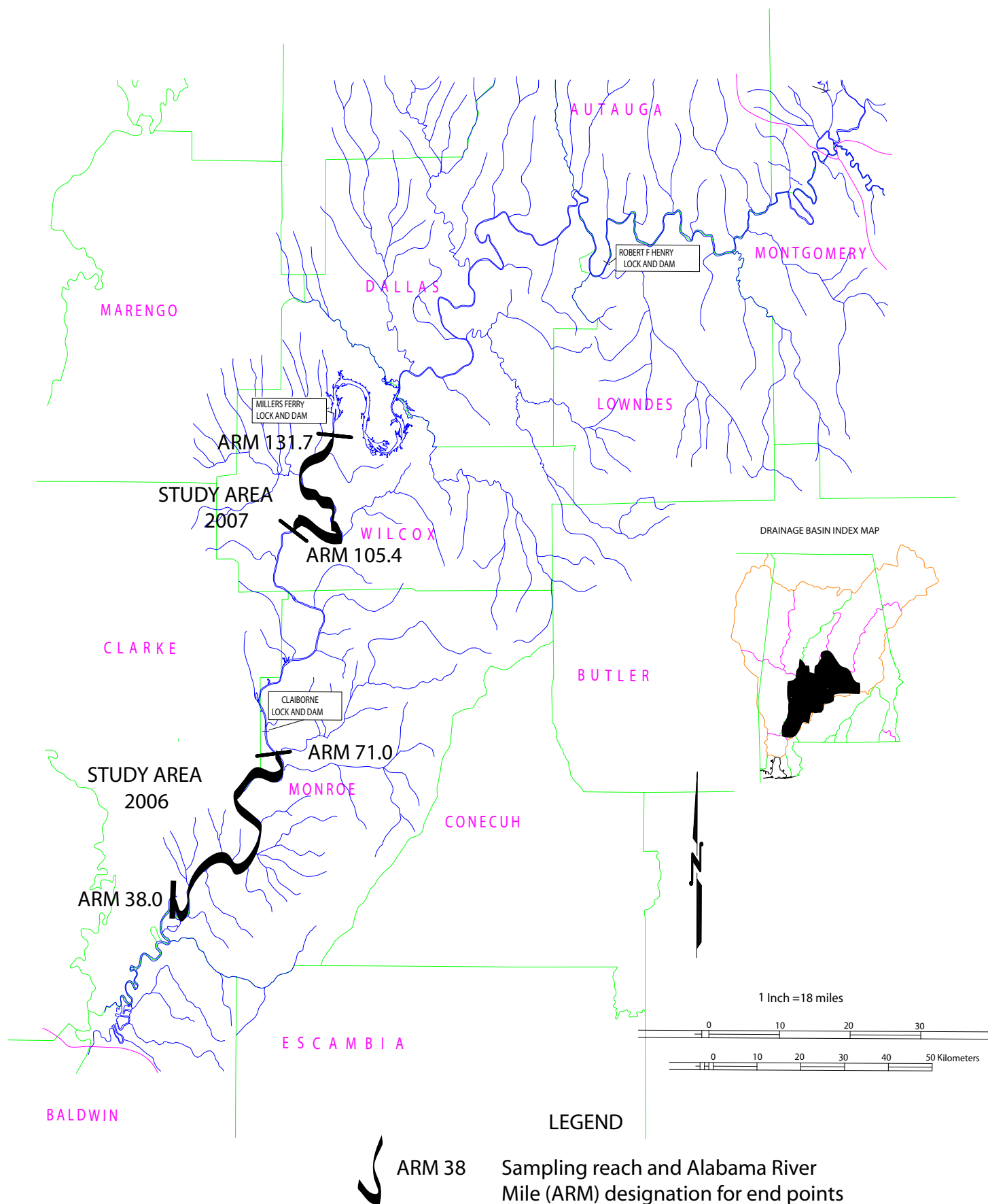


Figure 1. Map of the Alabama River showing downstream and upstream limits of the study area.

Table 1.—Summary information for mussel sampling stations in the Alabama River, 2006-07

Sampling station ¹	Map coordinates	County	Date
ARM 38.0 at upstream end of bluff near left descending bank	N 31° 20.351' W 87° 43.474'	Clarke/Monroe	9/07/06
ARM 38.7 downstream of Eureka Landing near left descending bank	N 31° 21.562' W 87° 43.267'	Clarke/Monroe	9/07/06
ARM 43.1 upstream of Eureka Landing near right descending bank	N 31° 25.074' W 87° 40.478'	Clarke/Monroe	9/07/06
ARM 46.0 near Gainestown along bluff on right descending bank opposite large sand bank	N 31° 25.243' W 87° 38.712'	Clarke/Monroe	9/07/06
ARM 48.0 off gravel bank on left descending bank opposite training dikes	N 31° 24.892' W 87° 37.843'	Clarke/Monroe	9/07/06
ARM 49.5 along stone shore of left descending bank downstream of training dikes	N 31° 24.655' W 87° 35.966'	Clarke/Monroe	9/07/06
ARM 50.0 near right descending bank off large gravel bar with three training dikes	N 31° 25.239' W 87° 35.578'	Clarke/Monroe	9/07/06
ARM 51.5 along gravel bar on left descending bank	N 31° 26.145' W 87° 34.367'	Clarke/Monroe	9/07/06
ARM 54.6 at Marshalls Bluff along left descending bank	N 31° 28.404' W 87° 33.722'	Clarke/Monroe	9/06/06
ARM 57.5 along bluff near right descending bank	N 31° 29.880' W 87° 36.141'	Clarke/Monroe	9/06/06
ARM 59.7 along right descending bank	N 31° 31.174' W 87° 37.233'	Clarke/Monroe	9/06/06
ARM 60.4 on left descending bank downstream of U.S. Highway 84 bridge	N 31° 31.558' W 87° 36.085'	Clarke/Monroe	9/05/06
ARM 64.3 near Strode Landing on right descending bank	N 31° 33.355' W 87° 33.663'	Monroe	8/01/06
ARM 66.5 near U.S. Highway 82 bridge near left descending bank	N 31° 32.693' W 87° 31.099'	Monroe	8/01/06
ARM 70.0 at bluff on right descending bank downstream of Claiborne Lock and Dam	N 31° 35.307' W 87° 32.214'	Monroe	8/03/06
ARM 70.3 at bluff on right descending bank downstream of Claiborne Lock and Dam	N 31° 35.532' W 87° 32.569'	Monroe	8/03/06
ARM 70.5 at bluff on right descending bank downstream of Claiborne Lock and Dam	N 31° 35.232' W 87° 32.066'	Monroe	8/02/06
ARM 70.75 at bluff on right descending bank downstream of Claiborne Lock and Dam	N 31° 35.537' W 87° 32.560'	Monroe	8/01/06
ARM 71.0 at bluff on right descending bank downstream of Claiborne Lock and Dam	N 31° 35.390' W 87° 32.346'	Monroe	8/03/06

Table 1.—Summary information for mussel sampling stations in the Alabama River, 2006-07—continued

ARM 105.4 just upstream of Burlington Northern Railroad bridge near right descending bank	N 31° 55.717' W 87° 29.160'	Wilcox	7/12/2007
ARM 107.5 at unnamed bar about one mile downstream of Rose Landing near right descending bank	N 31° 55.881' W 87° 27.158'	Wilcox	7/12/2007
ARM 108.4 near Rose Landing near right descending bank	N 31° 55.303' W 87° 26.633'	Wilcox	7/12/2007
ARM 111.0 along Blacks Bluff near left descending bank	N 31° 54.307' W 87° 24.355'	Wilcox	7/12/2007
ARM 112.9 just upstream of mouth of Pursley Creek near left descending bank	N 31° 54.825' W 87° 22.812'	Wilcox	7/12/2007
ARM 116.9 at upstream end of Yellowjacket Bar near right descending bank	N 31° 54.049' W 87° 23.639'	Wilcox	7/12/2007
ARM 118.4 just upstream of Alabama Highway 10 bridge near left descending bank	N 31° 58.191' W 87° 24.890'	Wilcox	7/10/2007
ARM 123.3 along bluff just upstream of mouth of Beaver Creek near right descending bank	N 31° 59.911' W 87° 28.389'	Wilcox	7/10/2007
ARM 124.8 just downstream of Clifton Ferry Boat Ramp near right descending bank	N 32° 1.046' W 87° 28.151'	Wilcox	7/10/2007
ARM 126.3 just downstream of mouth of Dixon Creek near right descending bank	N 32° 1.959' W 87° 26.792'	Wilcox	7/11/2007
ARM 127.5 at bluff colloquially known as "Biscuit Rocks" along left descending bank	N 32° 1.821' W 87° 25.705'	Wilcox	7/26/2007
ARM 128.6 just upstream of mouth of Rockwest Creek near left descending bank	N 32° 2.457' W 87° 24.707'	Wilcox	7/11/2007
ARM 129.0 near right descending bank	N 32° 3.640' W 87° 24.235'	Wilcox	7/24/2007
ARM 130.6 opposite Cobbs Landing Boat Ramp near right descending bank	N 32° 4.002' W 87° 24.172'	Wilcox	7/11/2007
ARM 131.7 beneath power transmission line downstream of Millers Ferry Lock and Dam near right descending bank	N 32° 4.883' W 87° 24.169'	Wilcox	7/11/2007

¹ ARM=Alabama River mile

potential for finding target species (generally stable substrate with mixed sand, gravel, cobble, or boulders) received more attention; therefore, species that might occupy other habitat types might be underrepresented.

Aggregate totals of time searched in hours in each reach were used as the basis for comparison of catch per unit effort (CPUE). Some quantitative data using 0.25 m² quadrats, employing 10 replicates randomly placed, were collected and results incorporated into the qualitative data set. While dives were made at numerous stations, each reach is considered to be one habitat unit due to the lack of natural or artificial barriers to physical movement of mussels or their hosts and to gene flow. Therefore, sampling results discussed herein are presented as an aggregate for each reach and no comparisons are made among individual stations.

During qualitative sampling dives, numbers of mussels that occurred in high densities were estimated, while those that were encountered in lower numbers were collected, taken aboard the boat, identified to species, tallied, and returned to the river bed. During quantitative sampling all mussels from replicate quadrats were collected, taken aboard the boat, identified, tallied, and returned to the river bed. Condition (live, fresh dead, weathered dead, or relic) of all specimens collected during each dive was noted and the numbers of each recorded on a field data sheet along with sampling time, habitat conditions, and location data. Sampling stations were referenced to nearby landmarks, and river miles were determined with the aid of U.S. Army Corps of Engineers river mile markers and river charts. Station locations were georeferenced with a handheld Global Positioning System (GPS) unit.

Live individuals were returned to the substrate and some fresh dead specimens were retained as voucher material. Voucher specimens will be archived in the North Carolina Museum of Natural Science collection. Weathered dead and relic material was discarded. Taxonomy followed Turgeon and others (1998) with the exception of the southern mapleleaf, *Quadrula nobilis*. The Southern mapleleaf has long been recognized by some researchers, and recent genetic evidence supports that it is a valid species (Art Bogan, North Carolina State Museum of Natural History, pers. commun., 2006). Data collected in the field were subsequently transferred into an Excel database at the Geological Survey of Alabama for permanent storage and future reference. Status of

conservation priority in Alabama follows Mirarchi (2004) with the following designated rankings of priority (P): P1-Highest Conservation Concern, P2-High Conservation Concern, P3-Moderate Conservation Concern, P4-Low Conservation Concern, and P5-Lowest Conservation Concern.

RESULTS AND DISCUSSION

Sampling was performed downstream of Claiborne Lock and Dam during August and September 2006 and downstream of Millers Ferry Lock and Dam during July 2007 (fig. 1, table 1, appendix). Most collections were qualitative, but some quantitative data were gathered and are included in abundance totals.

Downstream of Claiborne, sampling effort was 14.4 hours of bottom time and yielded an aggregate total of 3,054 mussels among 19 species (table 2). The fauna in that reach was dominated by the ebonyshell, *Fusconaia ebena*, followed by the elephantear, *Elliptio crassidens*, and the bankclimber, *Plectomerus dombeyanus*. No federally listed endangered or threatened species were encountered during that field effort. However, species of highest (P1) and moderate (P3) conservation priority in Alabama were collected, including the delicate spike, *Elliptio arctata* (P1), the monkeyface, *Quadrula metanevra* (P3), and the fawnsfoot, *Truncilla donaciformis* (P3). *Elliptio arctata* was considered a P1 species by Mirarchi (2004), because its limited distribution, rarity, and specialized habitat requirements render it vulnerable to extinction. *Quadrula metanevra* and *T. donaciformis* were considered P3 species due to decreasing population trends and habitat vulnerability. They are all known to occupy riverine habitats with at least moderate current.

Downstream of Millers Ferry, sampling effort was 10 hours of bottom time and yielded an aggregate total of about 4,489 mussels among 17 species (table 2). Again, *Fusconaia ebena* was the dominant species collected, followed by the Alabama orb, *Quadrula asperata*, the bankclimber, and the threehorn wartyback, *Obliquaria reflexa* (table 2). No federally listed endangered or threatened species or species of highest (P1) or high (P2) conservation priority in Alabama were encountered downstream of Millers Ferry. However, individuals of two species of moderate conservation priority (P3) were collected: the monkeyface, *Quadrula metanevra* and the fawnsfoot, *Truncilla donaciformis* (table 2).

Table 2.—Comparison of diversity of freshwater mussel species collected live or fresh dead from selected reaches of the Alabama River, 2006-07

Species	Conservation Priority ¹	Distribution ²					
		Downstream of Claiborne Lock and Dam (14.4 hours)			Downstream of Millers Ferry Lock and Dam (10 hours)		
		N	%	CPUE	N	%	CPUE
<i>Ellipsaria lineolata</i>	P4	12	<1	0.8	81	<1	8.1
<i>Elliptio arcata</i>	P1	37	<1	2.6	--	--	--
<i>Elliptio crassidens</i>	P5	462	0.2	32.1	78	<1	7.8
<i>Fusconaia cerina</i>	P5	5	<1	0.3	34	<1	3.4
<i>Fusconaia ebena</i>	P5	884	29.0	61.4	2,608	58.1	260.4
<i>Lampsilis straminea</i>	P4	3	<1	0.2	2	<1	0.2
<i>Lampsilis teres</i>	P5	10	<1	0.7	4	<1	0.4
<i>Leptodea fragilis</i>	P5	67	<1	4.7	2	<1	0.2
<i>Megalonias nervosa</i>	P5	204	6.7	14.2	25	<1	2.5
<i>Obliquaria reflexa</i>	P5	264	8.6	18.3	243	5.4	24.3
<i>Plectomerus dombeyanus</i>	P5	404	13.2	28.1	290	6.5	29.1
<i>Potamilus purpuratus</i>	P5	116	3.8	8.1	8	<1	0.8
<i>Quadrula apiculata</i>	P5	74	2.4	5.1	197	4.4	19.7
<i>Quadrula asperata</i>	P5	494	16.2	34.3	892	19.8	89.1
<i>Quadrula metanevra</i>	P3	2	<1	0.1	11	<1	1.1
<i>Quadrula nobilis</i> ³		5	<1	0.3	10	<1	1.0
<i>Quadrula rumphiana</i>	P4	1	<1	<0.1	4	<1	0.4
<i>Truncilla donaciformis</i>	P3	7	<1	0.5	1	<1	0.1
<i>Utterbackia imbecillis</i>	P5	3	<1	0.2	--	--	--
Total		3,054		212.1	4,490		448.6

¹ P1=Priority 1 (Highest Conservation Concern), P3=Priority 3 (Moderate Conservation Concern), P4=Priority 4 (Low Conservation Concern), P5=Priority 5 (Lowest Conservation Concern).

² Aggregate total number of live mussels and fresh dead shells among all stations sampled; N=number of individuals, %=percent of catch within each reach, CPUE=catch per unit effort in hours within each reach.

³ *Quadrula nobilis* was not recognized by Mirarchi (2004).

A comparison of the sampling results between the two reaches indicates that they contain similar faunal assemblages with somewhat different dominant species (table 2). The table also provides CPUE data for comparative purposes. In the Claiborne Lock and Dam tailwater, there was an aggregate CPUE of 212.1 mussels per hour, while in the Millers Ferry Lock and Dam tailwater the CPUE was more than twice that value, at 448.9 mussels per hour. However, two species were collected in the Claiborne tailwater that were not collected in the Millers Ferry tailwater. These differences may be the result of several factors. Downstream of Claiborne, there are areas with boulders scattered about the bottom of the river, a habitat type generally lacking in the reach downstream of Millers Ferry. A large percentage of time was devoted to searching under and around those rocks, as they provide a specific niche preferred by some mussels and/or their host fishes. Two species found downstream of Claiborne and not downstream of Millers Ferry (*Elliptio arctata* and *Utterbackia imbecillis*) and two found in considerably higher abundance downstream of Claiborne than downstream of Millers Ferry (*Leptodea fragilis* and *Potamilus purpuratus*) are known to prefer that habitat type. Conversely, a species found in higher abundance in the Millers Ferry tailwater, the butterfly, *Ellipsaria lineolata*, is known to burrow deeply into softer substrates such as that found downstream of Millers Ferry, and some quantitative 0.25 m² quadrat sampling in that reach involved deep excavation of those quadrats, resulting in more *Ellipsaria* found.

RECOMMENDATIONS

Based on the results of recent sampling downstream of Claiborne and Millers Ferry Locks and Dams, primarily the discovery of a robust population of *Elliptio arctata*, we make the following recommendations:

- Sampling should be continued to further define the range limits and abundance of the extant mussel fauna in the Alabama River. Emphasis on the more diverse mussel beds would increase the likelihood of finding additional target species.
- Observations of potential limiting factors to habitat quality and other aspects of mussel life history should be noted. Upon determination of possible limiting factors, efforts should be made to reverse or minimize those factors.

- Quantitative assessment of the mussel fauna at selected stations should be determined as a benchmark for comparison in the event of possible future deleterious impacts to the fauna, such as a mussel die-off or chemical spill.

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APPENDIX

**Summary of field notes for mussel sampling stations downstream of Claiborne and
Millers Ferry Locks and Dams, Clarke, Monroe and Wilcox Counties, Alabama,
2006-07**

ARM 38.0 at upstream end of bluff, left descending bank

N31° 20.351' W87° 43.474'

Clarke/Monroe Counties, Alabama

September 7, 2006

Poor, loose substrate; 10 minutes bottom time

Obliquaria reflexa – 1 live

Fusconaia ebena – 2 weathered dead

ARM 38.7 downstream of Eureka Landing, left descending bank

N31° 21.562' W87° 43.267'

Clarke/Monroe Counties, Alabama

September 7, 2006

Poor substrate of soupy mud; 5 minutes bottom time

No mussels

ARM 43.1 upstream of Eureka Landing, right descending bank

N31° 25.074' W87° 40.478'

Clarke/Monroe Counties, Alabama

September 7, 2006

Poor substrate of muddy sand; 5 minutes bottom time

No mussels

ARM 46.0 upstream of Gainestown Landing on bedrock (probably limestone) bluff,
right descending bank

N31° 25.243' W87° 38.712'

Clarke/Monroe Counties, Alabama

September 7, 2006

Soft, cobble-sized stone (limestone?) with interstitial gravel/sand/silt in channel; stone on
slope; 65 minutes bottom time

Fusconaia ebena – 2 live

Plectomerus dombeyanus – 3 live

Potamilus purpuratus – 3 live

Quadrula nobilis – 1 live

Elliptio crassidens – 1 live

Quadrula asperata – 1 live

Corbicula sp. – present

ARM 48.0 along gravel shore opposite training dikes, left descending bank

N31° 24.892' W87° 37.843'

Clarke/Monroe Counties, Alabama

September 7, 2006

Poor substrate of unstable gravel; 5 minutes bottom time

No mussels

ARM 49.5 along stone shore downstream of training dikes, left descending bank N31°
24.655' W87° 35.966'
Clarke/Monroe Counties, Alabama
September 7, 2006
Poor substrate of bedrock; 10 minutes bottom time
Quadrula asperata – weathered dead fragments
Fusconaia ebena – weathered dead fragments
Obliquaria reflexa – weathered dead fragments
Corbicula sp. – present

ARM 50.0 along large gravel bar with three training dikes, right descending bank N31°
25.239' W87° 35.578'
Clarke/Monroe Counties, Alabama
September 6, 2006
Poor substrate of mud; 5 minutes bottom time
No mussels

ARM 51.5 along large gravel bar, left descending bank
N31° 26.145' W87°34.367'
Clarke/Monroe Counties, Alabama
September 6, 2006
Bedrock slope, very loose coarse sand on channel floor; 5 minutes bottom time
Elliptio crassidens – 5 live
Fusconaia ebena – 28 live
Leptodea fragilis – 1 weathered dead
Megaloniaias nervosa – 2 live
Obliquaria reflexa – 7 live
Plectomerus dombeyanus – 1 live
Potamilus purpuratus – 1 live
Quadrula asperata – 6 live
Corbicula sp. – present

ARM 54.6 at Marshalls Bluff near left descending bank among boulders
N31° 28.404' W87°33.722'
Clarke/Monroe Counties, Alabama
September 6, 2006
Flat bedrock with many pockmarks and scour holes; 30 minutes bottom time
Lampsilis teres – 2 live
Plectomerus dombeyanus – 1 live
Corbicula sp. – present

ARM 57.5 along bluff downstream of sand and gravel banks, right descending bank
N31° 29.880' W87°36.141'

Clarke/Monroe Counties, Alabama

September 6, 2006

Loose sand/gravel in channel, stable at foot of slope among rocks; 40 minutes bottom time

Elliptio crassidens – 5 live

Fusconaia ebena – 2 live

Leptodea fragilis – 1 live

Megaloniaias nervosa – 15 live

Obliquaria reflexa – 15 live

Plectomerus dombeyanus – 15 live

Potamilus purpuratus – 1 live

Quadrula apiculata – 2 live

Corbicula sp. – present

ARM 59.7 downstream of Pigeon Creek, along right descending bank

N31° 31.174' W87°37.233'

Clarke/Monroe Counties, Alabama

September 6, 2006

Stable gravel and sand on channel floor, slope with sandy mud over gravel; 80 minutes bottom time

Ellipsaria lineolata – 1 live

Elliptio crassidens – 1 live

Fusconaia cerina – 1 live

Fusconaia ebena – 300 live

Lampsilis teres – 1 weathered dead

Leptodea fragilis – 1 weathered dead

Megaloniaias nervosa – 1 live (subadult)

Obliquaria reflexa – 75 live

Plectomerus dombeyanus – 1 live

Potamilus purpuratus – 1 live

Quadrula apiculata – 12 live

Quadrula asperata – 125 live

Truncilla donaciformis – 2 live

Corbicula sp. – present

ARM 60.4 downstream of Nancy Hill Landing, near left descending bank

N31° 31.558' W 87°36.085'

Clarke/Monroe Counties, Alabama

September 5, 2006

Slope with bedrock outcrops, cobble and boulders, and a heavy coating of silty sand; channel floor with silty sand; 60 minutes bottom time

Ellipsaria lineolata – 1 weathered dead

Elliptio crassidens – 1 weathered dead

Fusconaia ebena – 18 live

Lampsilis teres – 2 weathered dead

Leptodea fragilis – 1 live

Megaloniaias nervosa – 1 relic

Obliquaria reflexa – 4 live

Plectomerus dombeyanus – 3 live

Potamilus purpuratus – 1 live

Quadrula apiculata – 2 relic

Quadrula asperata – 6 live

Corbicula sp. – present

ARM 64.3 at Strode Landing, near right descending bank

N31° 33.355' W 87° 33.663'

Clarke/Monroe Counties, Alabama

August 1, 2006

Slope with cobble and boulders, bedrock at base of slope, channel floor with silt and gravel, unstable; 60 minutes bottom time

Elliptio crassidens – 25 live

Fusconaia cerina – 1 live

Fusconaia ebena – 150 live (including 21 subadults)

Lampsilis teres – 1 live

Leptodea fragilis – 2 live

Megaloniaias nervosa – 5 live

Obliquaria reflexa – 60 live

Plectomerus dombeyanus – 40 live

Potamilus purpuratus – 10 live

Quadrula apiculata – 20 live

Quadrula asperata – 120 live

Quadrula metanevra – 1 live

Truncilla donaciformis – 1 weathered dead

Corbicula sp. – present

ARM 66.5 downstream of U.S. Highway 84 bridge, along left descending bank
N31° 32.693' W 87° 31.099'

Monroe County, Alabama

August 1, 2006

Slope with cobble and boulders, bedrock at base of slope, channel floor with silt and gravel, unstable; 60 minutes bottom time

Ellipsaria lineolata – 4 live

Elliptio crassidens – 25 live

Fusconaia cerina – 1 live

Fusconaia ebena – 100 live (including 21 subadults)

Lampsilis teres – 1 live

Megaloniaias nervosa – 5 live

Obliquaria reflexa – 40 live

Plectomerus dombeyanus – 40 live

Potamilus purpuratus – 5 live

Quadrula apiculata – 10 live

Quadrula asperata – 80 live (including 7 subadults)

Quadrula metanevra – 1 live

Truncilla donaciformis – 1 weathered dead

Corbicula sp. – present

ARM 70.0 at downstream end of bluff downstream of Claiborne Lock and Dam,
along right descending bank

N31° 35.307' W 87° 32.214'

Monroe County, Alabama

August 3, 2006

Slope cobble and boulders with bedrock outcrops with gravel/mud/sand pockets, channel floor sand and gravel; 80 minutes bottom time

Ellipsaria lineolata – 1 live

Elliptio arctata – 17 live

Elliptio crassidens – 50 live

Fusconaia ebena – 30 live

Leptodea fragilis – 30 live (mostly subadults)

Megaloniaias nervosa – 30 live

Obliquaria reflexa – 10 live

Plectomerus dombeyanus – 50 live

Potamilus purpuratus – 30 live

Quadrula apiculata – 5 live

Quadrula asperata – 25 live

Truncilla donaciformis – 2 live

Corbicula sp. – present

ARM 70.3 along bluff downstream of Claiborne Lock and Dam, along right descending bank

N31° 35.532' W 87° 32.569'

Monroe County, Alabama

August 3, 2006

Slope cobble and boulders with bedrock outcrops with gravel/mud/sand pockets, channel floor sand and gravel; 40 minutes bottom time

Elliptio arctata – 1 live

Elliptio crassidens – 70 live

Fusconaia ebena – 10 live

Lampsilis teres – 1 weathered dead

Leptodea fragilis – 3 live

Megaloniaias nervosa – 20 live

Obliquaria reflexa- 5 live

Plectomerus dombeyanus – 30 live

Potamilus purpuratus – 2 live

Quadrula apiculata – 1 live

Quadrula asperata – 10 live

Corbicula sp. – present

ARM 70.5 along bluff downstream of Claiborne Lock and Dam, right descending bank

N31° 35.232' W 87° 32.066'

Monroe County, Alabama

August 2, 2006

Slope cobble and boulders with bedrock outcrops with gravel/mud/sand pockets, channel floor sand and gravel; 160 minutes bottom time

Ellipsaria lineolata – 1 live

Elliptio arctata – 6 live

Elliptio crassidens – 105 live

Fusconaia ebena – 200 live

Lampsilis straminea – 1 live

Lampsilis teres – 3 live (including 1 subadult)

Leptodea fragilis – 25 live (mostly subadults)

Megaloniaias nervosa – 51 live

Obliquaria reflexa- 35 live

Plectomerus dombeyanus – 80 live (including 2 subadults)

Potamilus purpuratus – 20 live (including 2 subadults)

Quadrula apiculata – 15 live

Quadrula asperata – 75 live

Quadrula nobilis – 2 live

Quadrula rumphiana – 2 weathered dead

Truncilla donaciformis – 1 live

Utterbackia imbecillis – 2 live (including 1 subadult)

Corbicula sp. – present

ARM 70.75 along bluff downstream of Claiborne Lock and Dam, right descending bank
N31° 35.537' W 87° 32.560'

Monroe County, Alabama

August 1, 2006

Slope cobble and boulders with bedrock outcrops containing gravel/mud/sand pockets,
channel floor sand and gravel; 60 minutes bottom time

Ellipsaria lineolata – 4 live

Elliptio arctata – 2 live

Elliptio crassidens – 100 live

Fusconaia cerina – 2 live

Fusconaia ebena – 40 live

Lampsilis straminea – 2 live

Lampsilis teres – 1 live

Leptodea fragilis – 3 weathered dead

Megaloniaias nervosa – 50 live

Obliquaria reflexa – 11 live

Plectomerus dombeyanus – 100 live

Potamilus purpuratus – 20 live

Quadrula apiculata – 5 live

Quadrula asperata – 40 live

Quadrula nobilis – 2 live

Quadrula rumphiana – 1 live

Truncilla donaciformis – 2 fresh dead

Corbicula sp. – present

ARM 71.0 along bluff downstream of Claiborne Lock and Dam, right descending bank
N31° 35.390' W 87° 32.346'

Monroe County, Alabama

August 1, 2006

Slope cobble and boulders with bedrock outcrops containing gravel/mud/sand pockets,
channel floor sand and gravel; 45 minutes bottom time

Elliptio arctata – 11 live

Elliptio crassidens – 75 live

Fusconaia ebena – 5 live

Lampsilis teres – 2 live

Leptodea fragilis – 5 live (all subadults)

Megaloniaias nervosa – 15 live

Obliquaria reflexa – 1 live

Plectomerus dombeyanus – 40 live (1 subadult)

Potamilus purpuratus – 20 live

Quadrula apiculata – 2 live

Quadrula asperata – 5 live

Utterbackia imbecillis – 1 live

Corbicula sp. – present

ARM 105.4, just upstream of Burlington Northern Railroad Bridge, left descending bank
N31° 55.717' W87° 29.160'
Wilcox County, Alabama
July 12, 2007
Bedrock with layer of silt, no current, minimal visibility; 20 minutes bottom time
Obliquaria reflexa – 1 fresh dead
Quadrula asperata – 1 fresh dead
Corbicula sp. – present

ARM 107.5, at unnamed gravel bar one mile downstream of Rose Landing, right descending bank
N31° 54.049' W87° 23.639'
Wilcox County, Alabama
July 12, 2007
Mud bottom, no current, minimal visibility; 3 minutes bottom time
No mussels

ARM 108.4, near Rose Landing, right descending bank
N31° 55.303' W87° 26.633'
Wilcox County, Alabama
July 12, 2007
Loose gravel and sand in channel, slope more stable, each with a layer of silty mud; 20 minutes bottom time
Fusconaia cerina – 2 live
Fusconaia ebena – 6 live
Plectomerus dombeyanus – 10 live
Quadrula apiculata – 1 live
Quadrula asperata – 4 live
Obliquaria reflexa – 4 live

ARM 111.0 at upstream end of Blacks Bluff, left descending bank
N31° 55.303' W87° 26.633'
Wilcox County, Alabama
July 12, 2007
Moderately stable gravel and sand with a fine layer of silt; 30 minutes bottom time
Ellipsaria lineolata – 2 live
Elliptio crassidens – 5 live
Fusconaia ebena – 23 live
Obliquaria reflexa – 1 live
Quadrula apiculata – 1 live
Quadrula metanevra – 1 live
Corbicula sp. – present

ARM 112.9 just upstream of mouth of Pursley Creek, right descending bank
N31° 55.303' W87° 26.633'
Wilcox County, Alabama

July 12, 2007

Bedrock with a brittle surface, firmer beneath; bottom time 10 minutes

Lampsilis straminea – 1 live

Obliquaria reflexa – 1 live, 1 fresh dead

Elliptio crassidens – 1 weathered dead

Corbicula fluminea – present

ARM 116.9 at upstream end of Yellowjacket Bar, right descending bank

N31° 54.049' W87° 23.639'

Wilcox County, Alabama

July 12, 2007

Bedrock terraces on slope, channel bottom with boulders scattered among gravel and sand; bottom time 30 minutes

Fusconaia cerina – 1 live, 3 fresh dead

Fusconaia ebena – 100 live

Plectomerus dombeyanus – 30 live

Potamilus purpuratus – 3 live

Quadrula apiculata – 5 live

Elliptio crassidens – 5 live

Quadrula asperata – 50 live

Obliquaria reflexa – 15 live

Corbicula sp. – present

ARM 118.4 about 100 m upstream of boat ramp at Alabama Highway 10 Bridge, left descending bank; dive abbreviated by severe thunderstorm

N31° 58.191' W87° 24.890'

Wilcox County, Alabama

July 10, 2007

Stable sand and gravel on channel bottom, mud with soupy silt on channel slope, strong current; 30 minutes bottom time

Ellipsaria lineolata – 8 live

Elliptio crassidens – 5 live

Fusconaia cerina – 3 live

Fusconaia ebena – 200 live

Lampsilis straminea – 1 weathered dead

Megaloniais nervosa – 10 live

Obliquaria reflexa – 20 live

Plectomerus dombeyanus – 5 live

Quadrula apiculata – 20 live

Quadrula asperata – 100 live

ARM 123.3 downstream of the mouth of Beaver Creek, right descending bank

N31° 59.911' W87° 28.389'

Wilcox County, Alabama

July 10, 2007

Sand and gravel on channel bottom, slope of soft bedrock with breakdown along base and a fine layer of silt on most surfaces; bottom time 60 minutes

Fusconaia ebena – 120 live

Lampsilis teres – 1 live

Obliquaria reflexa – 10 live

Plectomerus dombeyanus – 25 live

Quadrula apiculata – 5 live

Quadrula asperata – 40 live

Corbicula fluminea – present

ARM 124.8 about 0.2 mile downstream of Clifton Ferry Boat Ramp, right descending bank

N32° 01.046' W87° 28.151'

Wilcox County, Alabama

July 10, 2007

Channel bottom sand and gravel with silt layer, bedrock slope with breakdown common; bottom time 120 minutes

Ellipsaria lineolata – 11 live, 3 weathered dead

Elliptio crassidens – 15 live

Fusconaia cerina – 9 live

Fusconaia ebena – 550 live

Lampsilis teres – 1 weathered dead

Leptodea fragilis – 1 weathered dead

Megaloniaias nervosa – 10 live

Plectomerus dombeyanus – 75 live

Potamilus purpuratus – 3 live

Obliquaria reflexa – 35 live

Quadrula asperata – 170 live

Quadrula apiculata – 50 live

Quadrula metanevra – 6 live

Quadrula nobilis – 2 live

Truncilla donaciformis – 1 live

ARM 126.3 along low fossiliferous shelf just downstream of mouth of Dixon Creek, right descending bank

N32° 01.951' W87° 26.792'

Wilcox County, Alabama

11 July 2007

Channel bottom bedrock with gentle slope, both with fine layer of silt; 35 minutes bottom time

Lampsilis teres – 1 relic

Obliquaria reflexa – 1 fresh dead

Quadrula asperata – 1 fresh dead

Corbicula fluminea – present

ARM 127.5 at bluff colloquially known as “Biscuit Rocks,” left descending bank

N32° 018251' W87° 25.705'

Wilcox County, Alabama

July 26, 2007

Gravel with interstitial sand with a fine silt layer on most surfaces, no current; 17 minutes bottom time

Elliptio crassidens – 15 live

Fusconaia ebena – 2 live

Leptodea fragilis – 1 live

Obliquaria reflexa – 3 live

Plectomerus dombeyanus – 50 live

Potamilus purpuratus – 2 live

Quadrula apiculata – 3 live

Quadrula asperata – 5 live

ARM 128.6 just upstream of mouth of Rockwest Creek, left descending bank

N32° 01.046' W87° 28.151'

Wilcox County, Alabama

July 10, 2007

Gravel and sand over firm clay with a fine silt layer on most surfaces, no current; 30 minutes bottom time

Ellipsaria lineolata – 3 live

Fusconaia cerina – 4 live

Fusconaia ebena – 200 live

Lampsilis teres – 1 weathered dead

Megaloniaias nervosa – 1 live

Obliquaria reflexa – 20 live

Plectomerus dombeyanus – 15 live

Quadrula apiculata – 25 live

Quadrula asperata – 75 live

Quadrula nobilis – 2 live

ARM 129.0 downstream of Millers Ferry Lock and Dam, right descending bank

N32° 03.640' W87° 24.235'

Wilcox County, Alabama

July 24, 2007

Bedrock with scattered boulders and gravel patches where mussels were found; 35 minutes bottom time

Ellipsaria lineolata – 17 live

Elliptio crassidens – 1 live

Fusconaia cerina – 2 live

Fusconaia ebena – 166 live

Megaloniaias nervosa – 1 live

Obliquaria reflexa – 11 live

Plectomerus dombeyanus – 2 live

Quadrula apiculata – 1 live

Quadrula asperata – 23 live

Quadrula metanevra – 1 live

ARM 130.6 opposite Cobbs Landing Boat Ramp, right descending bank

N32° 04.002' W87° 24.172'

Wilcox County, Alabama

July 11, 2007

Sand and gravel substrate with fine layer of silt on most surfaces, no current; bottom time 60 minutes

Ellipsaria lineolata – 24 live

Elliptio crassidens – 14 live

Fusconaia cerina – 7 live

Fusconaia ebena – 741 live

Lampsilis straminea – 1 relic

Megalonaia nervosa – 1 live

Obliquaria reflexa – 42 live

Plectomerus dombeyanus – 29 live

Quadrula apiculata – 36 live

Quadrula asperata – 187 live

Quadrula nobilis – 1 live

Quadrula rumphiana – 4 live

ARM 131.7 beneath power transmission lines downstream of Millers Ferry Lock and Dam, right descending bank

N32° 04.002' W87° 24.172'

Wilcox County, Alabama

July 11, 2007

Elliptio crassidens – 3 live

Fusconaia cerina – 1 live

Fusconaia ebena – 100 live

Lampsilis teres – 1 relic

Leptodea fragilis – 1 fresh dead

Obliquaria reflexa – 30 live

Plectomerus dombeyanus – 40 live

Potamilus purpuratus – 2 live

Quadrula apiculata – 10 live

Quadrula asperata – 30 live

Corbicula fluminea – present

GEOLOGICAL SURVEY OF ALABAMA

P.O. Box 869999
420 Hackberry Lane
Tuscaloosa, Alabama 35486-6999
205/349-2852

Berry H. (Nick) Tew, Jr., State Geologist

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E-mail: info@gsa.state.al.us

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