from 40.5-45.6 mm (Table 22), and there was a significant difference in depth between Regions 2 and 4 (Tables 23-24).

Quadrula pustulosa shell interval modes ranged from 30-39.9 to 40-49.9 mm in the four regions (Tables 18-21). The mean depth for this species ranged from 35.4-41.2 mm (Table 22), and there were significant differences in depth between Regions 1-2, 2-3 and 2-4 (Tables 23-24).

Discussion

Since this river is not commercially harvested, no selected size class of mussels is removed that would skew distribution of size classes in the community. Without the biased removal of legal size and larger individuals, the communities in the Ouachita River are more natural than those of other rivers where commercial harvesting occurs.

Species exhibiting differences in growth modes had the highest mode in the unchannelized Region 1. An alternate hypothesis suggests that mean size decreases as densities increase and resources decrease (Christian, 1995). Survey results suggest that greater intra- and interspecific competition for resources may affect observed size differences. Region 2 contained the highest estimated CNSC of all regions in the study area, and only *Fusconaia ebena* (n=171) showed a decrease in interval depth mode from Region 1 to Region 2 (n=932). Therefore, these data do not tend to support the hypothesis set forth by Christian (1995).

RECRUITMENT

Rust (1993) and Christian (1995) reported low recruitment within the rivers they studied. While few juvenile mussels were found in the St. Francis River, many juveniles were found in the Ouachita River. However, nearly all mussels collected in the Ouachita River were "dwarfed" when compared to those of other rivers and many "juveniles" may just be of a smaller age class and not true juveniles.

AGE DETERMINATIONS

St. Francis River

Results

Age analysis was conducted on 48 *Megalonaias nervosa* specimens ranging in depth from 79.8-130.8 mm. Age was determined to be from 8 to 41 years (Table 25, Figure 10). The correlation coefficient (r) was calculated to be 0.88, and r^2 was 0.77. Age at minimum legal harvestable size (92.2 mm), was predicted to be 9.9 years with standard error of prediction about the mean of 4.1 years.

Discussion

The r^2 value of 0.77 indicates a fairly strong correlation of the variability with only 23% of the variability unaccounted. Clinal variation and sexual dimorphism may explain some of the variability found (Oesch, 1984). The small sample size (n=48) may not provide enough data to precisely predict age at a certain depth. Experimental error may also provide some of the variability.

Table 25. Shell dimensions, dry mass and age for selected individuals of St. Francis River *Megalonaias nervosa*.

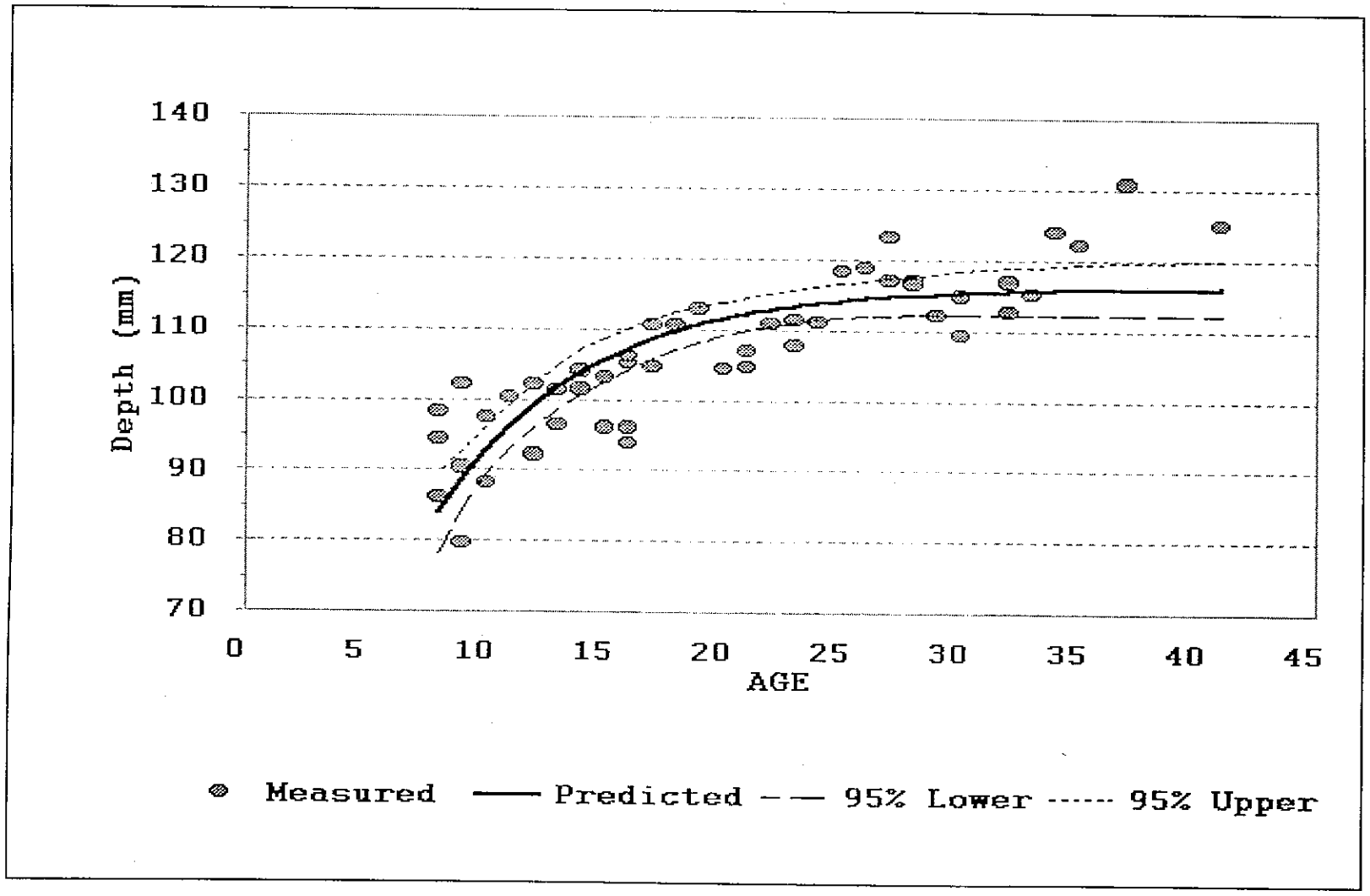
Number	Length	Depth	Width	Mass	Age
50	109.6	79.8	42.1	133	9
49	126.2	86.2	40.9	153	8
48	132.6	88.3	40.2	162	10
46	137.1	90.4	53.4	246	9
33	134.7	92.2	52.5	240	12
32	151.3	93.8	60.9	337	16
47	131.3	94.5	48.4	214	8
39	148.2	96.1	58.2	306	15
28	153.1	96.1	57.2	299	16
40	142.8	96.4	53.6	255	13
42	137.4	97.5	48.1	226	10
45	136.2	98.3	50.8	255	8
43	133.3	100.3	46.2	208	11
38	151.9	101.3	54.2	321	13
37	143.0	101.5	55.9	308	14
41	144.1	102.1	44.4	233	12
44	142.5	102.2	45.4	254	9
30	154.1	103.2	56.2	322	15
36	153.1	104.1	54.1	287	14
25	160.5	104.5	50.4	305	20
31	151.3	104.8	54.7	297	17
13	167.0	104.8	62.9	389	21
34	158.5	105.3	52.3	324	16
35	157.5	106.3	55.4	311	16
15	166.3	107.1	60.3	415	21
17	166.3	107.1	60.3	415	21
24	156.7	109.3	62.4	409	30
16	154.9	110.6	56.7	362	17
21	165.6	110.6	53.4	349	18
11	172.6	110.8	73.2	525	22
27	173.9	112.1	65.6	508	29
23	162.1	111.4	68.2	432	23
14	173.9	112.1	65.6	508	29
26	175.5	112.7	63.0	514	32
20	168.8	113.0	58.0	417	19
19	173.5	114.9	70.3	532	30
8	174.5	115.3	67.8	584	33
12	178.8	116.5	63.6	527	28
2	175.8	116.6	63.7	434	29
7	188.8	116.9	56.6	455	32
9	188.5	117.0	61.5	541	27
10	181.8	118.3	71.2	565	25
6	178.5	118.9	62.5	526	26
18	187.5	122.3	62.2	516	35
3	183.4	123.2	61.6	534	27
4	190.3	124.1	66.2	687	34
5	196.8	125.0	71.5	656	41

Table 25 con't.

Number	Length	Depth	Width	Mass	Age
1	205.5	130.8	71.0	647	37

Individuals 22 and 29 were broken during processing

Figure 10. Scatterplot of age versus depth for selected *Megalonaias nervosa* individuals, St. Francis River, Arkansas.



However, strict repetition was used to ensure duplicate results.

Correlating the age with commercial harvest size is important to further maintain a viable population, and thus a viable harvest. Woody and Holland-Bartels (1993) found *M. nervosa* of Pool 10 in the upper Mississippi river to be reproductively mature at age 8. Assuming that *Megalonaias nervosa* is sexually mature at this age in the St. Francis River, more protection may be needed to avoid overharvest of this species. However, more thorough studies need to be conducted to determine sexual maturity of this species in this river and to determine the minimum legal size from this age.

Ouachita River

Results

Fifty *Amblema plicata* individuals ranging in depth from 19.3-64.1 mm were analyzed for age with counts ranging from 3-25 years (Table 26, Figure 11). The correlation coefficient (r) was calculated to be 0.72, and the r^2 was 0.52. Age at 69.9 mm (2.7") depth was predicted to be 24.4 years, with a standard error of prediction of 2.9 years.

Discussion

The r^2 value of 0.52 indicates a moderate correlation between depth and age and leaves 48% of the variability unexplained. No specimens aged were of legal harvestable size and all were collected from Region 1. Additionally, 70% of all specimens were less than 11 years old. Mussels tend to

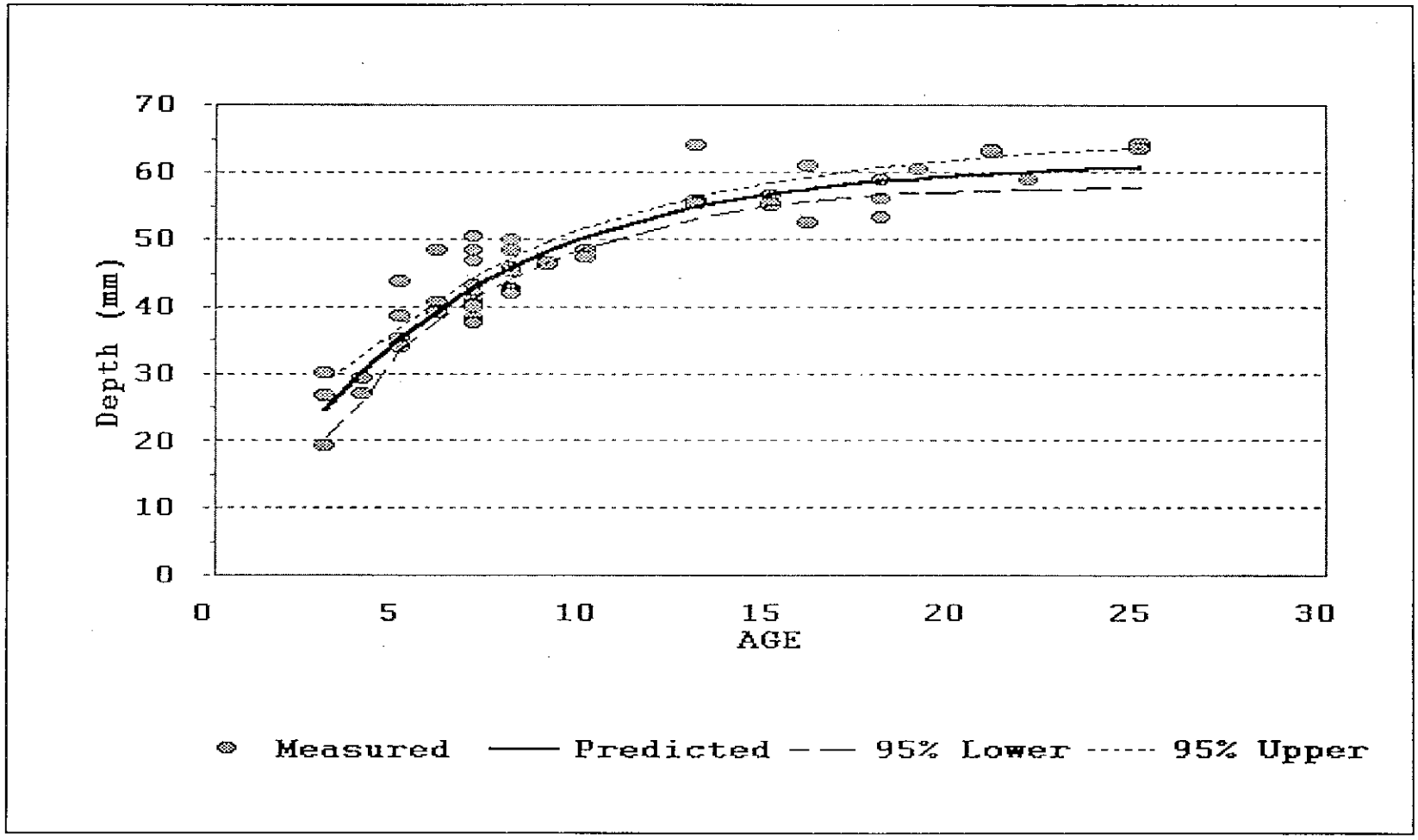
Table 26. Shell dimensions, dry mass and age for individuals of selected Ouachita River *Amblema plicata*.

Number	Length	Depth	Width	Weight	Age
50	24.3	19.3	14.3	5	3
48	32.7	26.7	19.7	12	4
49	32.7	26.9	19.2	11	4
46	38.5	29.3	20.6	14	4
47	36.1	30.1	20.3	13	3
45	40.9	33.9	22.1	19	5
43	41.5	34.2	25.9	19	5
44	44.4	35.3	24.7	21	5
42	43.8	37.5	24.9	23	7
38	45.8	38.4	27.6	27	7
41	43.3	38.5	27.3	27	5
40	46.4	39.0	26.0	25	6
35	51.4	39.2	27.7	33	6
39	45.1	40.0	25.9	24	7
37	52.6	40.4	26.1	27	7
32	50.6	40.7	28.9	31	6
36	50.9	41.0	27.3	29	7
30	54.4	42.0	27.7	31	8
34	52.3	42.0	27.6	30	7
21	55.4	42.3	30.5	34	8
22	54.3	42.7	29.9	37	8
31	53.3	43.3	32.4	40	7
33	53.3	43.3	32.4	40	7
19	55.7	45.2	30.2	36	8
23	56.9	45.7	31.3	42	8
29	58.0	46.4	30.8	47	9
25	61.4	46.4	29.3	37	9
20	57.8	46.8	33.1	44	7
27	61.3	47.4	32.4	49	10
24	56.4	48.3	30.8	39	7
28	59.4	48.3	33.1	52	8
18	57.2	48.3	28.8	37	10
26	63.4	48.4	30.5	40	6
17	64.1	49.9	31.5	46	8
16	62.3	50.5	29.5	44	7
13	77.1	52.5	36.0	65	16
14	73.6	53.3	32.6	68	18
15	69.9	55.2	34.4	61	15
12	66.1	55.3	31.9	54	13
11	76.2	55.9	39.2	93	13
6	74.4	56.0	36.9	81	18
9	79.1	56.7	36.4	79	15
10	75.4	58.9	33.5	64	18
4	75.4	59.0	41.3	103	22
5	81.7	60.4	41.2	99	25
7	83.3	60.4	39.4	105	19
3	78.5	60.9	45.4	109	16

Table 26 con't.

Number	Length	Depth	Width	Weight	Age
2	87.4	63.2	42.0	123	21
1	88.5	63.6	35.1	75	25
8	82.2	64.1	39.1	106	13

Figure 11. Scatterplot of age versus depth for selected *Amblema plicata* individuals, Ouachita River, Arkansas.



grow less as they age which may explain some of the variability (Figures 10 and 11).

PERCENT LEGAL HARVESTABLE MUSSELS

Knowing the percentage of legal harvestable mussels is necessary to determine the current status of mussel communities. It will also help to maintain a viable commercial industry for the future.

St. Francis River

Results

Within the St. Francis River, 41.3% of all mussels collected were of legal harvestable dimension. Mbeds contained 40.7% legal dimension individuals and mbeds contained 42.9% legal individuals (Table 27). Percent legal harvestable mussels (PLHM) for individual species is summarized in Table 28. PLHM data for M- and mbeds are summarized in Appendixes 1.1 and 1.2, respectively.

The highest mean PLHM was found in Region 1 and decreased through Regions 2 and 3 (Table 28). Bed 1m had the highest PLHM (69.6), while Bed 9m had the lowest (15.2).

Discussion

The significant current influence on PLHM in the St. Francis River is harvest pressure. Between 1990 and 1995, 792,516 kg of mussel shell were harvested from this river (1992 not reported, AGFC, 1993). More tonnage of shell material was removed from the St. Francis River from 1990, 1993 and 1994 than any other commercially harvested area

Table 27. Percent legal harvestable mussels, commercial species, in the St. Francis River, Arkansas.

		Segment		
	Mean	1	2	3
Mbeds	40.7(467)	*	41.5(406)	27.9 (61)
mbeds	42.9(296)	51.9(165)	46.7 (26)	15.2 (105)
Total	41.3(763)	51.9(165)	41.6(432)	19.9 (166)

()= Sum of individuals
* = No major beds defined in this segment

Table 28. Percent legal harvestable mussels, by species, in the St. Francis River, Arkansas, 1993.

Species	Bed					
	Major		Minor		Mean	
Amblema plicata	77.2	(338)	88.0	(132)	79.9	(470)
Ellipsaria lineolata	66.7	(2)	0.0	(0)	66.7	(2)
Fusconaia ebena	35.3	(6)	100.0	(1)	38.9	(7)
Fusconaia flava	31.3	(5)	50.0	(4)	37.5	(9)
Megalonaias nervosa	86.8	(33)	80.0	(8)	85.4	(41)
Obliquaria reflexa	7.7	(1)	20.0	(1)	11.1	(2)
Plectomerus dombeyanus	66.7	(2)	100.0	(1)	75.0	(3)
Pleurobema coccineum	40.0	(6)	0.0	(0)	40.0	(6)
Pleurobema pyramidatum	5.7	(2)	85.7	(6)	19.0	(8)
Potamilus purpuratus	100.0	(10)	85.7	(6)	94.1	(16)
Quadrula metanevra	100.0	(5)	0.0	(0)	100.0	(5)
Quadrula nodulata	14.3	(2)	16.7	(1)	15.0	(3)
Quadrula pustulosa	1.6	(4)	16.3	(21)	65.8	(25)
Quadrula quadrula	2.9	(4)	4.5	(5)	3.6	(9)
Tritogonia verrucosa	25.0	(2)	100.0	(11)	68.4	(13)
Mean	40.6	(422)	40.8	(197)	40.7	(619)

( ) = Sum Individuals

reported in the state. In 1995, only Macon Bayou and Fourche LaFave River produced more commercial shell material than the St. Francis River (AGFC, 1996).

Conversations with local shell fishermen attribute the shallow depth, allowing easy access to mussels in the St. Francis River, as the major reason for the heavy harvest. Often, mussels are collected by wading and feeling for mussels in the substrate. This is a low cost alternative to the more expensive SCUBA required to harvest in deeper rivers.

Ouachita River

Results

The Ouachita River produced only 0.3 PLHM, all were found in Mbeds. Region 2 contained the greatest number of legal individuals (43) while Region 4 contained the fewest (3). Of notable interest, these two regions contained the lowest mean density per region, 25.5 and 24.1 mussels/m^2, respectively. Values for PLHM for M- and mbeds are summarized in Table 29. Individual PLHM values for species are found in Table 30 and individual M- and mbed PLHM's are found in Appendices 1.3 and 1.4, respectively.

The greatest PLHM was 1.0 (25M) found in Region 2. Forty-two (68.9%) beds contained no legal size mussels.

Discussion

Commercial harvesting is permitted from the Clark-Ouachita County Line to Felsenthal National Refuge and from Felsenthal Lock and Dam to Louisiana. No harvesting occurs

Table 29. Percent legal harvestable mussels, commercial species, in the Ouachita River, Arkansas.

	Mean		Region 1		Region 2		Region 3		Region 4	
Major Beds	0.3	(21,371)	0.1	(4,036)	0.5	(8,147)	0.6	(956)	0.04	(8,318)
Minor Beds	0.0	(2,006)	0.0	(885)	0.0	(63)	0.0	(421)	0.0	(637)
Total	0.3	(23,463)	0.08	(4,921)	0.05	(8,210)	0.4	(1,377)	0.03	(8,955)

()= Sum of individuals

Table 30. Percent legal harvestable mussels, by species, in the Ouachita River, Arkansas, 1993-1995.

Species	Bed		
	Major	Minor	Mean
Actinonaias ligamentina	3.0 (4)	0.0(0)	2.4 (4)
Amblema plicata	0.3 (10)	0.0(0)	0.2 (10)
Fusconaia ebena	0.4 (14)	0.0(0)	0.4 (14)
Fusconaia flava	0.04 (1)	0.0(0)	0.04 (1)
Megalonaias nervosa	1.1 (8)	0.0(0)	1.1 (8)
Pleurobema pyramidatum	0.09 (3)	0.0(0)	0.08 (3)
Plectomerus dombeyanus	0.6 (6)	0.0(0)	0.6 (6)
Potamilus purpuratus	7.4 (9)	0.0(0)	7.0 (9)
Quadrula metanevra	0.3 (1)	0.0(0)	0.2 (1)
Tritogonia verrucosa	0.4 (1)	0.0(0)	0.3 (1)
Mean	0.3 (57)	0.0(0)	0.3 (57)

( ) = Sum of individuals

because there are few legal sized mussels encountered.

A large proportion of the collected valves had umbonal erosion exceeding 1.0 cm. Umbonal erosion has been related to substrate particle size by Kesler and Bailey (1993). Their study found that mussels inhabiting sand substrate had more erosion than those inhabiting silt substrate. However, regardless of substrate, older individuals were more eroded than younger individuals. Sand was often found in the interstices of the gravel substrate and may be the cause of the shell erosion found in this river.

CHAPTER V

MANAGEMENT RECOMMENDATIONS

The goal of this research was to map and record community parameters for commercial size mussel beds in order to provide baseline data to facilitate proper management of this resource in the future. With mapping of these beds, habitat loss due to dredging and river side construction in these areas should be alleviated. Locations of endangered species will also assist in preserving these habitats.

Historically, 63 known mussel beds were located in the St. Francis River. However, only 10 of these were mapped and sampled during this survey. The other 53 sites either did not meet bed criteria or were absent. More protection for this river is necessary if the communities present are expected to survive. The Refuge established from the I-40 bridge downstream to the Ark. Hwy. 50 bridge at Madison in St. Francis County restricting commercial harvest will supply some of this protection. However, none of the mapped beds fall within the boundaries of this refuge. An additional refuge should be placed below Parkin (RM 75.3-82.5), where 75% of all Mbeds were mapped. Sampling this area yielded 978 mussels (64.3% of total) representing 20 mussel species, more than any other region.

Another suggestion would be to close all harvest on the St. Francis River for several years and trace recruitment into areas affected by the restrictions. At the present time, the low number of juveniles of commercial species in surveyed areas is disconcerting to those managing this resource.

Heavy siltation in the St. Francis River needs to be addressed. Flocculent silt is unsuitable for mussels due to the decreased water movement in the vicinity of the animal (Oesch, 1984). Historically, this river was described as a clear stream with sand substrate (Meek, 1896). The presence of silt substrates encountered suggests erosion from the agriculture dominated watershed (ADPCE, 1987). Perhaps more "no till" planting could help reduce the amount of silt entering the river. Buffer zones between the fields and river would help filter sediments before entering the river as well as reduce bank erosion, thus saving the farmers' land.

Commercial harvesting should no longer be permitted in the Ouachita River. A viable mussel industry does not exist in this river, and permitting commercial harvest seems without merit. If a viable industry should come to be in the future, no shelling should be permitted upstream of Camden, Ark. The majority of endangered species encountered during this survey were found in the region extending from Clark County to Camden. This area is not currently maintained by the USACOE, nor is there any reason for maintenance.

Because of the potential threat of the zebra mussel,

every effort should be made to retard the dispersal of this exotic species. Posters and wash stations will serve to educate the public, but the movement into new habitats is inevitable. The ongoing plans are to slow the spread of this exotic species and buy time in hope some form of control will be found before irreversible damage to local fauna occurs.

No single management tool will sustain current mussel communities. Some streams in Arkansas will no longer support a viable community of organisms with the present degree of impact from pollution and channelization. It is my hope that the information established for these two surveyed rivers will stimulate restoration efforts before they become unsuitable for aquatic life.

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APPENDIX 1.1 Physical parameters, species composition, percent legal harvestable mussels, population estimates and community estimates for major beds of the St. Francis River, Arkansas, 1994.

BED: 6M
Location: Mile 82.5
AR: Cross County
Stratum Size: 200m x 3m = 600m^2
Total Samples: 10
Substrate: Sand, soft clay
Minimum-Maximum density (#/m^2): 2.0-45.0
Mean density #/m^2 (Standard deviation): 23.2 (15.0)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	61	26.3	77.7	3660±2245
Arcidens confragosus	3	1.3	*NV	180±287
Ellipsaria lineolata	2	0.9	100.0	120±179
Fusconaia ebena	13	5.6	30.8	780±1135
Fusconaia flava	9	3.9	55.6	540±372
Megalonaias nervosa	11	4.7	91.0	660±678
Obliquaria reflexa	4	1.7	25.0	240±359
Pleurobema pyramidatum	9	3.9	0.0	540±813
Potamilus purpuratus	4	1.7	100.0	240±219
Quadrula metanevra	3	1.3	100.0	180±287
Quadrula nodulata	6	2.6	33.3	360±574
Quadrula pustulosa	75	32.3	4.0	4500±2357
Quadrula quadrula	26	11.2	11.5	560±901
Tritogonia verrucosa	3	1.3	0.0	180±287
Truncilla donaciformis	1	0.4	NV	60±134
Truncilla truncata	2	0.9	NV	120±269
Totals	232	100.0	36.6	14100±6387

NV = No Commercial Value

Appendix 1.1 cont'd

BED: 7M
Location: Mile 75.8
AR: Cross County
Stratum Size: 150m x 4m = 600m^2
Total Samples: 10
Substrate: Sand
Minimum-Maximum density (#/m^2): 1.0-79.0
Mean density #/m^2 (Standard deviation): 24.4 (21.7)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	123	50.4	83.7	1200±2753
Arcidens confragosus	6	2.5	*NV	360±457
Fusconaia ebena	1	0.4	100.0	60±134
Fusconaia flava	4	1.6	0.0	240±411
Leptodea fragilis	9	3.7	NV	540±616
Megalonaias nervosa	5	2.0	80.0	300±540
Obliquaria reflexa	6	2.5	0.0	360±457
Pleurobema coccineum	1	0.4	100.0	60±134
Potamilus purpuratus	2	0.8	100.0	120±179
Quadrula metanevra	1	0.4	100.0	60±134
Quadrula nodulata	2	0.8	0.0	120±269
Quadrula pustulosa	56	23.0	1.8	3360±3233
Quadrula quadrula	24	9.8	0.0	1440±901
Tritogonia verrucosa	2	0.8	50.0	120±269
Truncilla donaciformis	1	0.4	NV	60±134
Truncilla truncata	1	0.4	NV	60±134
Totals	244	99.9	46.7	21960±13915

* NV = No Commercial Value

Appendix 1.1 cont'd

BED: 8M
Location: Mile 75.3
AR: Cross County
Stratum Size (n samples): 1.) 100m x 3m = 300m² (5)
2.) 800m x 3m = 2400m² (19)

Total Samples: 24
Substrate: 1.) Soft clay
2.) Sand, soft clay
Minimum-Maximum density (#/m²): 1.)7.0-65.0
2.)3.0-47.0
Mean density #/m² (Standard deviation): 1.)30.6 (24.8)
2.)18.3 (14.1)
Total: 20.9 (17.0)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	246	49.0	73.2	30079±11865
Ellipsaria lineolata	1	0.2	0.0	60±123
Fusconaia ebena	2	0.4	0.0	120±245
Fusconaia flava	3	0.6	0.0	180±368
Lasmigona complanata	2	0.4	*NV	120±150
Leptodea fragilis	9	1.8	NV	1004±691
Megalonaias nervosa	15	3.0	80.0	1828±1595
Obliquaria reflexa	3	0.6	0.0	246±349
Plectomerus dombeyanus	2	0.4	100.0	186±283
Pleurobema coccineum	14	2.8	35.7	840±1051
Pleurobema pyramidatum	26	5.2	7.7	1626±1311
Potamilus purpuratus	4	0.8	100.0	439±462
Quadrula metanevra	1	0.2	100.0	126±258
Quadrula nodulata	5	1.0	0.0	499±449
Quadrula pustulosa	120	23.9	0.0	1511±5931
Quadrula quadrula	44	8.8	2.3	3966±1894
Tritogonia verrucosa	3	0.6	33.3	246±345
Truncilla truncata	2	0.4	NV	120±150
Totals	502	100.1	41.4	53198±17145

* NV = No Commercial Value

Appendix 1.1 cont'd

BED: 10M
Location: Mile 6.0
AR: Lee County
Stratum Size: 150m x 6m = 900m^2
Total Samples: 10
Substrate: Soft clay
Minimum-Maximum density (#/m^2): 0.0-13.0
Mean density #/m^2 (Standard deviation): 6.1 (4.1)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	8	13.1	100.0	720±526
Fusconaia ebena	1	1.6	100.0	90±202
Lasmigona complanata	1	1.6	*NV	90±202
Megalonaias nervosa	7	11.5	100.0	630±526
Plectomerus dombeyanus	1	1.6	100.0	90±202
Quadrula nodulata	1	1.6	0.0	90±202
Quadrula quadrula	42	68.9	0.0	3780±2252
Totals	61	99.9	27.9	5400±2646

* NV = No Commercial Value

APPENDIX 1.2 Physical parameters, species composition, percent legal harvestable mussels and mean densities for minor beds of the St. Francis River, Arkansas, 1994.

BED: 1m
Location: Mile 123.3
AR: Poinsett County
Stratum Size: 200m x 2m = 400m^2
Total Samples: 5
Substrate: Sand, soft clay
Minimum-Maximum density (#/m^2): 4.0-14.0
Mean density #/m^2 (Standard deviation): 9.2 (3.6)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	30	65.2	93.3	6.0
Arcidens confragosus	1	2.2	*NV	0.2
Lasmigona complanata	2	4.3	NV	0.4
Leptodea fragilis	1	2.2	NV	0.2
Potamilus purpuratus	2	4.3	100.0	0.4
Pyganodon grandis	1	2.2	NV	0.2
Quadrula pustulosa	6	13.0	33.3	1.2
Quadrula quadrula	1	2.2	0.0	0.2
Tritogonia verrucosa	1	2.2	0.0	0.2
Truncilla truncata	1	2.2	NV	0.2
Totals	46	100.0	69.6	9.0

* NV = No Commercial Value

Appendix 1.2 cont'd.

BED: 2m
Location: Mile 123.0
AR: Poinsett County
Stratum Size: 80m x 4m = 320m^2
Total Samples: 5
Substrate: Sand, soft clay
Minimum-Maximum density (#/m^2): 4.0-21.0
Mean density #/m^2 (Standard deviation): 10.8 (6.2)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	10	18.5	90.0	2.0
Fusconaia ebena	1	1.8	100.0	0.2
Fusconaia flava	2	3.7	100.0	0.4
Lampsilis teres	2	3.7	100.0	0.4
Leptodea fragilis	15	27.8	NV*	3.0
Megalonaias nervosa	1	1.8	100.0	0.2
Potamilus purpuratus	2	3.7	50.0	0.4
Pyganodon grandis	1	1.8	NV	0.2
Quadrula pustulosa	9	16.7	22.2	1.2
Quadrula quadrula	7	13.0	14.3	1.4
Tritogonia verrucosa	4	7.4	100.0	0.7
Totals	54	99.9	42.6	10.8

* NV = No Commercial Value

Appendix 1.2 cont'd.

BED: 3m
Location: Mile 121.6
AR: Poinsett County
Stratum Size: 100m x 2m = 200m^2
Total Samples: 5
Substrate: Sand, clay, broken glass
Minimum-Maximum density (#/m^2): 1.0-68.0
Mean density #/m^2 (Standard deviation): 21.8 (26.9)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	26	23.8	84.6	5.2
Fusconaia flava	5	4.6	20.0	1.0
Lasmigona complanata	1	0.9	NV*	0.2
Leptodea fragilis	3	2.8	NV	0.6
Megalonaias nervosa	3	2.8	100.0	0.6
Obliquaria reflexa	1	0.9	100.0	0.2
Pleurobema pyramidatum	3	2.8	100.0	0.6
Potamilus purpuratus	1	0.9	100.0	0.2
Quadrula nodulata	1	0.9	0.0	0.2
Quadrula pustulosa	61	56.0	14.8	12.2
Quadrula quadrula	2	1.8	50.0	0.4
Tritogonia verrucosa	2	1.8	100.0	0.4
Totals	109	100.0	39.4	21.8

* NV = No Commercial Value

Appendix 1.2 cont'd.

BED: 4m
Location: Mile 120.6
AR: Poinsett County
Stratum Size: 200m x 2m = 200m^2
Total Samples: 5
Substrate: Sand, gravel and clay
Minimum-Maximum density (#/m^2): 6.0-46.0
Mean density #/m^2 (Standard deviation): 21.8 (15.0)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	52	47.7	98.1	10.4
Leptodea fragilis	7	6.4	NV*	1.4
Megalonaias nervosa	1	0.9	100.0	0.2
Obliquaria reflexa	2	1.8	0.0	0.2
Pleurobema pyramidatum	2	1.8	100.0	0.4
Potamilus purpuratus	2	1.8	100.0	0.4
Quadrula nodulata	2	1.8	50.0	0.4
Quadrula pustulosa	29	26.6	27.6	5.8
Quadrula quadrula	9	8.3	0.0	1.8
Tritogonia verrucosa	3	2.8	66.7	0.6
Totals	109	99.9	61.5	21.8

* NV = No Commercial Value

Appendix 1.2 cont'd.

BED: 5m
Location: Mile 85.0
AR: Cross County
Stratum Size: 200m x 2m = 400m^2
Total Samples: 5
Substrate: Sand, clay
Minimum-Maximum density (#/m^2): 7.0-18.0
Mean density #/m^2 (Standard deviation): 12.0 (5.3)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	24	40.0	91.7	4.8
Fusconaia flava	1	1.7	100.0	0.2
Leptodea fragilis	1	1.7	NV*	0.2
Megalonaias nervosa	2	3.3	100.0	0.4
Plectomerus dombeyanus	1	1.7	100.0	0.2
Pleurobema pyramidatum	2	3.3	50.0	0.4
Quadrula nodulata	2	3.3	0.0	0.4
Quadrula pustulosa	22	36.7	0.0	4.4
Quadrula quadrula	4	6.7	0.0	0.8
Tritogonia verrucosa	1	1.7	100.0	0.2
Totals	60	100.1	46.7	12.0

* NV = No Commercial Value

Appendix 1.2 cont'd.

BED: 9m
Location: Mile 11.45
AR: Lee County
Stratum Size: 60m x 4m = 240m^2
Total Samples: 5
Substrate: Stiff clay, gravel
Minimum-Maximum density (#/m^2): 1.0-62.0
Mean density #/m^2 (Standard deviation): 21.4 (24.6)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	8	7.6	100.0	1.6
Megalonaias nervosa	3	2.9	100.0	0.6
Obliquaria reflexa	2	0.8	0.0	0.8
Quadrula nodulata	1	0.9	0.0	0.2
Quadrula pustulosa	2	1.9	0.0	0.4
Quadrula quadrula	89	84.8	3.4	17.8
Tritogonia verrucosa	2	1.8	100.0	0.4
Totals	107	100.0	13.3	21.0

* NV = No Commercial Value

APPENDIX 1.3 Physical parameters, species composition, percent legal harvestable mussels, population estimates and community estimates for major beds of the Ouachita River, Arkansas, 1993-95.

BED: 1M
Location: Mile 376.2
AR: Ouachita County
Stratum Size: 200m x 6m = 1200m^2
Total Samples: 12
Substrate: Gravel
Minimum-Maximum density (#/m^2): 5.0-42.0
Mean density #/m^2 (Standard deviation): 19.6 (12.1)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	9	3.8	0.0	900±657
Amblema plicata	32	13.6	0.0	3200±2177
Cyprogenia aberti	1	0.4	0.0	100±218
Ellipsaria lineolata	2	0.9	0.0	200±295
Elliptio dilatata	32	13.6	0.0	3200±2177
Fusconaia ebena	1	0.4	0.0	100±218
Fusconaia flava	32	13.6	0.0	3200±2177
Lampsilis satura	3	1.3	NV*	300±342
Lampsilis teres	1	0.4	0.0	100±218
Leptodea fragilis	11	4.7	NV	1100±883
Megalonaias nervosa	6	2.6	0.0	600±511
Obliquaria reflexa	1	0.4	0.0	100±218
Plectomerus dombeyanus	15	6.4	0.0	1500±977
Pleurobema pyramidatum	40	17.0	0.0	4000±2730
Potamilus purpuratus	6	2.6	0.0	600±511
Quadrula metanevra	1	0.4	0.0	100±218
Quadrula pustulosa	23	9.8	0.0	2300±1498
Strophitus undulatus	2	0.9	NV	200±295
Tritogonia verrucosa	10	4.2	0.0	1000±692
Truncilla truncata	7	3.0	NV	700±601
Totals	235	100.0	0.0	23400±9209

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 3M
Location: Mile 374.6
AR: Ouachita County
Stratum Size (n samples): 1.) 40m x 3m = 120m² (3)
2.) 50m x 15m = 750m² (12)
3.) 100m x 5m = 500m² (4)
Samples: 19
Substrate: Gravel
Minimum-Maximum density (#/m²): 1.) 4.0-8.0
2.) 8.0-23.0
3.) 14.0-50.0
Mean density #/m² (Standard deviation): 1.) 6.0 (2.3)
2.) 13.7 (4.5)
3.) 30.8 (17.9)
Total: 16.0 (11.5)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	1	0.4	0.0	125±260
Amblema plicata	19	7.6	0.0	1307±620
Ellipsaria lineolata	15	6.0	0.0	1392±1003
Elliptio dilatata	14	5.6	0.0	1602±1352
Fusconaia ebena	7	2.8	0.0	813±1245
Fusconaia flava	35	14.1	0.0	6058±2085
Lampsilis satura	1	0.4	NV*	63±409
Ligumia recta	1	0.4	0.0	125±260
Megalonaias nervosa	3	1.2	0.0	188±203
Plectomerus dombeyanus	8	3.2	0.0	500±644
Pleurobema pyramidatum	86	34.5	0.0	7142±2463
Potamilus purpuratus	4	1.6	0.0	313±319
Quadrula pustulosa	49	19.7	0.0	3808±2533
Quadrula quadrula	1	0.4	0.0	125±260
Strophitus undulatus	2	0.8	NV	200±295
Tritogonia verrucosa	1	0.4	0.0	125±260
Truncilla donaciformis	1	0.4	NV	125±260
Truncilla truncata	1	0.4	NV	125±260
Totals	249	99.9	0.0	26345±9514

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 5M
Location: Mile 370.0
AR: Ouachita County
Stratum Size (n samples): 1.) 75m x 5m = 375m² (4)
2.) 75m x 10m = 750m² (7)

Total Samples: 11
Substrate: Silty sand over gravel
Minimum-Maximum density (#/m²): 1.) 5.0-28.0
2.)11.0-129.0
Mean density #/m² (Standard deviation): 1.) 13.5 (10.2)
2.) 50.1 (46.3)
Total: 36.8 (40.7)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	14	3.5	0.0	1473±1867
Amblema plicata	11	2.7	0.0	1125±1000
Cyprogenia aberti	1	0.2	0.0	107±196
Ellipsaria lineolata	11	2.7	0.0	1179±702
Elliptio dilatata	12	3.0	0.0	1232±1004
Fusconaia ebena	5	1.2	0.0	536±469
Fusconaia flava	78	19.4	0.0	8009±5218
Lampsilis abrupta	1	0.2	ES*	94±205
Lampsilis satura	1	0.2	NV**	107±232
Leptodea fragilis	2	0.5	NV	214±303
Megalonaias nervosa	1	0.2	0.0	107±232
Plectomerus dombeyanus	3	0.7	0.0	321±485
Pleurobema coccineum	20	5.0	0.0	2143±2691
Pleurobema pyramidatum	204	50.6	0.0	21629±17639
Potamilus purpuratus	2	0.5	0.0	214±278
Quadrula metanevra	3	0.7	0.0	321±485
Quadrula pustulosa	27	6.7	0.0	2893±1211
Strophitus undulatus	1	0.2	NV	107±232
Truncilla truncata	6	1.5	NV	643±908
Totals	403	99.7	0.0	42670±29039

** NV = No Commercial Value
* ES = Endangered Species

Appendix 1.3 cont'd

BED: 8M
Location: Mile 361.4
AR: Ouachita County
Stratum Size: 200m x 5m = 1000m^2
Total Samples: 10
Substrate: Sand, gravel
Minimum-Maximum density (#/m^2): 11.0-49.0
Mean density #/m^2 (Standard deviation): 26.8 (12.5)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	3	1.1	0.0	300±343
Amblema plicata	32	12.0	0.0	3200±1703
Ellipsaria lineolata	21	7.8	0.0	2100±1030
Elliptio dilatata	5	1.9	0.0	500±918
Fusconaia ebena	1	0.4	0.0	100±125
Fusconaia flava	42	15.7	0.0	4200±2526
Lampsilis satura	2	0.7	NV*	200±299
Leptodea fragilis	2	0.7	NV	200±299
Megalonaias nervosa	1	0.4	0.0	100±125
Obliquaria reflexa	5	1.9	0.0	500±503
Plectomerus dombeyanus	6	2.2	0.0	600±687
Pleurobema pyramidatum	52	19.4	0.0	5200±3669
Potamilus purpuratus	2	0.7	0.0	200±299
Pyganodon grandis	1	0.4	NV	100±125
Quadrula metanevra	1	0.4	0.0	100±125
Quadrula nodulata	5	1.9	0.0	500±604
Quadrula pustulosa	51	19.0	0.0	5100±2024
Quadrula quadrula	4	1.5	0.0	400±497
Tritogonia verrucosa	10	3.7	0.0	1000±1536
Truncilla truncata	22	8.2	NV	2200±1860
Totals	268	100.0	0.0	26800±8884

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 9M
Location: Mile 361.1
AR: Ouachita County
Total Samples: 10
Stratum Size: 100m x 6m = 600m^2
Substrate: Gravel, sand
Minimum-Maximum density (#/m^2): 9.0-57.0
Mean density #/m^2 (Standard deviation): 27.1 (17.4)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	2	0.7	0.0	120±179
Amblema plicata	35	12.9	0.0	2100±1348
Ellipsaria lineolata	13	4.8	0.0	780±450
Elliptio dilatata	3	1.1	0.0	180±287
Fusconaia ebena	9	3.3	0.0	540±372
Fusconaia flava	62	22.9	0.0	3720±1676
Lampsilis abrupta	1	0.4	ES*	60±134
Lampsilis hydiana	1	0.4	NV**	60±134
Lampsilis satura	4	1.5	NV	240±297
Leptodea fragilis	1	0.4	NV	60±134
Megalonaias nervosa	2	0.7	0.0	420±450
Obliquaria reflexa	7	2.6	0.0	420±450
Plectomerus dombeyanus	10	3.7	0.0	600±448
Pleurobema pyramidatum	55	20.3	0.0	3300±3240
Potamilus purpuratus	4	1.5	50.0	240±297
Ptychobranchus occidentalis	4	1.5	NV	240±297
Quadrula pustulosa	36	13.3	0.0	2160±1362
Quadrula quadrula	2	0.7	0.0	120±179
Tritogonia verrucosa	14	5.2	0.0	840±944
Truncilla truncata	6	2.2	NV	360±411
Totals	271	100.1	0.7	16320±7397

* ES = Endangered Species
** NV = No Commercial Value

Appendix 1.3 cont'd

BED: 10M
Location: Mile 360.3
AR: Ouachita County
Stratum Size: 150m x 18m = 2700m^2
Total Samples: 25
Substrate: Gravel
Minimum-Maximum density (#/m^2): 7.0-48.0
Mean density #/m^2 (Standard deviation): 22.4 (11.0)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	7	1.3	0.0	756±679
Amblema plicata	46	8.2	0.4	4968±1651
Ellipsaria lineolata	30	5.4	0.0	3240±1429
Elliptio dilatata	5	0.9	0.0	540±554
Fusconaia ebena	8	1.4	0.0	864±1046
Fusconaia flava	86	15.4	0.0	3288±4030
Lampsilis satura	6	1.0	NV*	648±579
Lampsilis teres	2	0.4	0.0	216±305
Leptodea fragilis	1	0.2	NV	108±221
Megalonaias nervosa	5	0.9	0.0	540±554
Obliquaria reflexa	3	0.5	0.0	324±486
Plectomerus dombeyanus	9	1.6	0.0	972±629
Pleurobema pyramidatum	184	32.9	0.0	19872±7763
Potamilus purpuratus	6	1.0	16.7	648±579
Ptychobranchus occidentalis	3	0.5	NV	324±486
Pyganodon grandis	1	0.2	NV	108±221
Quadrula metanevra	16	2.9	0.0	1738±1004
Quadrula pustulosa	84	15.0	0.0	9072±2494
Quadrula quadrula	2	0.4	0.0	108±221
Tritogonia verrucosa	15	2.7	0.0	1620±904
Truncilla truncata	41	7.3	NV	4428±1863
Totals	560	100.1	0.5	60480±12230

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 11M
Location: Mile 360.1
AR: Ouachita County
Stratum Size: 60m x 13m = 780m^2
Total Samples: 10
Substrate: Sand, sand/gravel
Minimum-Maximum density (#/m^2): 3.0-65.0
Mean density #/m^2 (Standard deviation): 30.0 (21.1)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	6	2.0	0.0	468±467
Amblema plicata	22	7.3	4.5	1716±970
Ellipsaria lineolata	13	4.3	0.0	1014±741
Elliptio dilatata	8	2.7	0.0	624±817
Fusconaia ebena	31	10.3	0.0	2418±1779
Fusconaia flava	24	8.0	0.0	1872±2008
Lampsilis abrupta	1	0.3	ES*	78±175
Megalonaias nervosa	3	1.0	0.0	234±267
Obliquaria reflexa	4	1.3	0.0	312±387
Plectomerus dombeyanus	5	1.7	0.0	390±471
Pleurobema pyramidatum	118	39.3	0.0	9204±5806
Potamilus purpuratus	2	0.7	0.0	156±233
Ptychobranchus occidentalis	6	2.0	NV**	468±487
Pyganodon grandis	1	0.3	NV	78±175
Quadrula metanevra	8	2.7	0.0	624±681
Quadrula pustulosa	42	14.0	0.0	3267±2821
Quadrula quadrula	6	2.0	0.0	468±487
Totals	300	99.9	0.3	23712±910

* ES = Endangered Species
** NV = No Commercial Value

Appendix 1.3 cont'd

BED: 12M
Location: Mile 359.7
AR: Ouachita County
Stratum Size: 100m x 11m = 1100m^2
Total Samples: 11
Substrate: Sand, gravel, cobble
Minimum-Maximum density (#/m^2): 6.0-88.0
Mean density #/m^2 (Standard deviation): 32.9 (22.6)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	5	1.1	0.0	500±603
Amblema plicata	19	5.2	0.0	1900±1278
Ellipsaria lineolata	8	2.2	0.0	800±579
Elliptio dilatata	4	1.1	0.0	400±371
Fusconaia ebena	15	4.1	0.0	1500±887
Fusconaia flava	39	10.8	0.0	3900±2426
Lampsilis satura	1	0.3	NV*	100±221
Megalonaias nervosa	3	0.8	0.0	300±476
Obliquaria reflexa	3	0.8	0.0	300±344
Plectomerus dombeyanus	3	0.8	0.0	300±344
Pleurobema pyramidatum	193	53.3	0.0	19300±10454
Potamilus purpuratus	1	0.3	0.0	100±271
Quadrula metanevra	7	1.9	0.0	700±496
Quadrula pustulosa	33	9.1	0.0	3300±1316
Quadrula quadrula	4	1.1	0.0	100±271
Tritogonia verrucosa	5	1.4	0.0	500±496
Truncilla truncata	19	5.2	NV	1900±2160
Totals	362	99.5	0.0	36300±16619

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 13M
Location: Mile 359.3
AR: Ouachita County
Stratum Size (n samples): 1.) 80m x 7m = 560m² (5)
2.) 100m x 17m = 1700m² (17)
Total Samples: 22
Substrate: Sand, gravel
Minimum-Maximum density (#/m²): 1.) 8.0-16.0
2.) 6.0-70.0
Mean density #/m² (Standard deviation): 1.) 12.0 (3.7)
2.) 27.1 (18.3)
Total: 23.3 (17.6)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	3	0.6	0.0	329±383
Amblema plicata	37	6.7	0.0	3677±1669
Cyprogenia aberti	1	0.2	0.0	94±193
Ellipsaria lineolata	27	5.1	0.0	2641±1145
Elliptio dilatata	11	2.1	0.0	1039±986
Fusconaia ebena	13	2.4	7.7	1319±1031
Fusconaia flava	39	7.3	0.0	3774±1734
Lampsilis abrupta	1	0.2	ES*	94±193
Lasmigona costata	1	0.2	NV**	94±193
Megalonaias nervosa	1	0.2	0.0	94±193
Obliquaria reflexa	9	1.7	0.0	941±649
Plectomerus dombeyanus	6	1.1	0.0	658±474
Pleurobema pyramidatum	198	37.1	0.0	19611±9383
Potamilus purpuratus	1	0.2	0.0	94±193
Ptychobranchus occidentalis	5	0.9	NV	472±207
Quadrula metanevra	14	2.6	0.0	1322±828
Quadrula pustulosa	101	18.9	0.0	9858±4165
Quadrula quadrula	5	0.9	0.0	472±207
Tritogonia verrucosa	13	2.4	0.0	1319±765
Truncilla truncata	49	9.2	NV	4764±1656
Totals	535	100.0	0.0	52714±15187

* ES = Endangered species
** NV = No Commercial Value

Appendix 1.3 cont'd

BED: 14M
Location: Mile 350.2
AR: Ouachita County
Stratum Size (n samples): 1.) 80m x 15m = 1200m² (5)
2.) 160m x 15m = 2400m² (6)
3.) 185m x 15m = 2775m² (12)
Total Samples: 23
Substrate: Gravel, sand
Minimum-Maximum density (#/m²): 1.) 18.0-57.0
2.) 11.0-88.0
3.) 6.0-114.0
Mean density #/m² (Standard deviation): 1.) 33.8 (15.6)
2.) 35.7 (27.3)
3.) 34.2 (36.4)
Total: 34.5 (29.6)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	25	3.1	8.0	5781±3957
Amblema plicata	26	3.3	0.0	7796±4797
Cyprogenia aberti	2	0.3	0.0	471±671
Ellipsaria lineolata	13	1.6	0.0	3548±2064
Elliptio dilatata	11	1.4	0.0	2553±2465
Fusconaia ebena	16	2.1	0.0	3700±2375
Fusconaia flava	92	11.6	0.0	25651±15953
Lampsilis cardium	6	0.8	NV*	1743±1524
Leptodea fragilis	1	0.1	NV	231±477
Obliquaria reflexa	31	3.9	0.0	8766±5457
Plectomerus dombeyanus	1	0.1	0.0	240±496
Pleurobema pyramidatum	164	20.7	0.0	44298±25172
Ptychobranchus occidentalis	11	1.4	NV	2925±1636
Quadrula cylindrica	2	0.3	0.0	800±1653
Quadrula metanevra	39	4.9	0.0	10741±4544
Quadrula pustulosa	157	19.8	0.0	46054±20236
Quadrula quadrula	16	2.0	0.0	4588±2302
Strophitus undulatus	2	0.3	NV	463±643
Tritogonia verrucosa	27	3.4	0.0	6749±4849
Truncilla truncata	151	19.0	NV	43831±13563
Totals	793	100.1	0.3	220973±81554

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 18M
Location: Mile 344.9
AR: Ouachita County
Stratum Size (n samples): 1.) 100m x 8m = 800m² (6)
2.) 170m x 13m = 2210m² (19)
Total Samples: 25
Substrate: Sand/gravel
Minimum-Maximum density (#/m²): 1.) 19.0-73.0
2.) 5.0-100.0
Mean density #/m² (Standard deviation): 1.) 48.5 (22.2)
2.) 46.0 (32.7)
Total: 46.6 (30.1)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	2	0.2	0.0	233±1039
Amblema plicata	25	2.1	8.0	2993±1355
Ellipsaria lineolata	16	1.4	0.0	1929±1316
Elliptio dilatata	7	0.6	0.0	865±653
Fusconaia ebena	281	24.2	0.4	33859±11976
Fusconaia flava	179	15.4	0.0	21399±7186
Lampsilis cardium	2	0.2	NV*	250±355
Leptodea fragilis	1	0.1	NV	116±237
Megalonaias nervosa	30	2.6	0.0	3558±1732
Obliquaria reflexa	3	0.3	0.0	349±389
Plectomerus dombeyanus	5	0.4	0.0	582±584
Pleurobema pyramidatum	460	39.6	0.0	55735±15817
Ptychobranchus occidentalis	6	0.5	NV	749±953
Quadrula metanevra	43	3.7	0.0	5206±2443
Quadrula pustulosa	79	6.8	0.0	9495±3483
Quadrula quadrula	6	0.5	0.0	732±734
Tritogonia verrucosa	3	0.3	0.0	349±389
Truncilla donaciformis	5	0.4	NV	582±470
Truncilla truncata	10	0.9	NV	1248±1149
Totals	1163	100.0	1.5	140060±36756

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 19M
Location: Mile 344.6
AR: Ouachita County
Stratum Size (n samples): 1.) 70m x 5m = 350m² (4)
2.) 120m x 12m = 1440m² (14)
Total Samples: 18
Substrate: Gravel, sand
Minimum-Maximum density (#/m²): 1.) 12.0-14.0
2.) 14.0-122.0
Mean density #/m² (Standard deviation): 1.) 13.3 (1.0)
2.) 64.2 (30.8)
Total: 52.9 (34.7)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	2	0.2	0.0	306±291
Amblema plicata	27	2.8	0.0	2639±1062
Ellipsaria lineolata	8	0.8	0.0	792±758
Elliptio dilatata	8	0.8	0.0	823±1125
Fusconaia ebena	249	26.2	0.0	25350±7200
Fusconaia flava	142	14.9	0.0	14483±4553
Lampsilis cardium	3	0.3	NV*	293±458
Megalonaias nervosa	20	2.1	20.0	1904±1005
Obliquaria reflexa	2	0.2	0.0	206±291
Plectomerus dombeyanus	2	0.2	0.0	206±291
Pleurobema coccineum	2	0.2	0.0	191±274
Pleurobema pyramidatum	381	40.0	0.3	39127±13468
Ptychobranchus occidentalis	14	1.5	NV	1440±1577
Quadrula cylindrica	2	0.2	0.0	206±291
Quadrula metanevra	37	3.9	0.0	3806±2083
Quadrula pustulosa	40	4.2	0.0	4099±1906
Quadrula quadrula	4	0.4	0.0	411±491
Strophitus undulatus	1	0.1	NV	103±214
Tritogonia verrucosa	7	0.7	0.0	720±610
Truncilla truncata	1	0.1	NV	103±214
Totals	952	99.8	0.3	97106±24791

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 20M
Location: Mile 344.5
AR: Ouachita County
Stratum Size (n samples): 1.) 300m x 20m = 6000m² (13)
2.) 250m x 20m = 5000m² (12)
Total Samples: 25
Substrate: Gravel, sand
Minimum-Maximum density (#/m²): 1.) 4.0-71.0
2.) 0.0-31.0
Mean density #/m² (Standard deviation): 1.) 29.7 (25.8)
2.) 9.0 (11.2)
Total: 19.8 (22.4)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	3	0.6	0.0	1340±1514
Amblema plicata	16	3.2	0.0	7071±4685
Ellipsaria lineolata	6	1.2	0.0	2769±2657
Elliptio dilatata	1	0.2	0.0	462±944
Fusconaia ebena	100	20.2	0.0	45212±25952
Fusconaia flava	87	17.6	0.0	39571±20818
Lampsilis cardium	6	1.2	NV*	2724±3068
Megalonaias nervosa	12	2.4	0.0	5269±4460
Obliquaria reflexa	3	0.6	0.0	1340±1514
Plectomerus dombeyanus	3	0.6	0.0	1358±2049
Pleurobema pyramidatum	160	32.4	0.0	72500±34967
Potamilus purpuratus	3	0.6	0.0	1385±2049
Ptychobranchus occidentalis	7	1.4	NV	3186±3092
Quadrula metanevra	17	3.4	0.0	7667±2763
Quadrula pustulosa	42	8.5	0.0	18622±7728
Quadrula quadrula	8	1.6	0.0	3513±2488
Strophitus undulatus	2	0.4	NV	923±1286
Tritogonia verrucosa	4	0.8	0.0	3513±2488
Truncilla donaciformis	11	2.2	NV	5032±4514
Truncilla truncata	3	0.6	NV	1358±2049
Totals	494	99.7	0.0	223154±92718

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 21M
Location: Mile 340.9
AR: Ouachita County
Stratum Size (n samples): 1.) 70m x 20m = 1400m² (7)
2.) 180m x 20m = 3600m² (19)
Total Samples: 26
Substrate: Gravel, sand
Minimum-Maximum density (#/m²): 1.) 8.0-28.0
2.) 3.0-32.0
Mean density #/m² (Standard deviation): 1.) 21.0 (7.7)
2.) 16.6 (8.7)
Total: 17.8 (8.5)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	2	0.4	0.0	389±551
Amblema plicata	66	14.3	0.0	12663±4248
Ellipsaria lineolata	8	1.7	0.0	1547±1095
Fusconaia ebena	21	4.5	0.0	4021±1676
Fusconaia flava	55	11.9	0.0	10642±3192
Lampsilis abrupta	2	0.4	ES*	400±822
Lampsilis hydiana	1	0.2	NV**	189±391
Lampsilis cardium	10	2.2	NV	1926±1273
Leptodea fragilis	3	0.6	NV	568±850
Megalonaias nervosa	7	1.5	0.0	1347±1327
Obliquaria reflexa	16	3.5	0.0	3053±1327
Obovaria sp.	2	0.4	NV	389±551
Plectomerus dombeyanus	6	1.3	0.0	1147±1298
Pleurobema pyramidatum	84	18.1	0.0	16137±5221
Potamilus purpuratus	2	0.4	0.0	379±534
Ptychobranchus occidentalis	6	1.3	NV	1189±892
Quadrula metanevra	16	3.5	6.3	3074±1818
Quadrula nodulata	3	0.6	0.0	579±661
Quadrula pustulosa	75	16.2	0.0	14505±3707
Quadrula quadrula	58	12.5	0.0	11211±4646
Strophitus undulatus	4	0.9	NV	758±710
Tritogonia verrucosa	5	1.1	0.0	968±811
Truncilla donaciformis	1	0.2	NV	189±391
Truncilla truncata	10	2.2	NV	2000±855
Totals	463	99.9	0.2	105882±16608

* ES = Endangered Species
** NV = No Commercial Value

Appendix 1.3 cont'd

BED: 22M
Location: Mile 339.8
AR: Ouachita County
Stratum Size: 150m x 25m = 3750m^2
Total Samples: 25
Substrate: Gravel/sand
Minimum-Maximum density (#/m^2): 9.0-62.0
Mean density #/m^2 (Standard deviation): 35.8 (15.2)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	4	0.4	0.0	600±576
Amblema plicata	18	2.0	0.0	1800±1006
Ellipsaria lineolata	12	1.3	0.0	1800±1006
Elliptio dilatata	3	0.3	0.0	450±511
Fusconaia ebena	83	9.3	1.2	12450±3712
Fusconaia flava	157	17.5	0.6	23550±6373
Lampsilis cardium	16	1.8	NV*	1926±982
Leptodea fragilis	5	0.6	NV	750±629
Megalonaias nervosa	7	0.8	14.3	1050±1044
Obliquaria reflexa	13	1.5	0.0	1950±902
Obovaria sp.	2	0.2	NV	300±427
Plectomerus dombeyanus	2	0.2	0.0	300±427
Pleurobema pyramidatum	321	35.8	0.0	48150±10958
Potamilus purpuratus	4	0.4	0.0	600±576
Ptychobranchus occidentalis	11	1.2	NV	1650±781
Quadrula cylindrica	3	0.3	0.0	450±676
Quadrula metanevra	46	5.1	0.0	6900±2541
Quadrula nodulata	1	0.1	0.0	150±308
Quadrula pustulosa	131	14.6	0.0	19650±4105
Quadrula quadrula	33	3.7	0.0	4950±2024
Strophitus undulatus	5	0.6	NV	750±770
Tritogonia verrucosa	1	0.1	0.0	150±304
Truncilla truncata	18	2.0	NV	2700±1509
Totals	896	99.8	0.3	134400±23383

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 23M
Location: Mile 339.5
AR: Ouachita/Calhoun County
Stratum Size (n samples): 1.) 150m x 25m = 3750m² (8)
2.) 175m x 25m = 4375m² (11)
3.) 75M x 25m = 1875m² (6)
Total Samples: 25
Substrate: Gravel/sand
Minimum-Maximum density (#/m²): 1.) 1.0-53.0
2.) 12.0-61.0
3.) 4.0-32.0
Mean density #/m² (Standard deviation): 1.) 23.8 (22.2)
2.) 31.0 (15.4)
3.) 18.2 (11.5)
Total: 25.6 (17.3)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	11	1.7	9.1	4659±2029
Amblema plicata	44	6.9	0.0	17514±7194
Ellipsaria lineolata	20	3.1	0.0	7912±6651
Elliptio dilatata	16	2.5	0.0	6435±6505
Fusconaia ebena	51	8.0	0.0	21037±9721
Fusconaia flava	134	20.9	0.0	54290±29421
Lampsilis cardium	9	1.4	NV*	3551±6061
Megalonaias nervosa	18	2.8	16.7	71072±4049
Obliquaria reflexa	20	3.1	0.0	8026±2727
Obovaria sp.	1	0.2	0.0	398±819
Plectomerus dombeyanus	5	0.8	0.0	1818±1770
Pleurobema pyramidatum	145	22.7	0.0	59304±25043
Potamilus purpuratus	2	0.3	0.0	781±1137
Ptychobranchus occidentalis	2	0.3	NV	625±813
Quadrula metanevra	18	2.8	0.0	7074±8790
Quadrula nodulata	2	0.3	0.0	886±1241
Quadrula pustulosa	101	15.8	0.0	40525±13722
Quadrula quadrula	15	2.3	0.0	6435±4475
Strophitus undulatus	3	0.5	NV	1193±1755
Tritogonia verrucosa	11	1.7	0.0	4190±2657
Truncilla truncata	12	1.9	NV	5014±1694
Totals	640	100.0	0.6	258750±74347

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 24M
Location: Mile 338.5
AR: Ouachita/Calhoun County
Stratum Size (n samples): 1.) 320m x 10m = 3200m² (17)
2.) 140m x 10m = 1400m² (8)
Total Samples: 25
Substrate: Sandy gravel/cobble
Minimum-Maximum density (#/m²): 1.) 4.0-59.0
2.) 5.0-46.0
Mean density #/m² (Standard deviation): 1.) 30.7 (16.1)
2.) 16.8 (13.0)
Total: 26.2 (16.4)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	6	0.9	16.7	1103±1047
Amblema plicata	65	10.0	0.0	12103±5227
Ellipsaria lineolata	11	1.7	0.0	2031±1104
Elliptio dilatata	5	0.8	0.0	941±750
Fusconaia ebena	27	4.1	0.0	5043±3691
Fusconaia flava	81	12.4	0.0	14982±6109
Lampsilis cardium	8	1.2	NV*	1435±1158
Leptodea fragilis	4	0.6	NV	753±697
Megalonaias nervosa	27	4.1	0.0	5056±3222
Obliquaria reflexa	54	8.2	0.0	9993±3676
Plectomerus dombeyanus	16	2.4	12.5	2946±1713
Pleurobema pyramidatum	128	19.5	0.0	23737±9829
Potamilus purpuratus	11	1.7	0.0	2044±942
Ptychobranchus occidentalis	2	0.3	NV	363±518
Quadrula metanevra	7	1.1	0.0	1291±1029
Quadrula nodulata	11	1.7	0.0	2071±1865
Quadrula pustulosa	119	18.2	0.0	21976±5829
Quadrula quadrula	45	6.9	0.0	8418±2787
Strophitus undulatus	2	0.3	NV	376±773
Tritogonia verrucosa	20	3.0	5.0	3738±2754
Truncilla truncata	6	0.9	NV	1103±1127
Totals	655	100.0	0.8	121521±28364

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 25M
Location: Mile 337.5
AR: Ouachita County
Stratum Size: 200m x 10m = 2000m^2
Total Samples: 20
Substrate: Gravel, sand
Minimum-Maximum density (#/m^2): 10.0-37.0
Mean density #/m^2 (Standard deviation): 19.1 (7.0)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	5	1.3	0.0	500±512
Amblema plicata	86	23.1	1.2	8600±2386
Ellipsaria lineolata	13	3.5	0.0	1300±954
Elliptio dilatata	1	0.3	0.0	100±208
Fusconaia ebena	19	5.1	0.0	1900±1553
Fusconaia flava	20	5.4	0.0	2000±1280
Lampsilis cardium	6	1.6	NV*	600±745
Leptodea fragilis	1	0.3	NV	100±208
Megalonaias nervosa	18	4.8	0.0	2000±1478
Plectomerus dombeyanus	6	1.6	16.7	600±745
Pleurobema pyramidatum	22	5.9	9.1	2200±949
Potamilus purpuratus	5	1.3	0.0	500±413
Quadrula metanevra	5	1.3	0.0	500±413
Quadrula nodulata	5	1.3	0.0	500±731
Quadrula pustulosa	77	20.7	0.0	7700±2223
Quadrula quadrula	53	14.2	0.0	5300±1576
Tritogonia verrucosa	6	1.6	0.0	600±437
Truncilla truncata	14	3.8	NV	1400±1005
Totals	372	97.1	1.0	38200±6499

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 26M
Location: Mile 335.5
AR: Calhoun County
Stratum Size (n samples): 1.) 400m x 10m = 4000m² (17)
2.) 200m x 10m = 2000m² (8)
Total Samples: 25
Substrate: Sandy gravel
Minimum-Maximum density (#/m²): 1.) 6.0-59.0
2.) 2.0-78.0
Mean density #/m² (Standard deviation): 1.) 21.0 (12.7)
2.) 45.9 (25.5)
Total: 29.0 (20.9)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	9	1.2	11.1	2162±1558
Amblema plicata	73	10.1	2.7	17588±9401
Ellipsaria lineolata	22	3.0	0.0	5309±2619
Elliptio dilatata	3	0.4	0.0	706±1032
Fusconaia ebena	49	6.7	0.0	12015±5830
Fusconaia flava	137	18.9	0.0	33441±10710
Lampsilis cardium	7	1.0	NV*	1662±1302
Leptodea fragilis	2	0.3	NV	471±661
Megalonaias nervosa	31	4.3	0.0	7632±3756
Obliquaria reflexa	20	2.8	0.0	4765±2384
Obovaria sp.	1	0.1	NV	235±480
Plectomerus dombeyanus	6	0.8	0.0	1500±1289
Pleurobema pyramidatum	200	27.5	0.0	48809±17360
Potamilus purpuratus	2	0.3	50.0	471±661
Quadrula metanevra	19	2.6	0.0	4588±2647
Quadrula nodulata	1	0.1	0.0	235±1180
Quadrula pustulosa	95	13.1	0.0	22824±6628
Quadrula quadrula	35	4.8	0.0	8441±3423
Tritogonia verrucosa	4	0.1	0.0	956±938
Truncilla donaciformis	1	0.1	NV	235±480
Truncilla truncata	9	1.2	NV	2132±1124
Totals	726	99.4	0.6	176221±44009

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 27M
Location: Mile 334.0
AR: Ouachita County
Stratum Size: 200m x 13m = 2600m²
Total Samples: 25
Substrate: Gravel, sand
Minimum-Maximum density (#/m²): 4.0-65.0
Mean density #/m² (Standard deviation): 23.0 (15.2)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	8	1.4	12.5	832±594
Amblema plicata	66	11.3	3.0	6864±2259
Arkansia wheeleri	1	0.2	ES*	104±213
Ellipsaria lineolata	10	1.7	0.0	1040±615
Elliptio dilatata	1	0.2	0.0	104±213
Fusconaia ebena	35	6.0	0.0	3640±2132
Fusconaia flava	84	14.4	0.0	8736±3587
Lampsilis abrupta	1	0.2	ES	104±213
Lampsilis cardium	6	1.0	NV**	624±465
Leptodea fragilis	2	0.3	NV	208±296
Megalonaias nervosa	31	5.3	0.0	3224±1279
Obliquaria reflexa	15	2.6	0.0	1560±871
Obovaria sp.	2	0.3	NV	208±296
Plectomerus dombeyanus	13	2.2	0.0	1352±761
Pleurobema pyramidatum	123	21.1	0.0	12792±7044
Potamilus purpuratus	3	0.5	0.0	312±468
Quadrula metanevra	15	2.6	0.0	1560±1192
Quadrula pustulosa	117	20.0	0.0	12168±3209
Quadrula quadrula	32	5.5	0.0	3328±1427
Strophitus undulatus	3	0.5	NV	312±354
Tritogonia verrucosa	9	1.5	0.0	936±807
Truncilla truncata	7	1.2	NV	728±577
Totals	584	100.0	0.5	60736±16234

* ES = Endangered Species
** NV = No Commercial Value

Appendix 1.3 cont'd

BED: 28M
Location: Mile 331.8
AR: Calhoun County
Stratum Size (n samples): 1.) 75m x 6m = 450m² (5)
2.) 70m x 15m = 1050m² (11)
Total Samples: 16
Substrate: 1.) Sandy gravel
2.) Cobble, gravel and sand
Minimum-Maximum density (#/m²): 1.) 9.0-18.0
2.) 4.0-35.0
Mean density #/m² (Standard deviation): 1.) 12.4 (12.4)
2.) 17.6 (8.6)
Total: 16.0 (7.7)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	1	0.4	0.0	95±201
Amblema plicata	19	7.4	0.0	1770±1247
Ellipsaria lineolata	8	3.1	0.0	764±525
Fusconaia ebena	4	1.6	0.0	382±450
Fusconaia flava	17	6.6	0.0	1612±826
Lampsilis cardium	10	3.9	NV*	944±566
Lampsilis teres	1	0.4	0.0	90±190
Megalonaias nervosa	11	4.3	0.0	1045±1220
Obliquaria reflexa	7	2.7	0.0	641±389
Obovaria sp.	1	0.4	NV	90±190
Plectomerus dombeyanus	9	3.5	0.0	815±592
Pleurobema pyramidatum	25	9.8	0.0	2375±1427
Potamilus purpuratus	2	0.8	0.0	191±270
Ptychobranchus occidentalis	1	0.4	NV	95±201
Quadrula metanevra	15	5.9	0.0	1432±1046
Quadrula nodulata	2	0.8	0.0	185±266
Quadrula pustulosa	89	34.8	0.0	8375±1980
Quadrula quadrula	18	7.0	0.0	1702±772
Strophitus undulatus	1	0.4	NV	90±190
Tritogonia verrucosa	7	2.7	0.0	652±488
Truncilla truncata	8	3.1	NV	753±500
Totals	256	100.0	0.0	24098±5993

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 29M
Location: 329.5
AR: Ouachita County
Stratum Size: 100m x 12m = 1200m^2
Total Samples: 12
Substrate: Sand with pea gravel
Minimum-Maximum density (#/m^2): 10.0-40.0
Mean density #/m^2 (Standard deviation): 22.8 (10.8)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	1	0.4	0.0	100±218
Amblema plicata	27	9.9	0.0	2700±1943
Ellipsaria lineolata	3	1.1	0.0	300±471
Fusconaia ebena	6	2.2	0.0	600±605
Fusconaia flava	61	22.3	0.0	6100±3109
Lampsilis cardium	5	1.8	NV*	500±524
Megalonaias nervosa	9	3.3	0.0	900±571
Obliquaria reflexa	3	1.1	0.0	300±343
Plectomerus dombeyanus	11	4.0	0.0	100±755
Pleurobema pyramidatum	51	18.6	0.0	5100±3393
Potamilus purpuratus	4	1.4	25.0	400±373
Quadrula metanevra	4	1.4	0.0	400±494
Quadrula pustulosa	51	18.6	0.0	5100±2312
Quadrula quadrula	28	10.2	0.0	2800±1135
Strophitus undulatus	1	0.4	NV	100±218
Tritogonia verrucosa	9	3.3	0.0	900±471
Totals	274	100.0	0.4	27300±8160

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 30M
Location: Mile 327.0
AR: Calhoun County
Stratum Size (n samples): 1.) 100m x 7m = 700m² (6)
2.) 200m x 15m = 3000m² (19)
Total Samples: 25
Substrate: 1.) Sandy gravel
2.) Pea gravel and sand
Minimum-Maximum density (#/m²): 1.) 5.0-33.0
2.) 0.0-41.0
Mean density #/m² (Standard deviation): 1.) 20.2 (11.4)
2.) 13.5 (9.6)
Total: 15.1 (10.2)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	4	1.1	0.0	590±688
Amblema plicata	30	7.9	0.0	4325±1882
Ellipsaria lineolata	10	2.7	0.0	1496±900
Elliptio dilatata	2	0.5	0.0	275±900
Fusconaia ebena	6	1.6	0.0	906±900
Fusconaia flava	62	16.4	0.0	8470±4012
Lampsilis cardium	11	2.9	NV*	1496±900
Lampsilis teres	1	0.3	0.0	117±460
Leptodea fragilis	9	2.4	NV	1297±733
Megalonaias nervosa	31	8.2	0.0	4524±2609
Obliquaria reflexa	7	1.9	0.0	1064±925
Plectomerus dombeyanus	16	4.2	6.3	2320±1604
Pleurobema pyramidatum	20	5.3	0.0	2787±2011
Potamilus purpuratus	5	1.3	20.0	789±640
Quadrula metanevra	9	2.4	0.0	1297±1047
Quadrula nodulata	1	0.3	0.0	158±447
Quadrula pustulosa	88	23.3	0.0	12782±3147
Quadrula quadrula	35	9.3	0.0	5196±3187
Strophitus undulatus	3	0.8	NV	432±628
Tritogonia verrucosa	18	4.8	0.0	2718±1846
Truncilla truncata	9	2.4	NV	1380±2004
Totals	377	100.0	0.5	54538±15109

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 32M
Location: Mile 264.4
AR: Calhoun County
Stratum Size: 100m x 12m = 1200m²
Total Samples: 12
Substrate: Sandy clay with pea gravel
Minimum-Maximum density (#/m²): 1.0-29.0
Mean density #/m² (Standard deviation): 11.3 (6.2)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	13	4.6	0.0	3120±1612
Ellipsaria lineolata	5	1.8	0.0	1200±1008
Fusconaia ebena	1	0.4	0.0	240±493
Fusconaia flava	7	2.5	0.0	1680±1335
Lampsilis cardium	10	3.6	NV*	2400±1884
Leptodea fragilis	7	2.5	NV	1680±1130
Megalonaias nervosa	28	10.0	0.0	6720±2599
Obliquaria reflexa	24	8.5	0.0	5760±2193
Plectomerus dombeyanus	25	8.9	0.0	6000±2251
Pleurobema pyramidatum	5	1.8	0.0	1200±1233
Potamilus purpuratus	2	0.7	0.0	480±685
Quadrula metanevra	4	1.4	0.0	960±923
Quadrula nodulata	2	0.7	0.0	480±685
Quadrula pustulosa	69	24.6	0.0	16560±5200
Quadrula quadrula	29	10.3	0.0	6960±2536
Strophitus undulatus	2	0.7	NV	480±685
Tritogonia verrucosa	3	1.1	0.0	720±818
Truncilla truncata	45	16.0	NV	10800±4669
Totals	281	100.1	0.4	67680±15144

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 36M
Location: Mile 271.8 Moro Bay State Park
AR: Calhoun County
Stratum Size (n samples): 1.) 200m x 15m = 3000m² (19)
2.) 50m x 15m = 750m² (6)
Total Samples: 25
Substrate: Sand with imbedded gravel
Minimum-Maximum density (#/m²): 1.) 14.0-58.0
2.) 20.0-93.0
Mean density #/m² (Standard deviation): 1.) 29.0 (12.0)
2.) 67.6 (26.7)
Total: 38.2 (23.3)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	331	34.6	0.0	47592±8469
Elliptio dilatata	1	0.1	0.0	158±325
Fusconaia ebena	299	31.3	0.3	42803±14456
Fusconaia flava	38	4.0	0.0	5507±1671
Lampsilis hydiana	3	0.3	NV*	441±503
Lampsilis teres	2	0.2	0.0	316±445
Leptodea fragilis	3	0.3	NV	408±451
Megalonaias nervosa	14	1.5	0.0	1947±997
Obliquaria reflexa	12	1.3	0.0	1796±1133
Plectomerus dombeyans	125	13.1	2.4	17993±5828
Pleurobema pyramidatm	8	0.8	0.0	1000±1357
Potamilus purpuratus	9	0.9	22.2	1322±905
Quadrula pustulosa	71	7.4	0.0	10322±2174
Quadrula quadrula	20	2.1	0.0	3092±1479
Tritogonia verrucosa	5	0.5	0.0	789±764
Truncilla truncata	15	1.6	NV	2105±937
Totals	956	100.0	0.6	137592±23280

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 38M
Location: Mile 254.0 Storm Hole Bend
AR: Union County
Stratum Size (n samples): 1.) 225m x 18m = 4050m² (15)
2.) 135m x 10m = 1350m² (5)
3.) 150m x 10m = 1500m² (5)
Total Samples: 25
Substrate: 1.) Sandy gravel
2.) Gravel, sand
3.) Sandy gravel
Minimum-Maximum density (#/m²): 1.) 7.0-55.0
2.) 6.0-59.0
3.) 2.0-41.0
Mean density #/m² (Standard deviation): 1.) 25.7 (12.4)
2.) 20.8 (22.1)
3.) 15.0 (15.5)
Total: 22.6 (15.2)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Actinonaias ligamentina	1	0.2	0.0	270±557
Amblema plicata	183	32.4	0.0	50040±16507
Fusconaia ebena	139	24.6	0.0	38310±16117
Fusconaia flava	31	5.5	0.0	8520±4254
Lampsilis cardium	12	2.1	NV*	3360±1635
Megalonaias nervosa	14	2.5	0.0	3780±2738
Obliquaria reflexa	8	1.4	0.0	2190±1836
Obovaria sp.	7	1.2	0.0	1890±1968
Plectomerus dombeyanus	38	6.7	0.0	10380±4475
Pleurobema pyramidatum	4	0.7	0.0	1080±1717
Potamilus purpuratus	1	0.2	0.0	270±557
Quadrula metanevra	1	0.2	0.0	270±557
Quadrula pustulosa	85	15.1	0.0	23340±6569
Quadrula quadrula	16	2.8	0.0	4320±2603
Tritogonia verrucosa	3	0.5	0.0	810±889
Truncilla truncata	21	3.7	NV	5700±2976
Totals	564	99.8	0.0	197325±112275

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 39M
Location: Mile 252.4
AR: Union County
Stratum Size: 170m x 10m = 1700m^2
Total Samples: 17
Substrate: Sandy gravel
Minimum-Maximum density (#/m^2): 8.0-106.0
Mean density #/m^2 (Standard deviation): 29.4 (28.8)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	149	29.8	0.0	19500±6968
Fusconaia ebena	163	32.6	0.0	16300±15303
Fusconaia flava	24	4.8	0.0	2400±2064
Lampsilis hydiana	2	0.4	NV*	200±288
Lampsilis cardium	16	3.2	NV	1600±719
Leptodea fragilis	11	2.2	NV	1100±700
Megalonaias nervosa	11	2.2	0.0	1100±527
Obliquaria reflexa	7	1.4	0.0	700±558
Plectomerus dombeyanus	27	5.4	0.0	2700±2018
Pleurobema pyramidatum	1	0.2	0.0	100±209
Potamilus purpuratus	4	0.8	25.0	400±422
Quadrula pustulosa	58	11.6	0.0	5800±1998
Quadrula quadrula	17	3.4	0.0	1700±870
Tritogonia verrucosa	3	0.6	0.0	300±341
Truncilla truncata	7	1.4	NV	700±558
Totals	500	100.0	0.2	50000±25044

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 40M
Location: Mile 252.0
AR: Bradley County
Stratum Size: 135m x 7m = 945m^2
Total Samples: 10
Substrate: Sand and gravel
Minimum-Maximum density (#/m^2): 11.0-37.0
Mean density #/m^2 (Standard deviation): 21.8 (8.8)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	72	33.0	0.0	6804±2475
Fusconaia ebena	61	28.0	0.0	5765±3158
Fusconaia flava	6	2.8	0.0	567±566
Lampsilis cardium	4	1.8	NV*	378±474
Leptodea fragilis	3	1.4	NV	284±324
Megalonaias nervosa	9	4.1	0.0	851±864
Obliquaria reflexa	2	0.9	0.0	189±425
Obovaria sp.	2	0.9	0.0	189±425
Potamilus purpuratus	3	1.4	0.0	284±454
Quadrula pustulosa	37	17.0	0.0	3497±1144
Quadrula quadrula	15	6.9	0.0	1418±1014
Tritogonia verrucosa	1	0.5	0.0	95±212
Truncilla donaciformis	3	1.4	NV	284±324
Totals	218	100.1	0.0	21452±5891

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 41M
Location: Mile 251.3
AR: Union County
Stratum Size: 1.) 75m x 12m = 900m² (9)
2.) 175m x 10m = 1750m² (16)
Total Samples: 25
Substrate: Sandy gravel
Minimum-Maximum density (#/m²): 1.) 3.0-33.0
2.) 7.0-28.0
Mean density #/m² (Standard deviation): 1.) 13.2 (9.2)
2.) 16.3 (6.4)
Total: 15.2 (7.5)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	106	27.9	0.0	11191±4111
Fusconaia ebena	56	14.7	0.0	6050±2912
Fusconaia flava	10	2.6	0.0	1075±883
Lampsilis hydiana	3	0.8	NV*	319±362
Lampsilis cardium	14	3.7	NV	1513±739
Leptodea fragilis	2	0.5	NV	219±307
Megalonaias nervosa	21	5.5	0.0	2250±1095
Obliquaria reflexa	6	1.6	0.0	647±466
Obovaria sp.	1	0.3	0.0	109±225
Plectomerus dombeyanus	35	9.2	0.0	3631±2124
Pleurobema pyramidatum	2	0.5	0.0	209±299
Potamilus purpuratus	2	0.5	0.0	200±271
Quadrula pustulosa	83	21.8	0.0	8863±2346
Quadrula quadrula	14	3.7	0.0	1484±775
Tritogonia verrucosa	11	2.9	0.0	1166±882
Truncilla donaciformis	1	0.3	NV	109±225
Truncilla truncata	13	3.4	NV	1413±1025
Totals	380	99.9	0.0	40477±7891

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 42M
Location: Mile 250.8
AR: Bradley County
Stratum Size (n samples): 1.) 50m x 10m = 500m² (5)
2.) 150m x 13m = 1950m² (20)
Total Samples: 25
Substrate: 1.) Sand, clay, gravel
2.) Silty sand, gravel
Minimum-Maximum density (#/m²): 1.) 16.0-27.0
2.) 8.0-54.0
Mean density #/m² (Standard deviation): 1.) 22.6 (4.8)
2.) 21.8 (12.5)
Total: 21.9 (11.3)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	158	28.8	0.0	15470±3547
Ellipsaria lineolata	1	0.2	0.0	98±200
Fusconaia ebena	145	26.4	0.0	14250±6271
Fusconaia flava	34	6.2	0.0	3343±1443
Lampsilis hydiana	1	0.2	NV*	98±200
Lampsilis cardium	13	2.4	NV	1278±656
Leptodea fragilis	3	0.5	NV	295±337
Megalonaias nervosa	40	7.3	0.0	3928±1497
Obliquaria reflexa	1	0.2	0.0	98±200
Plectomerus dombeyanus	18	3.3	0.0	1768±842
Pleurobema pyramidatum	1	0.2	0.0	98±200
Potamilus purpuratus	1	0.2	0.0	100±205
Quadrula metanevra	1	0.2	0.0	98±200
Quadrula pustulosa	98	17.9	0.0	9570±2579
Quadrula quadrula	20	3.6	0.0	1955±1031
Tritogonia verrucosa	5	0.9	0.0	490±480
Truncilla donaciformis	1	0.2	NV	98±200
Truncilla truncata	7	1.3	NV	685±545
Totals	548	100.0	0.0	53318±11348

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 43M
Location: Mile 250.5
AR: Union County
Stratum Size: 100m x 12m = 1200m^2
Total Samples: 12
Substrate: Sandy gravel
Minimum-Maximum density (#/m^2): 8.0-39.0
Mean density #/m^2 (Standard deviation): 26.7 (9.5)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	80	24.9	0.0	8000±3005
Fusconaia ebena	95	29.6	0.0	9500±3736
Fusconaia flava	9	2.8	0.0	900±657
Lampsilis cardium	11	3.4	NV*	1100±601
Leptodea fragilis	4	1.2	NV	400±373
Megalonaias nervosa	19	5.9	0.0	1900±1094
Obliquaria reflexa	5	1.6	0.0	500±390
Obovaria sp.	5	1.6	0.0	500±601
Plectomerus dombeyanus	10	3.1	0.0	1000±158
Pleurobema pyramidatum	1	0.3	0.0	100±218
Potamilus purpuratus	1	0.3	0.0	100±218
Quadrula nodulata	1	0.3	0.0	100±218
Quadrula pustulosa	62	19.3	0.0	6200±1795
Quadrula quadrula	12	3.7	0.0	1200±970
Tritogonia verrucosa	1	0.3	0.0	100±218
Truncilla truncata	5	1.6	NV	500±524
Totals	321	99.9	0.0	32100±7202

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 44M
Location: Mile 249.0 Caney Marais Bend
AR: Bradley County
Stratum Size (n samples): 1.) 130m x 15m = 1950m² (7)
2.) 200m x 25m = 5000m² (18)
Total Samples: 25
Substrate: 1.) Sandy gravel
2.) Pea gravel, sand
Minimum-Maximum density (#/m²): 1.) 9.0- 19.0
2.) 11.0-142.0
Mean density #/m² (Standard deviation): 1.) 14.4 (2.3)
2.) 34.7 (28.9)
Total: 29.0 (26.1)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	221	30.4	0.0	61416±33225
Ellipsaria lineolata	1	0.1	0.0	278±573
Fusconaia ebena	126	17.4	0.0	35005±18714
Fusconaia flava	52	7.2	0.0	14447±10672
Lampsilis hydiana	2	0.3	NV*	556±785
Lampsilis cardium	21	2.9	NV	5837±2914
Lampsilis teres	1	0.1	0.0	279±570
Leptodea fragilis	2	0.3	NV	556±785
Megalonaias nervosa	20	2.8	0.0	5560±2869
Obliquaria reflexa	12	1.7	0.0	3335±2203
Obovaria sp.	5	0.7	0.0	1390±1738
Plectomerus dombeyanus	72	9.9	0.0	20009±5931
Potamilus purpuratus	6	0.8	0.0	1667±1230
Quadrula metanevra	1	0.1	0.0	278±573
Quadrula pustulosa	129	17.8	0.0	35848±8544
Quadrula quadrula	37	5.1	0.0	10285±6876
Tritogonia verrucosa	5	0.7	0.0	1390±1422
Truncilla donaciformis	5	0.7	NV	1389±1392
Truncilla truncata	8	1.1	NV	2225±1580
Totals	726	100.1	0.0	201747±70129

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 46M
Location: Mile 247.5
AR: Bradley County
Stratum Size: 165m x 5m = 825m²
Total Samples: 10
Substrate: sand, gravel, pea gravel, cobble
Minimum-Maximum density (#/m²): 8.0-32.0
Mean density #/m² (Standard deviation): 19.2 (7.8)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	83	43.2	0.0	6848±2763
Fusconaia ebena	36	18.8	0.0	2970±3016
Fusconaia flava	5	2.6	0.0	413±414
Lampsilis cardium	14	7.3	NV*	1155±838
Lampsilis teres	1	0.5	0.0	83±185
Megalonaias nervosa	3	1.6	0.0	248±283
Obliquaria reflexa	1	0.5	0.0	83±185
Plectomerus dombeyanus	10	5.2	0.0	825±677
Potamilus purpuratus	2	1.0	0.0	165±371
Quadrula pustulosa	32	16.7	0.0	2640±820
Quadrula quadrula	3	1.6	0.0	248±283
Truncilla donaciformis	1	0.5	NV	83±185
Truncilla truncata	1	0.5	NV	83±185
Totals	192	100.0	0.0	15840±4580

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 47M
Location: Mile 246.6
AR: Union County
Stratum Size: 560m x 3m = 1680m²
Total Samples: 17
Substrate: Silt, sand, gravel
Minimum-Maximum density (#/m²): 7.0-55.0
Mean density #/m² (Standard deviation): 17.9 (13.4)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	107	35.2	0.0	10574±5348
Fusconaia ebena	23	7.6	0.0	2273±2784
Fusconaia flava	7	2.3	0.0	692±1255
Lampsilis cardium	19	6.3	NV*	1878±1090
Lampsilis teres	1	0.3	0.0	99±209
Leptodea fragilis	1	0.3	NV	99±209
Megalonaias nervosa	10	3.3	0.0	988±683
Obliquaria reflexa	15	4.9	0.0	1482±955
Obovaria sp.	1	0.3	0.0	99±209
Plectomerus dombeyanus	23	7.6	0.0	2273±1423
Potamilus purpuratus	1	0.3	0.0	99±209
Quadrula nodulata	2	0.7	0.0	198±285
Quadrula pustulosa	69	22.7	0.0	6819±3417
Quadrula quadrula	20	6.6	0.0	3377±576
Tritogonia verrucosa	5	1.6	0.0	494±847
Totals	304	100.0	0.0	30042±11486

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 48M
Location: Mile 246.0
AR: Union County
Stratum Size: 175m x 10m = 1750m²
Total Samples: 18
Substrate: Gravel, sand
Minimum-Maximum density (#/m²): 7.0-86.0
Mean density #/m² (Standard deviation): 25.8 (20.8)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	153	33.0	0.0	14875±4331
Arcidens confragosus	1	0.2	NV*	97±203
Fusconaia ebena	63	13.6	0.0	6125±4593
Fusconaia flava	23	5.0	0.0	6125±4593
Lampsilis cardium	10	2.2	NV	972±798
Lampsilis teres	1	0.2	0.0	97±203
Megalonaias nervosa	32	6.9	0.0	3111±1313
Obliquaria reflexa	17	3.7	0.0	1653±1168
Plectomerus dombeyanus	50	10.8	0.0	4861±3233
Potamilus purpuratus	2	0.4	0.0	194±279
Quadrula nodulata	2	0.4	0.0	194±279
Quadrula pustulosa	66	14.2	0.0	6417±2202
Quadrula quadrula	31	6.7	0.0	3014±1573
Tritogonia verrucosa	4	0.9	0.0	389±474
Truncilla donaciformis	1	0.2	NV	97±203
Truncilla truncata	8	1.7	NV	778±678
Totals	464	100.1	0.0	45111±18021

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 49M
Location: Mile 245.5
AR: Union County
Stratum Size: 100m x 10m = 1000m^2
Total Samples: 10
Substrate: Pea gravel over sand
Minimum-Maximum density (#/m^2): 2.0-45.0
Mean density #/m^2 (Standard deviation): 20.0 (13.2)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	42	21.0	0.0	4200±2918
Fusconaia ebena	40	20.0	0.0	4000±3073
Fusconaia flava	33	16.5	0.0	3300±2619
Lampsilis hydiana	1	0.5	NV*	100±225
Lampsilis cardium	5	2.5	NV	500±503
Megalonaias nervosa	7	3.5	0.0	700±824
Obliquaria reflexa	4	2.0	0.0	400±497
Obovaria sp.	1	0.5	0.0	100±225
Plectomerus dombeyanus	13	6.5	0.0	1300±1114
Pleurobema pyramidatum	1	0.5	0.0	100±225
Quadrula pustulosa	45	22.5	0.0	4500±1616
Quadrula quadrula	4	2.0	0.0	400±367
Tritogonia verrucosa	1	0.5	0.0	100±225
Truncilla donaciformis	1	0.5	NV	100±225
Truncilla truncata	2	1.0	NV	200±300
Totals	200	100.0	0.0	20000±9380

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 50M
Location: Mile 245.4
AR: Union County
Stratum Size: 100m x 8m = 800m²
Total Samples: 10
Substrate: Silty sand, gravel
Minimum-Maximum density (#/m²): 11.0-38.0
Mean density #/m² (Standard deviation): 21.5 (9.2)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	78	36.3	0.0	6240±2755
Fusconaia ebena	15	7.0	0.0	1200±1144
Fusconaia flava	21	9.8	0.0	1680±1269
Lampsilis cardium	13	6.0	NV	1040±1969
Megalonaias nervosa	7	3.2	0.0	560±384
Obliquaria reflexa	3	1.4	0.0	240±274
Plectomerus dombeyanus	18	8.4	0.0	1440±958
Pleurobema pyramidatum	1	0.5	0.0	80±180
Quadrula nodulata	4	1.9	0.0	320±397
Quadrula pustulosa	35	16.3	0.0	2800±1424
Quadrula quadrula	16	7.4	0.0	1280±767
Tritogonia verrucosa	2	0.9	0.0	160±240
Truncilla donaciformis	1	0.5	NV	80±180
Truncilla truncata	1	0.5	NV	80±180
Totals	215	100.1	0.0	17280±5208

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 51M
Location: Mile 244.6
AR: Union County
Stratum Size (n samples): 1.) 70m x 7m = 490m² (6)
2.) 30m x 12m = 360m² (4)
Total Samples: 10
Substrate: 1.) Sand, gravel
2.) Pea gravel, sand
Minimum-Maximum density (#/m²): 1.) 9.0-48.0
2.) 31.0-44.0
Mean density #/m² (Standard deviation): 1.) 24.3 (15.7)
2.) 37.0 (7.0)
Total: 29.4 (14.0)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	94	32.0	0.0	8060±3870
Fusconaia ebena	39	13.3	0.0	3335±2850
Fusconaia flava	20	6.8	0.0	1700±1095
Lampsilis cardium	16	5.4	NV*	1365±876
Leptodea fragilis	1	0.3	NV	82±181
Megalonaias nervosa	13	4.4	0.0	1137±804
Obliquaria reflexa	12	4.1	0.0	1022±460
Obovaria sp.	1	0.3	0.0	82±243
Plectomerus dombeyanus	21	7.1	0.0	1823±665
Potamilus purpuratus	1	0.3	0.0	82±181
Quadrula pustulosa	59	20.1	0.0	5102±1504
Quadrula quadrula	13	4.4	0.0	1103±393
Tritogonia verrucosa	3	1.0	0.0	262±421
Truncilla truncata	1	0.3	NV	90±200
Totals	294	99.8	0.0	25243±7259

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 52M
Location: Mile 243.2
AR: Bradley County
Stratum Size (n samples): 1.) 180m x 4m = 720m² (7)
2.) 100m x 15m = 1500m² (14)
Total Samples: 21
Substrate: 1.) Sand/gravel, pure sand
2.) Sand/gravel, pure sand
Minimum-Maximum density (#/m²): 1.) 6.0-50.0
2.) 5.0-49.0
Mean density #/m² (Standard deviation): 1.) 20.7 (17.2)
2.) 19.2 (11.5)
Total: 19.8 (13.3)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	130	31.2	0.0	13637±7256
Arcidens confragosus	1	0.2	NV*	103±213
Fusconaia ebena	41	10.0	0.0	4363±3152
Fusconaia flava	44	10.6	0.0	4659±4110
Lampsilis cardium	19	4.6	NV	2019±921
Lampsilis teres	1	0.2	0.0	107±220
Leptodea fragilis	1	0.2	NV	107±220
Megalonaias nervosa	18	4.3	0.0	1899±1231
Obliquaria reflexa	7	1.7	0.0	733±634
Obovaria sp.	3	0.7	0.0	317±518
Plectomerus dombeyanus	31	7.5	0.0	733±634
Potamilus purpuratus	1	0.2	0.0	107±220
Quadrula nodulata	7	1.7	0.0	746±568
Quadrula pustulosa	74	17.8	0.0	7873±2118
Quadrula quadrula	26	6.2	0.0	2721±1077
Tritogonia verrucosa	5	1.2	0.0	536±410
Truncilla donaciformis	2	0.5	NV	214±299
Truncilla truncata	5	1.2	NV	531±542
Totals	416	100.0	0.0	43736±13227

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 53M
Location: Mile 240.3
AR: Union County
Stratum Size (n samples): 1.) 150m x 15m = 2250m² (14)
2.) 140m x 12m = 1680m² (11)
Total Samples: 25
Substrate: Silty sand with pea gravel
Minimum-Maximum density (#/m²): 1.) 10.0-36.0
2.) 9.0-22.0
Mean density #/m² (Standard deviation): 1.) 20.9 (7.6)
2.) 17.6 (3.9)
Total: 19.4 (6.4)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	133	27.3	0.0	20912±4245
Fusconaia ebena	72	14.8	0.0	14410±5589
Fusconaia flava	47	9.7	0.0	7370±2239
Lampsilis cardium	25	5.1	NV*	3922±1397
Leptodea fragilis	2	0.4	NV	313±916
Megalonaias nervosa	19	3.9	0.0	2982±1252
Obliquaria reflexa	15	3.1	0.0	2363±1326
Obovaria sp.	3	0.6	0.0	466±750
Plectomerus dombeyanus	29	6.0	0.0	4589±2028
Pleurobema pyramidatum	1	0.2	0.0	161±329
Potamilus purpuratus	1	0.2	100.0	153±314
Quadrula nodulata	6	1.2	0.0	964±856
Quadrula pustulosa	106	21.8	0.0	15929±4494
Quadrula quadrula	20	4.1	0.0	3182±2143
Tritogonia verrucosa	4	0.8	0.0	619±1563
Truncilla donaciformis	1	0.2	NV	161±329
Truncilla truncata	3	0.6	NV	474±537
Totals	487	100.0	0.2	76558±10188

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 54M
Location: Mile 239.1
AR: Union County
Stratum Size: 100m x 10m = 1000m²
Total Samples: 10
Substrate: Sand, clay, large gravel, cobble
Minimum-Maximum density (#/m²): 11.0-82.0
Mean density #/m² (Standard deviation): 40.0 (23.9)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	100	25.0	0.0	10000±5629
Fusconaia ebena	135	33.7	0.0	13500±9211
Fusconaia flava	55	13.8	0.0	5500±3059
Lampsilis cardium	4	1.0	NV*	400±497
Leptodea fragilis	1	0.3	NV	100±125
Megalonaias nervosa	16	4.0	0.0	1600±1171
Obliquaria reflexa	2	0.5	0.0	200±300
Plectomerus dombeyanus	38	9.5	0.0	3800±1290
Pleurobema pyramidatum	1	0.2	0.0	100±125
Potamilus purpuratus	1	0.3	0.0	100±125
Quadrula metanevra	2	0.5	0.0	200±300
Quadrula nodulata	1	0.2	0.0	100±125
Quadrula pustulosa	34	8.5	0.0	3400±1811
Quadrula quadrula	9	2.2	0.0	900±623
Tritogonia verrucosa	1	0.3	0.0	100±125
Totals	400	100.0	0.0	40000±16974

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 55M
Location: Mile 236.0
AR: Union County
Stratum Size: 160m x 30m = 4800m^2
Total Samples: 25
Substrate: Sand, gravel, cobble
Minimum-Maximum density (#/m^2): 6.0-46.0
Mean density #/m^2 (Standard deviation): 26.1 (11.0)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	155	23.8	0.0	29760±6666
Fusconaia ebena	169	25.9	0.0	32448±10285
Fusconaia flava	21	3.2	0.0	4032±1909
Lampsilis cardium	6	0.9	NV*	1152±272
Lampsilis teres	1	0.2	0.0	192±394
Leptodea fragilis	8	1.2	NV	1536±940
Megalonaias nervosa	48	7.4	0.0	9216±3114
Obliquaria reflexa	8	1.2	0.0	1536±940
Plectomerus dombeyanus	88	13.5	0.0	16896±4968
Potamilus purpuratus	9	1.4	0.0	1728±1121
Quadrula nodulata	8	1.2	0.0	1536±1476
Quadrula pustulosa	84	12.9	0.0	16128±4551
Quadrula quadrula	34	5.2	0.0	6528±2602
Tritogonia verrucosa	5	0.8	0.0	960±986
Truncilla donaciformis	4	0.6	NV	768±738
Truncilla truncata	4	0.6	NV	768±738
Totals	652	100.0	0.0	125790±21652

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 56M
Location: Mile 233.5
AR: Ashley County
Stratum Size: 100m x 18m = 1800m^2
Total Samples: 18
Substrate: Large gravel, sandy clay
Minimum-Maximum density (#/m^2): 6.0-70.0
Mean density #/m^2 (Standard deviation): 26.1 (14.5)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	142	30.3	0.0	14200±5954
Fusconaia ebena	131	27.9	0.0	13100±5101
Fusconaia flava	20	4.3	0.0	2000±1218
Lampsilis cardium	9	1.9	NV*	900±630
Leptodea fragilis	2	0.4	NV	200±289
Megalonaias nervosa	32	6.8	0.0	3200±1743
Obliquaria reflexa	7	1.5	0.0	700±541
Plectomerus dombeyanus	41	8.7	0.0	4100±1776
Potamilus purpuratus	2	0.4	0.0	200±289
Quadrula nodulata	2	0.4	0.0	200±289
Quadrula pustulosa	62	13.2	0.0	6200±2569
Quadrula quadrula	16	3.4	0.0	1600±858
Tritogonia verrucosa	2	0.4	0.0	200±289
Truncilla truncata	1	0.2	NV	100±211
Totals	469	99.8	0.0	46900±12880

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 58M
Location: Mile 232.0
AR: Union County
Stratum Size (n samples): 1.) 100m x 8m = 800m² (8)
2.) 90m x 6m = 540m² (5)
Substrate: 1.) Sand, gravel
2.) Gravel, sand
Total Samples: 13
Minimum-Maximum density (#/m²): 1.) 5.0-47.0
2.) 6.0-23.0
Mean density #/m² (Standard deviation): 1.) 18.5 (14.6)
2.) 13.0 (6.4)
Total: 16.4 (12.1)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	48	22.5	0.0	4680±2825
Fusconaia ebena	37	17.4	0.0	3570±2166
Fusconaia flava	4	1.9	0.0	400±563
Lampsilis hydiana	1	0.5	NV*	100±215
Lampsilis cardium	3	1.4	NV	300±452
Leptodea fragilis	2	0.9	NV	190±276
Megalonaias nervosa	9	4.2	0.0	870±633
Obliquaria reflexa	2	0.9	0.0	200±281
Plectomerus dombeyanus	66	31.0	0.0	6380±3706
Pleurobema pyramidatum	3	1.4	0.0	270±287
Quadrula nodulata	7	3.3	0.0	700±390
Quadrula pustulosa	10	4.7	0.0	960±622
Quadrula quadrula	18	8.5	0.0	1750±980
Truncilla donaciformis	2	0.9	NV	190±276
Truncilla truncata	1	0.5	NV	90±193
Totals	213	100.0	0.2	20650±9279

* NV = No Commercial Value

Appendix 1.3 cont'd

BED: 59M
Location: Mile 230.9
AR: Union County
Stratum Size (n samples): 1.) 150m x 15m = 2250m² (11)
2.) 150m x 20m = 3000m² (14)
Substrate: 1.) Sand, embedded gravel
2.) Sand, pea gravel
Total Samples: 25
Minimum-Maximum density (#/m²): 1.) 20.0-67.0
2.) 6.0-65.0
Mean density #/m² (Standard deviation): 1.) 37.4 (18.4)
2.) 23.4 (14.9)
Total: 29.7 (17.6)

Species	Number Collected	Percent of total	Percent legal	Population Estimate
Amblema plicata	233	31.4	0.0	48565±1886
Fusconaia ebena	195	26.3	0.5	42019±12715
Fusconaia flava	26	3.5	0.0	5464±3159
Lampsilis cardium	10	1.3	NV*	2133±1436
Leptodea fragilis	2	0.3	NV	419±596
Megalonaias nervosa	34	4.6	0.0	7032±2909
Obliquaria reflexa	30	4.0	0.0	6282±2223
Plectomerus dombeyanus	73	9.8	0.0	15282±5520
Pleurobema pyramidatum	2	0.3	0.0	419±596
Potamilus purpuratus	1	0.1	0.0	214±439
Quadrula nodulata	5	0.7	0.0	1062±863
Quadrula pustulosa	74	10.0	0.0	21886±4314
Quadrula quadrula	51	6.9	0.0	10865±3627
Tritogonia verrucosa	2	0.3	0.0	419±596
Truncilla donaciformis	1	0.1	NV	214±439
Truncilla truncata	3	0.4	NV	614±1261
Totals	742	100.0	0.1	154354±35536

* NV = No Commercial Value

APPENDIX 1.4 Physical parameters, species composition, percent legal harvestable mussels and mean densities for minor beds of the Ouachita River, Arkansas, 1993-1995.

BED: 2m
Location: Mile 375.3
Stratum Size: Not available
Total Samples: 5
Substrate: Gravel
Minimum-Maximum density (#/m^2): 8.0-15.0
Mean density #/m^2 (Standard deviation): 12.6 (2.9)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Actinonaias ligamentina	3	4.8	0.0	0.6
Amblema plicata	2	3.2	0.0	0.4
Cyprogenia aberti	1	1.6	0.0	0.2
Ellipsaria lineolata	5	7.9	0.0	1.0
Elliptio dilatata	8	12.7	0.0	1.6
Fusconaia flava	8	12.7	0.0	1.6
Leptodea fragilis	2	3.2	NV*	0.4
Plectomerus dombeyanus	1	1.6	0.0	0.2
Pleurobema pyramidatum	6	9.5	0.0	1.2
Potamilus purpuratus	2	3.2	0.0	0.4
Quadrula cylindrica	1	1.6	0.0	0.2
Quadrula metanevra	1	1.6	0.0	0.2
Quadrula pustulosa	16	25.4	0.0	3.2
Strophitus undulatus	1	1.6	0.0	0.2
Truncilla truncata	6	9.5	NV	1.2
Totals	63	100.1	0.0	12.6

* NV = No Commercial Value

Appendix 1.4 cont'd

BED: 4m
Location: Mile 370.5
AR: Ouachita County
Stratum Size: 70m x 3m = 210m^2
Total Samples: 5
Substrate: Gravel
Minimum-Maximum density (#/m^2): 8.0-37.0
Mean density #/m^2 (Standard deviation): 19.8 (12.9)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	15	15.2	0.0	3.0
Ellipsaria lineolata	1	1.0	0.0	0.2
Elliptio dilatata	5	5.0	0.0	1.0
Fusconaia ebena	1	1.0	0.0	0.2
Fusconaia flava	16	16.2	0.0	3.2
Megalonaias nervosa	2	2.0	0.0	0.4
Plectomerus dombeyanus	4	4.0	0.0	0.8
Pleurobema pyramidatum	50	50.5	0.0	10.0
Quadrula pustulosa	5	5.0	0.0	1.0
Totals	99	99.9	0.0	19.8

Appendix 1.4 cont'd

BED: 6m
Location: Mile 367.6
AR: Ouachita County
Stratum Size: 85m x 3m = 255m^2
Total Samples: 5
Substrate: Gravel
Minimum-Maximum density (#/m^2): 6.0-13.0
Mean density #/m^2 (Standard deviation): 9.6 (2.8)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Actinonaias ligamentina	2	4.2	0.0	0.4
Amblema plicata	10	20.8	0.0	2.0
Elliptio dilatata	1	2.1	0.0	0.2
Fusconaia ebena	1	2.1	0.0	0.2
Fusconaia flava	10	20.8	0.0	2.0
Leptodea fragilis	2	4.2	NV*	0.4
Pleurobema pyramidatum	14	29.2	0.0	2.8
Quadrula nodulata	1	2.1	0.0	0.2
Quadrula pustulosa	4	8.3	0.0	0.8
Strophitus undulatus	2	4.2	0.0	0.4
Truncilla truncata	1	2.1	NV	0.2
Totals	48	100.1	0.0	9.6

* NV = No Commercial Value

Appendix 1.4 cont'd

BED: 7m
Location: Mile 364.2
AR: Ouachita County
Stratum Size: 30m x 8m = 240m^2
Total Samples: 5
Substrate: Gravel, fine sand
Minimum-Maximum density (#/m^2): 15.0-49.0
Mean density #/m^2 (Standard deviation): 23.0 (14.6)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Actinonaias ligamentina	20	17.4	0.0	4.0
Amblema plicata	6	5.2	0.0	1.2
Elliptio dilatata	4	3.5	0.0	0.8
Fusconaia ebena	1	0.9	0.0	0.2
Fusconaia flava	30	26.1	0.0	6.0
Pleurobema pyramidatum	38	33.0	0.0	7.6
Ptychobranchus occidentalis	1	0.9	NV*	0.2
Quadrula metanevra	1	0.9	0.0	0.2
Quadrula pustulosa	14	12.2	0.0	2.8
Totals	115	100.1	0.0	23.0

* NV = No Commercial Value

Appendix 1.4 cont'd

BED: 15m
Location: Mile 351.7
AR: Calhoun County
Stratum Size: 40m x 10m = 400m^2
Total Samples: 5
Substrate: Gravel
Minimum-Maximum density (#/m^2): 10.0-37.0
Mean density #/m^2 (Standard deviation): 22.2 (10.0)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Actinonaias ligamentina	1	0.9	0.0	0.2
Amblema plicata	4	3.6	0.0	0.8
Ellipsaria lineolata	1	0.9	0.0	0.2
Elliptio dilatata	8	7.2	0.0	1.6
Fusconaia ebena	12	10.8	0.0	2.4
Fusconaia flava	25	22.5	0.0	5.0
Megalonaias nervosa	1	0.9	0.0	0.2
Plectomerus dombeyanus	3	2.7	0.0	0.6
Pleurobema pyramidatum	42	37.8	0.0	8.4
Quadrula pustulosa	10	9.0	0.0	2.0
Strophitus undulatus	1	0.9	NV*	0.2
Tritogonia verrucosa	1	0.9	0.0	0.2
Truncilla truncata	2	1.8	NV	0.4
Totals	111	99.9	0.0	22.2

* NV = No Commercial Value

Appendix 1.4 cont'd

BED: 16m
Location: Mile 351.5
AR: Calhoun County
Stratum Size: 40m x 12m = 480m²
Total Samples: 5
Substrate: Sand, pea gravel
Minimum-Maximum density (#/m²): 4.0-52.0
Mean density #/m² (Standard deviation): 26.2 (21.2)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Actinonaias ligamentina	1	0.8	0.0	0.2
Amblema plicata	5	3.8	0.0	1.0
Ellipsaria lineolata	10	7.6	0.0	2.0
Elliptio dilatata	4	3.1	0.0	0.8
Fusconaia ebena	20	15.3	0.0	4.0
Fusconaia flava	28	21.4	0.0	5.6
Lampsilis abrupta	1	0.8	ES*	0.2
Megalonaias nervosa	1	0.8	0.0	0.2
Obliquaria reflexa	2	1.5	0.0	0.4
Pleurobema pyramidatum	28	21.4	0.0	5.6
Quadrula metanevra	6	4.6	0.0	1.2
Quadrula pustulosa	14	10.7	0.0	2.8
Quadrula quadrula	2	1.5	0.0	0.4
Strophitus undulatus	1	0.8	NV**	0.2
Tritogonia verrucosa	2	1.5	0.0	0.4
Truncilla truncata	6	4.6	NV	1.2
Totals	131	100.2	0.0	26.2

* ES = Endangered Species
** NV = No Commercial Value

Appendix 1.4 cont'd

BED: 17m
Location: Mile 350.1
AR: Ouachita County
Stratum Size: 50m x 8m = 400m^2
Total Samples: 5
Substrate: Gravel
Minimum-Maximum density (#/m^2): 25.0-122.0
Mean density #/m^2 (Standard deviation): 62.2 (41.6)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Actinonaias ligamentina	2	0.6	0.0	0.4
Amblema plicata	3	1.0	0.0	0.6
Ellipsaria lineolata	3	1.0	0.0	0.6
Elliptio dilatata	6	2.0	0.0	1.2
Fusconaia ebena	30	9.6	0.0	6.0
Fusconaia flava	63	20.3	0.0	12.6
Lampsilis teres	1	0.3	0.0	0.2
Megalonaias nervosa	2	0.6	0.0	0.4
Obliquaria reflexa	2	0.6	0.0	0.4
Plectomerus dombeyanus	3	1.0	0.0	0.6
Pleurobema pyramidatum	122	39.2	0.0	24.4
Potamilus purpuratus	1	0.3	0.0	0.2
Ptychobranchus occidentalis	5	1.6	NV*	1.0
Quadrula metanevra	11	3.5	0.0	2.2
Quadrula pustulosa	15	4.8	0.0	3.0
Strophitus undulatus	3	1.0	NV*	0.2
Tritogonia verrucosa	10	3.2	0.0	2.0
Truncilla truncata	29	9.3	NV	5.8
Totals	311	99.9	0.0	62.2

* NV = No Commercial Value

Appendix 1.4 cont'd

BED: 31m
Location: Mile 321.0
AR: Ouachita/Calhoun County
Stratum Size: 50m x 2m = 100m²
Total Samples: 5
Substrate: Clay, gravel, cobble
Minimum-Maximum density (#/m²): 7.0-22.0
Mean density #/m² (Standard deviation): 12.6 (6.3)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	9	14.3	0.0	1.8
Fusconaia flava	1	1.6	0.0	0.2
Lampsilis cardium	4	6.3	NV*	0.8
Megalonaias nervosa	10	15.9	0.0	2.0
Obliquaria reflexa	4	6.3	0.0	0.8
Plectomerus dombeyanus	2	3.2	0.0	0.4
Potamilus purpuratus	1	1.6	0.0	0.2
Quadrula pustulosa	10	15.9	0.0	2.0
Quadrula quadrula	21	33.3	0.0	4.2
Truncilla truncata	1	1.6	NV	0.2
Totals	63	100.0	0.0	12.6

* NV = No Commercial Value

Appendix 1.4 cont'd

BED: 33m
Location: Mile 287.2
AR: Union County
Stratum Size: 75m x 5m = 375m^2
Total Samples: 5
Substrate: Gravel, sand, clay
Minimum-Maximum density (#/m^2): 8.0-32.0
Mean density #/m^2 (Standard deviation): 20.8 (8.9)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	33	31.7	0.0	6.6
Ellipsaria lineolata	1	1.0	0.0	0.2
Fusconaia ebena	1	1.0	0.0	0.2
Lampsilis cardium	3	2.9	NV*	0.2
Megalonaias nervosa	3	2.9	0.0	0.6
Obliquaria reflexa	14	13.5	0.0	2.8
Plectomerus dombeyanus	1	1.0	0.0	0.2
Quadrula nodulata	3	2.9	0.0	0.8
Quadrula pustulosa	14	13.5	0.0	2.8
Quadrula quadrula	28	26.9	0.0	5.6
Tritogonia verrucosa	1	1.0	0.0	0.2
Truncilla truncata	2	1.9	NV	0.4
Totals	104	100.2	0.0	20.8

* NV = No Commercial Value

Appendix 1.4 cont'd

BED: 34m
Location: Mile 274.1
AR: Union County
Stratum Size: 50m x 3m = 150m^2
Total Samples: 5
Substrate: Sand, gravel, cobble
Minimum-Maximum density (#/m^2): 8.0-22.0
Mean density #/m^2 (Standard deviation): 17.6 (5.7)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	32	36.4	0.0	6.4
Fusconaia flava	1	1.1	0.0	0.2
Megalonaias nervosa	3	3.4	0.0	0.6
Obliquaria reflexa	4	4.5	0.0	0.8
Plectomerus dombeyanus	6	6.8	0.0	1.2
Quadrula pustulosa	20	22.7	0.0	4.0
Quadrula quadrula	19	21.6	0.0	3.8
Tritogonia verrucosa	1	1.1	0.0	0.2
Truncilla truncata	2	2.3	NV	0.4
Totals	88	99.9	0.0	17.6

Appendix 1.4 cont'd

BED: 35m
Location: Mile 272.4
AR: Union County
Stratum Size: 35m x 6m = 210m^2
Total Samples: 5
Substrate: Coarse sand, pea gravel
Minimum-Maximum density (#/m^2): 5.0-36.0
Mean density #/m^2 (Standard deviation): 24.2 (12.7)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Actinonaias ligamentina	1	0.8	0.0	0.2
Amblema plicata	84	69.4	0.0	16.8
Arcidens confragosus	1	0.8	NV*	0.2
Fusconaia ebena	3	2.5	0.0	0.6
Fusconaia flava	2	1.6	0.0	0.4
Lampsilis cardium	1	0.8	NV	0.2
Lampsilis teres	1	0.8	0.0	0.2
Megalonaias nervosa	6	5.0	0.0	1.2
Obliquaria reflexa	3	2.5	0.0	0.6
Plectomerus dombeyanus	2	1.6	0.0	0.4
Potamilus purpuratus	1	0.8	0.0	0.2
Quadrula pustulosa	7	5.8	0.0	1.4
Quadrula quadrula	6	5.0	0.0	1.2
Truncilla truncata	3	2.5	NV	0.6
Totals	121	99.9	0.0	24.2

* NV = No Commercial Value

Appendix 1.4 cont'd

BED: 37m
Location: Mile 270.4 Pigeon Hill Landing
AR: Union County
Stratum Size: 75m x 5m = 375m^2
Total Samples: 5
Substrate: Sand, clay, gravel
Minimum-Maximum density (#/m^2): 8.0-27.0
Mean density #/m^2 (Standard deviation): 21.6 (7.8)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	55	50.9	0.0	11.0
Fusconaia ebena	4	3.7	0.0	0.8
Lampsilis hydiana	1	0.9	NV*	0.2
Lampsilis cardium	1	0.9	NV	0.2
Megalonaias nervosa	5	4.6	0.0	1.0
Obliquaria reflexa	3	2.8	0.0	0.6
Plectomerus dombeyanus	12	11.1	0.0	2.4
Potamilus purpuratus	1	0.9	0.0	0.2
Quadrula pustulosa	14	13.0	0.0	2.8
Quadrula quadrula	9	8.3	0.0	1.8
Tritogonia verrucosa	2	1.9	0.0	0.4
Truncilla truncata	1	0.9	NV	0.2
Totals	108	99.9	0.0	21.6

* NV = No Commercial Value

Appendix 1.4 cont'd

BED: 45m
Location: Mile 248.0
AR: Union County
Stratum Size: 100m x 3m = 300m^2
Total Samples: 5
Substrate: Sandy gravel
Minimum-Maximum density (#/m^2): 15.0-155.0
Mean density #/m^2 (Standard deviation): 75.6 (55.9)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	167	44.2	0.0	33.4
Ellipsaria lineolata	1	0.3	0.0	0.2
Fusconaia ebena	103	27.2	0.0	20.6
Fusconaia flava	24	6.3	0.0	4.8
Lampsilis cardium	5	1.3	NV*	1.0
Megalonaias nervosa	14	3.7	0.0	2.8
Obliquaria reflexa	4	1.0	0.0	0.8
Obovaria sp.	2	0.5	0.0	0.4
Plectomerus dombeyanus	14	3.7	0.0	2.8
Pleurobema pyramidatum	1	0.3	0.0	0.2
Quadrula metanevra	1	0.3	0.0	0.2
Quadrula nodulata	1	0.3	0.0	0.2
Quadrula pustulosa	23	6.1	0.0	4.6
Quadrula quadrula	12	3.2	0.0	2.4
Tritogonia verrucosa	1	0.3	0.0	0.2
Truncilla donaciformis	2	0.5	NV	0.4
Truncilla truncata	3	0.8	NV	0.6
Totals	378	100.0	0.0	75.6

* NV = No Commercial Value

Appendix 1.4 cont'd

BED: 57m
Location: Mile 233.0
AR: Ashley County
Stratum Size: 80m x 4m = 320m^2
Total Samples: 5
Substrate: Sand, pea gravel
Minimum-Maximum density (#/m^2): 6.0-19.0
Mean density #/m^2 (Standard deviation): 12.0 (5.1)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	12	20.0	0.0	2.4
Fusconaia ebena	10	16.7	0.0	2.0
Megalonaias nervosa	2	3.3	0.0	0.4
Obliquaria reflexa	4	6.7	0.0	0.8
Plectomerus dombeyanus	6	10.0	0.0	1.2
Potamilus purpuratus	1	1.7	0.0	0.2
Quadrula nodulata	3	5.0	0.0	0.6
Quadrula pustulosa	18	30.0	0.0	3.6
Quadrula quadrula	4	6.7	0.0	0.8
Totals	60	100.1	0.0	26.5

Appendix 1.4 cont'd

BED: 60m
Location: Mile 223.0
AR: Ashley County
Stratum Size: 40m x 10m = 400m^2
Total Samples: 5
Substrate: Sand, sand/gravel, sand/cobble
Minimum-Maximum density (#/m^2): 7.0-29.0
Mean density #/m^2 (Standard deviation): 19.8 (9.2)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	79	79.8	0.0	15.8
Fusconaia ebena	7	7.1	0.0	1.4
Megalonaias nervosa	2	2.0	0.0	0.4
Obovaria sp.	1	1.0	0.0	0.2
Plectomerus dombeyanus	3	3.0	0.0	0.6
Quadrula pustulosa	4	4.0	0.0	0.8
Quadrula quadrula	3	3.0	0.0	0.6
Totals	99	99.9	0.0	19.8

Appendix 1.4 cont'd

BED: 61m
Location: Mile 221.6
AR: Union County
Stratum Size: 40m x 10m = 400m^2
Total Samples: 5
Substrate: Silt, sand
Minimum-Maximum density (#/m^2): 10.0-22.0
Mean density #/m^2 (Standard deviation): 16.4 (4.9)

Species	Number Collected	Percent of total	Percent legal	Mean Density
Amblema plicata	74	90.2	0.0	14.8
Megalonaias nervosa	1	1.2	0.0	0.2
Plectomerus dombeyanus	1	1.2	0.0	0.2
Potamilus ohiensis	1	1.2	0.0	0.2
Quadrula pustulosa	3	3.7	0.0	0.6
Quadrula quadrula	2	2.4	0.0	0.4
Totals	82	99.9	0.0	16.4