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HISTORICAL AND CURRENT EXAMINATION OF FRESHWATER MUSSELS (BIVALVIA: MARGARITIFERIDAE: UNIONIDAE) IN THE DUCK RIVER BASIN TENNESSEE, U.S.A.

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ABSTRACT

The Duck River basin located in south-central Tennessee has long been established as an area of high freshwater mussel diversity. The Duck River is 442 km long with a large reservoir, Normandy Dam operated by the Tennessee Valley Authority (TVA) placed at river km 420 controlling discharge throughout the remaining river (≈ 95% total length). This inventory effort examined 112 sites throughout the Duck River basin for freshwater mussels. Additionally, historical species records were assembled directly from natural history museum records across North America to examine changes in species richness and distribution. For freshwater mussels, 75 species historically occurred in the basin, and 53 are currently extant, including three federally listed species (*Epioblasma* sp. cf. *capsaeformis*, *Lemiox rimosus*, and *Quadrula intermedia*). Mussel densities examined either as Catch Per Unit Effort (CPUE) or direct quadrat sampling indicated significant increases from 1979, 1988, and 2001-2002. In qualitative sampling, mussel species richness more than tripled and mussel numbers increased 11 fold at 17 sites common to mussel studies in 1979, 1988, and 2002. Mean mussel densities at three locations increased between two and 11 fold and species richness 3 and 6.5 fold in quadrat sampling. As a general trend, mussel species richness increased downriver, with a mean diversity of 17.6 species per site in the lower drainage, although the highest diversity sites were associated with mill dams. Mussel species richness was not significantly different ($p = 0.76$) across 12 sites sampled in 1922, 1965, and 2002. Populations of federally listed species have increased their range substantially and numbers encountered were significantly greater in both qualitative and quantitative sampling. In direct contrast to the main-stem river, mussel species richness has declined dramatically in tributary systems over the last 20 years. Mussel recovery in the Duck River is attributable in part to improvements in point source elimination, and land acquisition from the now defunct TVA, Columbia Dam Project. However, improvements in dissolved oxygen concentrations and flow release schedules from Normandy Dam initiated by TVA's - Reservoir Release Improvements (RRI) program in 1991 are likely the most critical development in mussel recovery. From 1991–2001 mean annual discharges improved 23 and 15% during critical spring and summer recruitment periods in comparison to discharge levels 10 years previous. Increased channel volume during critical recruitment periods improves conditions on channel margins where mussel recruitment is most critical. The apparent long-term stability for mollusk species richness and abundance, along with an enormously diverse riverine fauna (total biodiversity exceeds 650 species) make the Duck River an outstanding national resource.

INTRODUCTION

In terms of biodiversity, the Duck River is one if not the most biologically diverse rivers in North America. A total of 147 species of fish, 54 freshwater mussel species, and 22 freshwater snail species occur here (Appendix 4). The mussel fauna of the Duck River has a long history of abuse and neglect that was not uncommon for many streams during the settlement and industrialization of our nation. Since the passage of the Clean Water and Endangered Species Acts by Congress in 1972 and 1973, respectively, recent awareness of this unique faunal group have shown precipitous declines and extinctions for mussels and snails, by far more than any other faunal group in the country. Species richness in terms of freshwater mollusks (mussels, fingernail clams, aquatic snails) in the United States consists of more than 940 species (297 mussels, 38 fingernail clams, 655 snails). Of these, 269 mussels, 53 fingernail clams, and 313 snails occur in the southeastern United States. When species richness is assessed from a regional perspective, it is readily apparent that the "rain forest" of mollusk diversity is in the southeastern United States.

A recent status review of the mussel fauna in the entire United States revealed significant nationwide declines (Williams *et al*., 1993). In the southeastern states, about 35 species of mussels have been lost (unpublished recent estimate) and between 34 percent and 71 percent of all mussels are imperiled, defined here to include species endangered, threatened, or of special concern (Neves *et al*., 1997). Archaeological excavations of aboriginal shell mounds

are historical proof of extensive mussel colonization in our rivers. Snails have faired little better with nearly 60 species lost and between 5 percent and nearly 49 percent remaining species considered endangered, threatened, or of special concern for some southeastern states (Johnson *et al*., 2013). However, the mollusk fauna that exists today in streams like the Duck River is but a small fraction of a fragmented and disjunct fauna that nationwide has managed to survive extensive human perturbations. Efforts to save molluscan resources will take closely coordinated partnerships and a long-term commitment by governmental and non-governmental conservation organizations in its preservation.

Current study objectives of this examination of Duck River basin freshwater mussels were diverse. The first objective was to complete a comprehensive qualitative mussel survey of the Duck River basin focusing on the main stem river and selected tributaries below Normandy Dam. Not only would this generate a current species list, but an expanded study area would allow for a better assessment than other recent investigations (Ahlstedt, 1981, 1991; Jenkinson, 1988; Schilling and Williams, 2002). The second objective was to complete quantitative surveys at specific localities in the river where previous examinations were completed in 1979 and 1988. This would allow us to quantify changes in mussel density and species richness over time. The third objective was to assemble an historical database for detailed examination of changes in species occurrences and distribution since the 1880's. This would be accomplished through the direct examination of museum collections and the assembly of records into a single historical database. Additional recent survey records were also compiled into this database (Hubbs, 1999; Schilling and Williams, 2002). These additional records were invaluable when crafting accounts of each species. The fourth objective was to compile information related to changes in river management that may compromise or improve mussel populations.

Historical accounts of humans and mussels

Native Americans consumed large quantities of freshwater mussels as evidenced by the large mussel shell mounds (middens) that occur throughout the state. However, no shell middens have been located in the Duck River basin outside of Old Stone Fort State Park in Manchester, Coffee County. However, detailed excavation of this locality was not completed (Parmalee and Bogan, 1998). One of the first written accounts of mussels in the Duck River took place during the Civil War (1861-1865) near Shelbyville in the diary of Pvt. Sam R. Watkins, "Co. Aytch," First Tennessee Regiment, a Confederate soldier who survived all four years of the war:

Reader, did you ever eat a mussel? Well, we did, at Shelbyville. We were camped right upon the bank of Duck River, and one day Fred Dornin, Ed Voss, Andy Wilson and I went into the river mussel hunting. Every one of us had a meal sack. We would feel down with our feet until we felt a mussel then dive for it. We soon filled our sacks with mussels in their shells. When we got to camp we cracked the shells and took out the mussels. We tried frying them, but the longer they fried the tougher they got. They were a little too large to swallow whole. Then we stewed them, and then we baked them but every flank movement we would make on those mussels the more invulnerable they would get. We tried cutting them up with a hatchet, but they were so slick and tough the hatchet would not cut them. Well, we cooked them, and buttered them, and salted them, and peppered them, and battered them. They looked good, and smelt good, and tasted good; at least the fixings we put on them did, and we ate the mussels. I went to sleep that night. I dreamed that my stomach was four-grindstones, and that they turned in four directions, according to the four corners of the earth. I awoke to hear four men yell out, "O, save, O, save me from eating any more mussels!"

Historical background for current study

One of the first habitat alterations that probably had significant localized effects on isolating and fragmenting mussel and fish host populations in the Duck River was the construction of numerous mill dams. At least 25 water-powered mill dams were identified throughout the length of the river and date back to the early 1800s (LaForest and Oliveira, 1979). Some of the earliest mill dams were constructed of cedar logs forming a crib and then filled in with rocks. Mill dams constructed in this manner were constantly washed away during floods and reconstructed. Mill dams played a major role in the local economy by providing power for producing paper, rope, furniture, lumber, cloth, and flour. A few were later constructed of concrete and several converted for hydroelectric power by small companies. The problem with mill dams is they impound many miles of riverine habitat, but most were rarely of sufficient size (height) to block migratory host fish passage during flooding. At present six concrete mill dams are intact on the Duck River but none are functioning. They include the following in order from upstream to downstream: Morton, Chumley, Cortners, Shelbyville, Lillard Mill, and Old Columbia. However, based on the results of this study, none these dams apparently block fish passage during flooding events.

From 1972-1976, the Tennessee Valley Authority (TVA) constructed Normandy Dam on the Duck River for flood control, water supply, and recreation. Normandy Dam is of sufficient size that creates a permanent blockage for migratory fish on the river. Water released downstream from the dam provides a localized trout fishery that's managed by the Tennessee Wildlife Resources Agency (TWRA). Normandy Dam has reduced a number of downstream floods on agricultural land and provides water needs for downstream municipalities.

A second large TVA dam was begun in 1973 on the Duck River upstream from Columbia. This was a multipurpose reservoir intended as a water supply source for Maury and Marshall counties including the industrial complex downstream from Columbia. Following passage of the Endangered Species Act of 1973, the United States Fish and Wildlife Service (USFWS) began listing freshwater mussel species that were determined either endangered or threatened throughout all or a significant portion of their ranges. In 1976 and 1977, the USFWS added a number of mussels to the list including five that were known to occur in the Duck River. Consultations between TVA and USFWS resulted in a 1977 Biological Opinion (USFWS, 1977) which indicated that completion of the Columbia Dam project would jeopardize the continued existence of two endangered mussels: birdwing pearlymussel, *Lemiox rimosus*, and Cumberland monkeyface, *Quadrula intermedia*. As part of a 1979 revision of the Biological Opinion (USFWS, 1979), TVA initiated a conservation program that could be implemented to benefit the endangered species and other endemic mollusks. The USFWS accepted the conservation program, but a significant constraint was that the program, had to be proven successful for the two endangered mussels before the reservoir could be filled. In 1984, TVA and USFWS concluded that the conservation program was not likely to succeed because several established criteria had not been met (TVA 2000a, b).

A resurvey of the mussel fauna by TVA in 1988 within the footprint of the proposed 35-mile impoundment produced an additional listed species, the tan riffleshell, *Epioblasma florentina walkeri* (Jenkinson, 1988; Ahlstedt, 1991). In 1995, TVA determined that the Columbia Dam project could not be completed as a dam and reservoir due to the presence of endangered species and the lack of present national support for projects of its kind (TVA, 2000a). The concrete portion of Columbia Dam was approximately 92 percent completed; however, in 1999, it was completely dismantled and removed.

In 1999, the Tennessee Chapter of The Nature Conservancy (TNC) opened a field office in Columbia in order to conserve the unique aquatic ecosystem found in the Duck River drainage. The Conservancy works closely with state and federal agencies, industry, academia, and the local community to formulate solutions to environmental problems relevant to the river's conservation. Gathering scientific information and identifying threats to rare species are crucial components in these conservation efforts.

As part of this mission to preserve rare species, the TNC Duck River Office and TWRA commissioned this mollusk survey in 2000 with funds provided by the Tennessee Environmental Endowment. This report contains the information gathered for the mussel survey portion of this study. A report of survey activities, historical species database, quantitative studies, and allozyme analysis completed for freshwater gastropods will be detailed in an additional report.

Previous mollusk studies of the Duck River drainage

In 1884, Hinkley and Marsh (1885) privately published their mussel and snail records from the Duck River. Their findings represented the earliest account of the rich diversity of mollusks in the river. Around the turn of the century mussel fishing became popular by families looking for pearls (Garrett, 1991). Numerous other studies including verification of mussels in museum collections indicate 74 species have been reported from the Duck River. Three mussels (*Epioblasma phillipsi*, *Epioblasma torulosa torulosa*, and *Plethobasus cooperianus*) are questionable as to their occurrence despite published records (Parmalee and Bogan, 1998; Isom and Yokley, 1968). Both *Epioblasma* species are presently extinct, but all three mussels had access historically to the Duck from populations in the Tennessee River. Following is a brief summary of published surveys and records for each species are presented in Table 7.

- Hinkley and Marsh (1885) sampled one site in the Duck River near Columbia in 1884. They reported 45 mussel species including 8 snail species. A brief description of the river at Columbia was noted"…picturesque, with limestone bluffs along its banks having been sculpted by rain and frost, and water being shallow, swift, and clear. Mussels in this part of the state grow to a particularly large size as a result of abundant food, suitable mineral properties in the water and are comparatively free from iron stains that diminish the beauty of shells in many localities."

- Ortmann (1924) reported on mussel collections made in the Duck River from 1921-1923 at 9 sites including one site each in Garrison Fork Creek and Buffalo River. He reported 51 mussel species in the Duck River, 7 in Garrison Fork Creek, and 16 in the Buffalo River and considered the Duck as one of the most important tributaries of the Tennessee River. Mussels were considered abundant in the Duck between Manchester and Centerville, but below Centerville many dead shells were observed on gravel bars and in the water, living shells being scarce. He attributed this to extensive phosphate and possibly iron ore mining located between Columbia and Centerville. Ortmann's study of the Duck River is important because of observations made on river conditions and the abundance or rarity of certain mussels found. Of note, mussels were reported everywhere on the gravelly, sandy, and muddy bottom of the Buffalo River.

- van der Schalie (1939, 1973) and Goodrich sampled mussels at five locations in the Duck River in 1931 and four sites in the Buffalo. He reported 44 mussel species and

9 snail species and observed that mollusks were the most significant elements in the benthic fauna of both rivers. He noted both rivers as having some of the finest shoals for freshwater mussels and concluded that the biomass of mussels was never attempted but where mussel beds occurred it was established that the bottom was paved with them. Van der Schalie re-sampled both rivers in 1972 but found the mussel fauna drastically depleted as a result of pollution from phosphate and iron ore mining. However, the snail fauna remained relatively abundant.

- Isom and Yokley (1968) sampled throughout the Duck River in 1965 at the same or close to Ortmann's (1924) collecting sites. They reported 43 mussel species and stated the fauna was declining as a result of pollution below cities and industries and extensive sedimentation from phosphate ore mining in the Duck River basin.

- Parmalee and Klippel (1986) conducted archaeological excavations in 1978 of a prehistorical aboriginal rock shelter on the Duck River at Cheek Bend Cave, Maury County near Columbia. They reported 28 mussel species including 11 valves of *Pegias fabula*. Parmalee and Klippel noted it occurred farther upstream in Bedford County from excavations of other rock shelters (1980–1981) and Fountain Creek. Only one museum record (single individual) collected in 1888 exists for this species from the Duck River (USNM 86229).

- Ahlstedt (1981, 1991) surveyed mussels in the Duck River from 1976-1978 at 18 access points between Normandy Dam and below the old Columbia Dam. He reported 31 mussel species including 8 species of snails. In 1979, TVA conducted an intensive float-survey for mussels that included both quantitative and qualitative sampling at 99 sites from its headwaters in Coffee County downstream to below the old Columbia Dam. Thirty-five mussel species were found during the survey (Ahlstedt, 1991). In 1988, TVA conducted another float-survey of the Duck to update the current status of mussels at 62 sites from Lillard Mill Dam downstream to below the old Columbia Dam. Both quantitative and qualitative samples were collected and resulted in 31 mussel species (Jenkinson 1988; Ahlstedt, 1991).

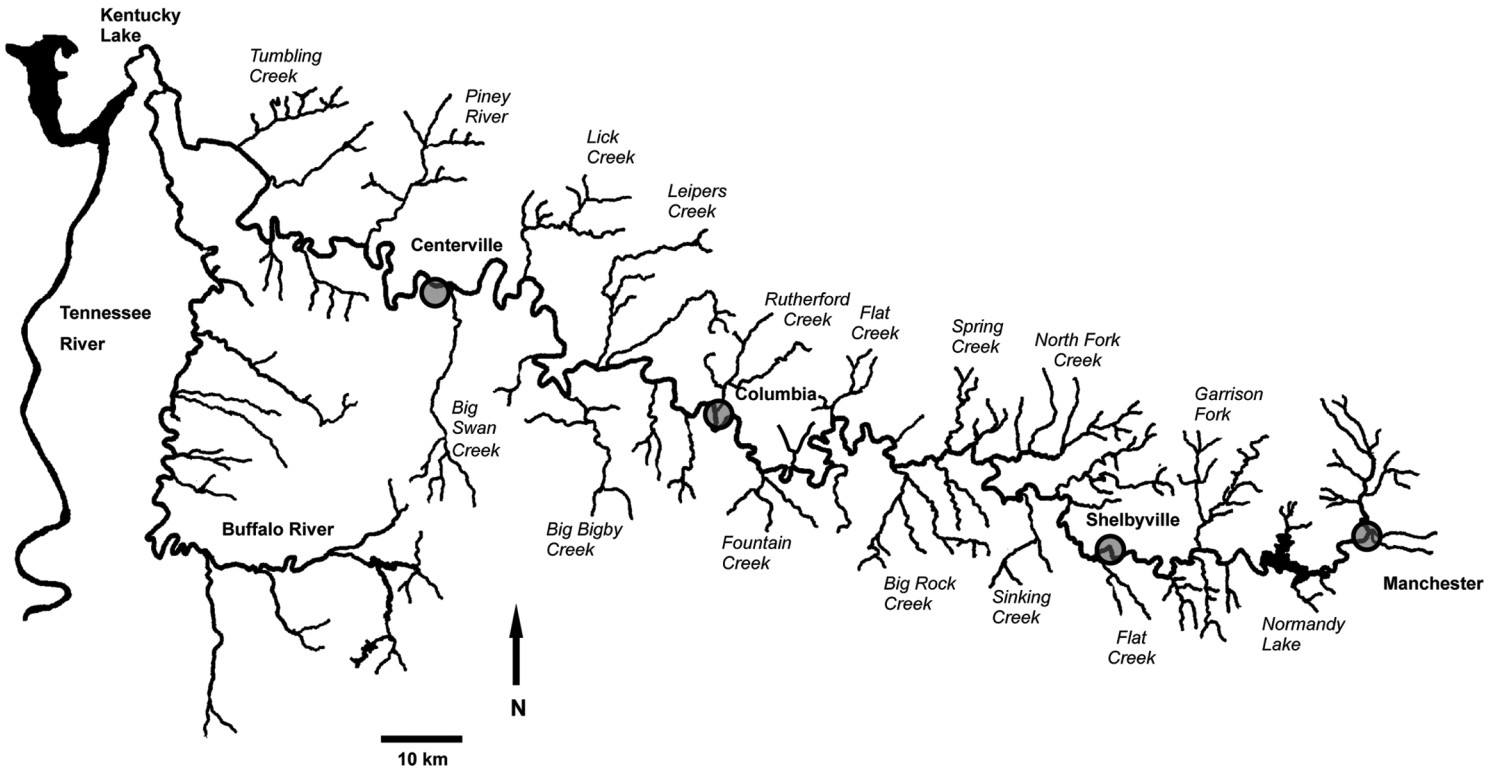
- Schilling and Williams (2002) sampled mussels at 11 sites in the lower Duck River below Centerville. They reported 32 mussel species and characterized the river below Centerville by a relatively high abundance and diversity of mussels.

STUDY AREA

The Duck River and its largest tributary, the Buffalo River, in south-central Tennessee, are the largest tributaries to the lower Tennessee River contained entirely within the State of Tennessee (Fig. 1). The Duck River was named for the large number of ducks found on the stream during early exploration in central Tennessee and is formed at three springs near Hoodoo in Coffee County (Garrett, 1991). The Duck flows in a westerly direction for approximately 468 km where it joins the Tennessee

River in Humphreys County. The Duck River basin crosses three physiographic provinces and it drains an estimated 8,100 km^2 of the southern portion of the Eastern Highland Rim, the

Figure 1— A generalized map of the Duck River basin in central Tennessee, showing major tributaries and towns as reference points. Red dots indicate the position of major towns on the Duck River.



Nashville Basin, and the southern portion of the Western Highland Rim (Theis, 1936; Schilling and Williams, 2002). The Buffalo River is located entirely within the Western Highland Rim and flows into the lower Duck River in Humphreys County. These provinces are dominated by Karst topography and prominent geologic strata consisting of various limestone types. As a feature of this geography, groundwater supplies are an important component to the Duck River, and springs are numerous in the basin. Additionally the limestone strata contribute to the hardness of the water which ranges between 60–180 mg/l CaCO3. Mean annual discharge at Columbia was 2,071 cubic feet per second (cfs) with a range of 175–60,000 cfs occurring between 1980 and 2000 (USGS Stream Gauge 03597860, Duck River at Shelbyville, Bedford County, Tennessee and 03599500, Duck River at Columbia, Maury County, Tennessee).

METHODS

River discharge evaluation

Water quality and physical habitat evaluation were not a direct part of this study. However, once sampling began it became apparent additional information about the physical and chemical characteristics of the Duck River may help explain the better than anticipated survey results. Therefore, information regarding seasonal changes in discharge release from TVA's Normandy Dam became a priority. Improvements in seasonal discharge were made at the dam in late 1991 as part of TVA's

Reservoir Release Improvement (RRI) program. Normandy Dam is located in the headwaters of the Duck River and helps regulate discharges for the lower two-thirds of the river. We compiled discharge data from the USGS river gauges at Shelbyville and Columbia. At each gauge, mean daily discharges were determined for each month for 10 years prior to RRI initiatives (1981–1991 - 12 measurements per year x 10 years = 120), and 10 years after RRI was initiated (1992–2002, n = 120). The 20 years of discharge data were analyzed (pre and post RRI) using a one-way Analysis of Variance (ANOVA) (Statistix 8.0, Analytical Software, Tallahassee, Florida). Differences between means were determined with a Tukey's HSD *a-posteriori* test. Data for these analyses was examined by season (n = 4) and period (10 years pre- and post RRI) for each gauge (Shelbyville and Columbia).

Qualitative mussel sampling

Mussel sampling was conducted at 112 different localities from 2000–2003 (Table 1). Mussel sampling consisted of snorkeling sites accessible by road and float surveying inaccessible sections of the river by canoe and motorized boat. Sampling consisted of visual searching, digging, and fanning substrate looking for mussels that were buried or partially exposed. Substrate digging was productive for finding juvenile mussels that were not routinely found in many mussel surveys. Locating juvenile mussels was an important component of this study in order to document recruitment and potential mussel faunal recovery. Searches were conducted throughout riffle and run areas, including rock piles, under large slab boulders, and seams or creases in bedrock. Some pools in both the middle and lower reaches of the Duck were sampled using scuba-equipped divers.

Stream-banks were searched for shell material (middens) at feeding stations left by muskrats, *Ondatra zibethica*. Isolated microhabitats were also searched to look for habitat specialist species

Table 1— Sampling locality information for the freshwater mollusk collections made in the Duck River system Tennessee from 2000-2002. The locality information is assigned a collection number (TNC 1-112) and the latitude and longitude coordinates are reported in degree minutes.

Collection	Locality	County	Date	Latitude and Longitude
TNC 1	Carters Creek, TN 246, near Dark's Mill, 4.76 km southwest of Neapolis.	Maury	Sept. 7, 2000	N 35° 40.913' W 87° 00.682'
TNC 2	Little Bigby Creek, TN 245 and Sunnyside Lane, just north of the 245 bridge crossing, Columbia	Maury	Sept. 7, 2000	N 35° 34.453' W 87° 04.345'
TNC 3	Fountain Creek, New Cut Road crossing (Edmondson), 5.56 km west of Interstate 65	Maury	Sept. 7, 2000	N 35° 33.878' W 86° 57.888'
TNC 4	Caney Creek, TN 99 crossing, 0.64 km west of the TN 99 and TN 272 intersection.	Marshall	Sept. 7, 2000	N 35° 36.520' W 86° 46.093'
TNC 5	North Fork Creek, TN 270, 1.31 km west of Halls Mill Road intersection (Poplins Crossroads).	Bedford	Sept. 7, 2000	N 35° 35.128' W 86° 35.723'
TNC 6	Duck River, Lillard Mill, adjacent to Milltown Road, 3.26 km southeast of the TN 272 and 92 intersection. DRM 179 **Quantitative Site**	Marshall	Sept. 8, 2000	N 35° 35.163' W 86° 46.233'
TNC 7	Big Rock Creek, behind Berea Baptist Church, 0.67 km northwest of Verona.	Marshall	Aug. 20, 2001	N 35° 32.315' W 86° 46.097'
TNC 8	Big Rock Creek, Double Bridges Road Crossing, 3.04 km southwest of Verona.	Marshall	Aug. 20, 2001	N 35° 30.330" W 86°46.056"
TNC 9	Duck River, Lillard Mill, adjacent to Milltown Road, 3.26 km southeast of TN 272 and TN 92 intersection. DRM 179	Marshall	Aug. 21, 2001	N 35° 35.163' W 86°46.233'
TNC 10	Duck River, Venable Spring, 1.85 km west of the TN 99 and TN 272 intersection. DRM 176.8 – **Quantitative Site**	Marshall	Aug. 21, 2001	N 35° 36.422' W 86°47.974'
TNC 11	Duck River, 0.81 km upriver of the Interstate 65 bridge crossing. DRM 151.7	Maury	Aug. 22, 2001	N 35°33.996' W 86° 54.010'
TNC 12	Duck River, Sowell Ford, 1.67 km east of Interstate 65. DRM 159.4	Maury	Aug. 22, 2001	N 35° 35.552' W 86° 53.094'
TNC 13	Duck River, head of island downriver of Carpenter Bridge, 0.92 km South of the intersection of Luther Sharp Road and Carpenter Bridge Road. DRM 164.6	Maury	Aug. 22, 2001	N 35° 37.053' W 86° 52.119'
TNC 14	Duck River, toe of island downriver of Carpenter Bridge, 1.08 km South of the intersection of Luther Sharp Road and Carpenter Bridge Road. DRM 164.2	Maury	Aug. 22, 2001	N 35° 36.994' W 86° 52.400'
TNC 15	Duck River, Branch Islands 0.87 km downriver of Howard Bridge. DRM 149.9	Maury	Aug. 23, 2001	N 35°34.038' W 86°55.610'
TNC 16	Duck River at the shoal upriver of the Sowell Mill Pike Bridge. DRM 156.1	Maury	Aug. 23, 2001	N 35°34.251' W 86°52.283'
TNC 17	Duck River at the upriver end of Hooper Island, 2.73 km southwest of the Luther Sharp Road overpass at Interstate 65. DRM 163.2	Maury	Aug. 23, 2001	N 35°36.234' W 86°52.506'

Table 1— continued

Collection	Locality	County	Date	Latitude and Longitude
TNC 18	Duck River at the small island below Hardison Mill, adjacent to Hardison Mill Cutoff, 0.45 km west of intersection with US 431. DRM 172	Maury	Aug. 24, 2001	N 35° 36.602' W 86°49.606'
TNC 19	Duck River below the mouth of Fountain Creek, 0.51 km north of New Cut Road (Edmondson Bridge) crossing. DRM 145.8	Maury	Aug. 29, 2001	N 35° 34.128' W 86° 57.907'
TNC 20	Duck River above the mouth of Fountain Creek, 0.51 km north of New Cut Road (Edmondson Bridge) crossing. DRM 146.1	Maury	Aug. 29, 2001	N 35° 34.105' W 86° 57.736'
TNC 21	Duck River at island above the Negro Creek confluence, 1.05 km south of Negro Creek Road. DRM 147.3	Maury	Aug. 29, 2001	N 35° 34.475' W 86° 56.633'
TNC 22	Duck River at Cheek Bend, 3.09 km east of Interstate 65. DRM 155.2	Maury	Aug. 29, 2001	N 35º 33.358' W 86º 52.761'
TNC 23	Duck River at Tarpley Bluff (Carl Cash Property), adjacent to Old Unionville Road, off River Ranch Road. DRM 207.3	Bedford	Aug. 30, 2001	N 35º 32.251' W 86º 31.590'
TNC 24	Duck River at Anchor Mill, adjacent to Kingston Mill Road. DRM 206.5	Bedford	Aug. 30, 2001	N 35º 32.217' W 86º 31.062'
TNC 25	Duck River at shoal above Three-Forks Bridge crossing. DRM 239.7	Bedford	Aug. 30, 2001	N 35º 28.556' W 86º 19.382'
TNC 26	Garrison Fork at Haley Road Bridge (Cannon Bridge) crossing. GFCM 0.72	Bedford	Aug. 30, 2001	N 35º 29.220' W 86º 20.185'
TNC 27	Duck River at Old Trap Island, 0.84 km west of US 431. DRM 170.6	Maury	Aug. 31, 2001	N 35º 35.776' W 86º 50.187'
TNC 28	Duck River at Gowen Road Bridge crossing, 0.38 km east of Gowen and Fredonia Road intersection. DRM 275.7	Coffee	Sept. 10, 2001	N 35º 32.513' W 86º 06.187'
TNC 29	Duck River at Wilhoite Mill adjacent to River Road, Henry Horton State Park. DRM 186.3	Marshall	Sept. 10, 2001	N 35º 35.464' W 86º 41.977'
TNC 30	Duck River at the downriver side of Big Spring Island (1st shoal above "River Rats" canoe ramp), 0.62 km southeast of the US 431 and TN 99 intersection. DRM 173.8	Marshall	Sept. 11, 2001	N 35º 37.330' W 86º 49.163'
TNC 31	Duck River at small island on the downriver section of Osteen Bend, 0.23 km east of US 431. DRM 173.1	Maury	Sept. 11, 2001	N 35º 37.111' W 86º 49.392'
TNC 32	Duck River at small island upriver of Cundiff Ford Island, 0.64 km west of Cole Bend Road . DRM 169.1	Maury	Sept. 11, 2001	N 35º 36.283' W 86º 50.870'
TNC 33	Duck River at lower end of Hooper Island, 3.12 km southeast of the Luther Sharp Road overpass at Interstate 65. DRM 163.1	Maury	Sept. 12, 2001	N 35º 36.215' w 86º 52.479'
TNC 34	Duck River at small island upriver of Bull's Bluff at Jackson Bend, 0.55 km east of Carpenters Bridge Road. DRM 158.2	Maury	Sept. 12, 2001	N 35º 35.564' W 86º 51.843'
TNC 35	Duck River upriver of the Hopkins Bridge Road crossing . DRM 192.2	Marshall/ Bedford	Sept. 13, 2001	N 35º 34.741' W 86º 38.328'

Table 1— continued

Collection	Locality	County	Date	Latitude and Longitude
TNC 36	Duck River at Hall's Mill, downriver of Wheel Road crossing. DRM 202.2	Bedford	Sept. 13, 2001	N 35º 33.230' W 86º 34.962'
TNC 37	Negro Creek at the Negro Creek Bridge crossing.	Maury	Sept. 14, 2001	N 35º 34.965' W 86º 56.330'
TNC 38	Duck River just below Shelbyville Dam, adjacent to West Jackson Street and the US 231 bridge crossing in Shelbyville. DRM 221.3	Bedford	Sept. 17, 2001	N 35º 28.991' W 86º 27.802'
TNC 39	Duck River at Slick Shoals, 1.53 km below Lillard Mill Dam. DRM 178.2	Marshall	Sept. 18, 2001	N 35º 35.525' W 86º 47.104'
TNC 40	Duck River at shoal 0.30 km above Cundiff Island. DRM 175.2	Marshall	Sept. 18, 2001	N 35º 36.448" W 86º 48.409"
TNC 41	Duck River about 0.30 km below old Columbia Dam in Columbia. DRM 133.5	Maury	Sept. 19, 2001	N 35º 37.155' W 87º 01.334'
TNC 42	Duck River at shoals about 0.70 km below the old Columbia Dam in Columbia. DRM 133.2	Maury	Sept. 19, 2001	N 35º 37.066' W 87º 01.592'
TNC 43	Duck River at a small island below Eason Bend, 1.97 km above the TN 48/100 bridge crossing. DRM 73.9	Hickman	Sept. 20, 2001	N 35º 46.463' W 87º 26.809'
TNC 44	Duck River at a shallow run below Eason Bend, 1.47 km upriver of the TN 48/100 bridge crossing. DRM 73.7	Hickman	Sept. 20, 2001	N 35º 46.436' W 87º 27.106'
TNC 45	Duck River at TN 230 bridge crossing near Littlelot. Between the TN 230 and old Anderson Bend Bridge. DRM 88.9	Hickman	Sept. 20, 2001	N 35º 46.623' W 87º 19.062'
TNC 46	Duck River 0.27 km downriver of Craig Bridge crossing. DRM 116.2	Maury	Sept. 20, 2001	N 35º 41.183' W 87º 10.894'
TNC 47	Rich Creek at James Shaw Road crossing, 0.22 km east of US 31A, south of Henry Horton State Park.	Marshall	Sept. 21, 2001	N 35º 34.037' W 86º 42.128'
TNC 48	Wartrace Creek at Fairfield Pike bridge crossing, 3.16 km west of TN 269.	Bedford	Oct. 29, 2001	N 35º 34.061' W 86º 42.401'
TNC 49	Garrison Fork at Bugscuffle Road bridge crossing, 2.0 km south of Wartrace.	Bedford	Oct. 29, 2001	N 35º 34.697' W 86º 42.417'
TNC 50	Hurricane Creek at the TN 231 bridge crossing, north of Shelbyville.	Bedford	Oct. 29, 2001	N 35º 32.264' W 86º 27.236'
TNC 51	Flat Creek at the TN 64/Lewis Avenue bridge crossing, 1.16 km southeast of the TN 64, US 281 intersection.	Bedford	Oct. 30, 2001	N 35º 34.258' W 86º 42.621'
TNC 52	Sugar Creek at the TN 64 bridge crossing, 0.21 km west of the TN 130 bridge crossing.	Bedford	Oct. 30, 2001	N 35º 27.412' W 86º 30.478'
TNC 53	Unnamed tributary of Bluestocking Branch at Robinson Road bridge crossing, 1.41 km N of the US 231 intersection.	Bedford	Oct. 30, 2001	N 35º 23.470' W 86º 30.650'

Table 1— continued

Collection	Locality	County	Date	Latitude and Longitude
TNC 54	Sinking Creek at Wheel Road, 1.42 km south of Halls Mill.	Bedford	Oct. 30, 2001	N 35º 23.181' W 86º 30.426'
TNC 55	East Rock Creek at US 31A bridge crossing, 0.74 km northwest of Farmington.	Marshall	Oct. 30, 2001	N 35º 30.299' W 86º 42.821'
TNC 56	Fall Creek at Hickory Hill Church Road, .30 km southwest of the US 41A intersection.	Bedford	Oct. 31, 2001	N 35º 30.147' W 86º 42.182'
TNC 57	North Fork Creek at Kennedy Road just east of the US 41A intersection.	Bedford	Oct. 31, 2001	N 35º 35.068' W 86º 32.949'
TNC 58	North Fork Creek at ford on the North Fork Creek Road, 0.52 km north of the Hopkins Bridge Road intersection.	Bedford	Oct. 31, 2001	N 35º 35.042' W 86º 36.485'
TNC 59	Flat Creek at Simmons Road bridge crossing, 2.28 km southwest of TN 81.	Bedford	Oct. 31, 2001	N 35º 25.553' W 86º 26.929'
TNC 60	Flat Creek at US 431 bridge crossing at Rally Hill, 3.36 km north of the US 412 intersection.	Maury	Oct. 31, 2001	N 35º 30.460' W 86º 53.540'
TNC 61	Silver Creek at Bryant Road bridge crossing, 0.17 km west of Interstate 65.	Maury	Nov. 1, 2001	N 35º 25.932' W 86º 26.789'
TNC 62	Fountain Creek at TN 50 bridge crossing, 2.45 km west of the TN 373 intersection.	Maury	Nov. 1, 2001	N 35º 32.081' W 86º 57.912'
TNC 63	Duck River, Lillard Mill, upper island, adjacent to Milltown Road, 3.26 km southeast of TN 272 and TN 92 intersection. DRM 17	Marshall	June 4, 2002	N 35º 35.084' W 86º 47.129'
TNC 64	Duck River at Tarpley Bluff, top of Tarpley Bluff Island, adjacent to Old Unionville Road, off River Ranch Road DRM 207.3 **Quantitative Site**	Bedford	June 5, 2002	N 35º 32.114' W 86º 31.360'
TNC 65	Duck River just below Shelbyville Dam, adjacent to West Jackson Street and the US 231 bridge crossing in Shelbyville. DRM 221.3	Bedford	June. 5, 2002	N 35º 28.991' W 86º 27.802'
TNC 66	Duck River approximately 700 m below Normandy Dam, down river from Frank Hiles Road Bridge Crossing. DRM 248.3	Coffee	Aug. 5, 2002	N 35º 27.575' W 86º 14.686'
TNC 67	Duck River at Cortners Mill, from 300 m downriver of milldam to just beneath the dam. DRM 245	Bedford	Aug. 5, 2002	N 35º 28.569' W 86º 16.431'
TNC 68	Duck River at Dement Bridge crossing, downriver of TN 269 bridge crossing. DRM 142.0	Bedford	Aug. 5, 2002	N 35º 27.986' W 86º 17.724'
TNC 69	Thompson Creek adjacent to farmhouse drive 600 m that intersects with Three Forks Bridge Road, 2.18 km south of Three Forks Bridge.	Bedford	Aug. 5, 2002	N 35º 27.963' W 86º 20.379'
TNC 70	Duck River adjacent to US 41A, upriver of Big Duck River Canoe and Kayak take out. DRM 237.1	Bedford	Aug. 5, 2002	N 35º 27.772' W 86º 21.444'
TNC 71	Duck River at Mullins Mill, 0.22 km upriver of the US 41A Bridge crossing. DRM 235.8	Bedford	Aug. 6, 2002	N 35º 28.212' W 86º 22.674'

Table 1— continued

Collection	Locality	County	Date	Latitude and Longitude
TNC 72	Duck River at Moore Ford, adjacent to golf driving range on river-left just west of the TN 64 and US 41A intersection in Shelbyville. DRM 229.2	Bedford	Aug 6, 2002	N 35º 28.481' W 86º 24.125'
TNC 73	Duck River above the TN 82 bridge crossing, adjacent to Green Island, in Shelbyville. DRM 224.1	Bedford	Aug. 6, 2002	N 35º 27.649' W 86º 26.829'
Station	Locality	County	Date	**Latitude and Longitude**
TNC 74	Duck River at Coney Island near Shelbyville, 0.49 km upriver of the TN 130 Bridge Crossing in Shelbyville. DRM 225.6	Bedford	Aug. 6, 2002	N 35º 27.649' W 86º 26.829'
TNC 75	Duck River at Riverside Country Club, behind house at 228 River Bend Road in Shelbyville. DRM 227.7	Bedford	Aug. 6, 2002	N 35º 27.823' W 86º 26.963'
TNC 76	Duck River, Lillard Mill, adjacent to Milltown Road, 3.26 km southeast of the TN 272 and 92 intersection. DRM 179	Marshall	Aug. 7, 2002	N 35° 35.163' W 86° 46.233'
TNC 77	Duck River about 0.30 km below old Columbia Dam in Columbia. DRM 133.5	Maury	Aug. 7, 2002	N 35º 37.155' W 87º 01.334'
TNC 78	Duck River at shoals about 0.70 km below the old Columbia Dam in Columbia. DRM 133.2	Maury	Aug. 7, 2002	N 35º 37.066' W 87º 01.592'
TNC 79	Duck River at Sims Bridge Road, 3.58 km SW from Shelbyville. DRM 216.2	Bedford	Aug. 8, 2002	N 35º 28.833' W 86º 29.974'
TNC 80	Duck River at Warner Bridge Road, 3.74 km SW of US 41-A in Elbethel. DRM 210.2	Bedford	Aug. 8, 2002	N 35º 30.520' W 86º 32.551'
TNC 81	Duck River at Shearin Ford, 0.92 km upstream of Hopkins Bridge. DRM 192.7	Bedford	Aug. 8, 2002	N 35º 34.535' W 86º 38.033'
TNC 82	Duck River at 0.21 km above Tucker Ford, just west of Virgil Crowell Road. DRM 193.5	Bedford	Aug. 8, 2002	N 35º 34.030' W 86º 37.580'
TNC 83	Duck River below White Ford, 0.81 km E of Haskins Road and Haskins Chapel Road intersection. DRM 195.7	Bedford	Aug. 8, 2002	N 35º 32.932' W 86º 38.503'
TNC 84	Little Duck River above Waite Street Bridge in Manchester. LDRM 4.2	Coffee	Aug. 9, 2002	N 35º 29.018' W 86º 04.849'
TNC 85	Little Duck River at Fred Deadman City Park, Woodland Road, Manchester. LDRM 2.5	Coffee	Aug. 9, 2002	N 35º 29.018' W 86º 04.849'
TNC 86	Duck River at small island above Little Hurricane Creek, 1.43 km directly west of US 41-A. DRM 208	Bedford	Aug. 12, 2002	N 35º 31.591' W 86º 31.738'

Table 1— continued

Station	Locality	County	Date	**Latitude and Longitude**
TNC 87	Duck River at Cook Island, 0.86 km below the Sinking Creek confluence, 0.39 km W of Wheel Road. DRM 199.4	Bedford	Aug. 12, 2002	N 35º 32.119' W 86º 35.689'
TNC 88	Duck River 0.49 km below Sinking Creek confluence, 0.63 km W of Wheel Road. DRM 199.7	Bedford	Aug. 12, 2002	N 35º 31.325' W 86º 35.699'
TNC 89	Duck River 0.54 km E of Card Road, near Haskins Chapel. DRM 197.4	Bedford	Aug. 13, 2002	N 35º 32.243' W 86º 37.496'
TNC 90	Duck River at the mouth of Sinking Creek. DRM 200	Bedford	Aug. 13, 2002	N 35º 32.554' W 86º 35.787'
TNC 91	Duck River upriver of the Hopkins Bridge Road crossing (Newt and Marie Cooper property). DRM 192.2	Marshall/ Bedford	Aug. 13, 2002	N 35º 34.741' W 86º 38.328'
TNC 92	Duck River at Commodore D. Loveless Bridge (Monsanto Bridge), TN Route 7/Santa Fe Pike, up to mouth of Rutherford Creek, Columbia. DRM 130.4	Maury	Aug. 14, 2002	N 35º 38.778' W 87º 02.648'
TNC 93	Duck River at Alexander Bend above Industrial Park Bridge, Columbia. DRM 128.2	Maury	Aug. 14, 2002	N 35º 38.101' W 87º 04.185'
TNC 94	Duck River 0.41 km below the Fountain Creek confluence. DRM 145.7	Maury	Aug. 15, 2002	N 35º 34.168' W 86º 58.094'
TNC 95	Duck River 2nd shoal 1.43 km below the Fountain Creek confluence, 0.40 km W of Rieves Cemetery. DRM 145	Maury	Aug. 15, 2002	N 35º 34.627' W 86º 58.136'
TNC 96	Duck River at shallow run 2.37 km below the Fountain Creek confluence. DRM 144.4	Maury	Aug. 15, 2002	N 35º 34.627' W 86º 58.136'
TNC 97	Duck River at Goose Creek confluence. DRM 144	Maury	Aug. 15, 2002	N 35º 34.861' W 86º 59.125'
TNC 98	Big Bigby Creek at US 412 / TN 99 in Cross Bridges.	Maury	Aug. 16, 2002	N 35º 36.978' W 87º 12.554'
TNC 99	Big Bigby Creek at Bigby Gap adjacent to Southall Road just above the Duck River confluence. BBCM 0.2	Maury	Aug. 16, 2002	N 35º 36.978' W 87º 12.554'
TNC 100	Duck River at Old Fort State Park, above the falls and directly below the dam. DRM 269.2	Coffee	Aug. 16, 2002	N 35º 29.205' W 86º 06.098'
TNC 101	Duck River at Old Fort State Park, below the falls. DRM 269.1	Coffee	Aug. 16, 2002	N 35º 29.050' W 86º 06.534'

Table 1— continued

Station	Locality	County	Date	**Latitude and Longitude**
TNC 102	Little Duck River below US 41 (Jail Bridge) in Manchester. LDRM 2.1	Coffee	Aug. 16, 2002	N 35º 29.195' W 86º 05.508'
TNC 103	Duck River at Willamsport, TN 50 Bridge crossing (Joe Frank Porter Bridge). DRM 113.9	Maury	Aug. 26, 2002	N 35º 41.675' W 87º 13.227'
TNC 104	Duck River below the TN 50 Bridge crossing (William E. McEwen Bridge). DRM 97.9	Hickman	Aug. 26, 2002	N 35º 43.301' W 87º 16.005'
TNC 105	Buffalo River below the TN 13 Bridge crossing at Lobelville. BRM 19.1	Perry	Aug. 27, 2002	N 35º 48.689' W 87º 46.774'
TNC 106	Buffalo River at Beardstown around small island adjacent to the Buffalo River Golf Course, up river of TN 438 Bridge crossing. BRM 31.9	Perry	Aug. 27, 2002	N 35º 42.432' W 87º 47.743'
TNC 107	Buffalo River at TN 13/48 Bridge crossing (Bell Bridge), along Campground adjacent to the river and below the Green River confluence. BRM 73.3	Wayne	Aug. 27, 2002	N 35º 27.355' W 87º 46.457'
TNC 108	Buffalo River at CR 1771 Bridge crossing (Topsy Bridge), 0.41 km below Fortyeight Creek. BRM 80.6	Wayne	Aug. 27, 2002	N 35º 26.171' W 87º 41.896'
TNC 109	Buffalo River at Riverside, Howard Switch Road Bridge crossing. BRM 90.5	Wayne	Aug. 27, 2002	N 35º 27.106' W 87º 36.169'
TNC 110	Duck River at island below the TN 50 bridge crossing (Sparks-Garner-Sawyer Bridge) at Wrights Bend, 4.63 km SE of Only. DRM 38.7	Hickman	Aug. 28, 2002	N 35º 49.604' W 87º 39.942'
TNC 111	Duck River at Carothers island above the TN 50 Bridge (Huddleston Bridge) crossing. DRM 64.4	Hickman	Aug. 28, 2002	N 35º 46.791' W 87º 31.215'
TNC 112	Duck River at TN 50 Bridge crossing, above and below the bridge crossing. DRM 70.8	Hickman	Aug. 28, 2002	N 35º 46.353' W 87º 28.316'

(*e.g.*, *Toxolasma lividis*, Purple Lilliput in silted streambanks). All collected shell was marked with appropriate locality information for each sampling site. All live, fresh dead (shiny nacre and/or evidence of tissue left inside of shell), and relict (weathered nacre no longer lustrous) were identified to species and recorded. Individual specimens of live and fresh dead mussels were measured for total length (in millimeters) for size-class distribution using a digital Vernier caliper. Sampling efforts at each site were timed for the determination of Catch Per Unit Effort (CPUE), or the total number of person hours spent sampling mollusks (species richness and density timed searches).

Specific sampling localities were identified by latitude and longitude to degree-minutes using hand held Global Positioning System (GPS) units (Garmin GPS II Plus). The GPS units were turned on and allowed to acquisition for 3–5 minutes prior to recording coordinates onto field data sheets. Sampling sites also were identified by river mile location, natural landmarks, creeks, towns, and bridge crossings using US Geological Survey, 7.5 minute topographic maps, and *DeLorme Tennessee Gazetteer*. The GPS coordinates were referenced and post corrected using DeLorme 3-D TopoQuads 2.0 software, containing digital USGS, 7.5 minute topographic maps (DeLorme, Yarmouth, Maine).

Specific locality information, latitude and longitude coordinates, sampling date, number of surveyors, sampling time, and general habitat information were recorded onto field data sheets in addition to survey information. Live, fresh dead, relict shells of all species encountered were recorded in addition to shell lengths of live and fresh dead mussels. Because of the extensive study period (2000–2003) and the fact that some localities were sampled multiple times, field data sheets were numbered sequentially throughout the study period, and sites were assigned a sample number (TNC 1–112, Table 1). If an individual site was sampled at different dates (i.e., Lillard Mill) it was assigned a new site number for each date sampled. Fresh dead and non-listed voucher specimens for this study were deposited with the mollusk collections at the McClung Museum, University of Tennessee, Knoxville, Tennessee.

Mean CPUE for species richness and mussel densities for this study and in 1988 (Jenkinson, 1988) were determined across 21 sites common to each investigation. For this study, if a single location was sampled on more than one date, only a single sampling event was used in CPUE calculations. Direct CPUE calculations for 1979 survey data could not be determined because of missing field notes. However, sites sampled for all studies could be examined for general differences in species richness and number of mussels sampled. Comparative species richness and mussel numbers for qualitative sampling across all studies (n = 3) and concurrent stations (n = 18 stations between Columbia and Lillard Mill) were analyzed with a one-way ANOVA. Differences between means for both mussel number and species richness were determined with Tukey's HSD *a-posteriori* test. Direct CPUE comparisons of species richness and mean density were calculated for the 1988 and current sampling data over 21 locations.

Quantitative sampling of freshwater mussels

Four fixed-station monitoring sites were selected for long-term sampling of mussel populations in the river. These 4 sites were quantitatively sampled using a 0.25 m^2 meter square quadrat for determining mussel densities. Sampling consisted of randomly placing the quadrat in a riffle or shoal and excavating the substrate to a depth of approximately 50-55 mm. A total of 20 quadrats were taken at each sampling location. All mussel species found within the confines of the sampling quadrat were identified, shell length measured, and recorded by individual quadrat sample. Quadrat samples were taken at Tarpley Bluff, Bedford Co. (TNC

64), Lillard Mill, Marshall Co. (TNC 6), Venable Spring, Maury Co. (TNC 10), and Hooper Island, Maury Co. (TNC 33, See Table 1 for complete locality data).

Quadrat samples taken at Lillard Mill, Venable Spring, and Hooper Island could be directly compared with quadrat samples taken in 1979 and 1988. Species richness and mussel density could be evaluated across dates at each location. To examine for changes in density and species richness across dates, one-way ANOVA's were completed for each location. One analysis examined density, another species richness (six different analyses). Means from both analyses were contrasted across dates using a Tukey's HSD *a-posteriori* test. Table models were used because quadrat sample numbers were different for each study: (Lillard Mill 1979, 1988, n = 40, 2001 n = 20; Venable Spring 1979 n = 12, 1988 n = 20, 2003 n = 30; Hooper Island 1979 n = 25, 1988 n = 12, 2001 n = 20).

Juvenile mussel distribution

During the course of this study it was observed that juvenile mussels were often collected near the channel margin. To determine if this general observation was correct, we designed a small study to examine juvenile mussel distribution across the river channel. We selected Hooper Island for this study because of healthy mussel abundances, and the channel has a gradual slope (< 20°) from margin to center channel. Sampling was completed in August 2003 at base flow (discharge = < 300 cfs). Ten transects were set 10 m apart and quadrats were set at 1, 4, and 7 m distances from the channel margin. A total of 30 quadrats were taken for this study, 10 at each depth.

Live mussels collected in each quadrat were identified to species and shell lengths recorded. Juvenile size limits were determined from size frequency data collected during qualitative survey activities. For each species, shell length range values were examined and the juvenile status determined by using the lower 25th percentile as reference. For example, live spike, *Elliptio dilatata*, were encountered from 15 – 85 mm shell lengths during normal survey activities (range of 70 mm). Juvenile size limits were determined for each species by multiplying the range value by 0.25 and adding the length of the smallest shell encountered (i.e., 70 x 0.25 = 17.5 + 15 = 32.5 mm). Using this formula for each species, percent juvenile abundance within each quadrat was determined. Percent juvenile abundance and total densities across the three distances were evaluated with two, one-way ANOVA's. Differences in means across the channel were examined with a Tukey's HSD *a-posteriori* test. Percent juvenile abundance values were Arc Sin Square Root transformed before analysis to meet normality requirements.

RESULTS

River discharge evaluation

Results of one-way ANOVA's indicated significant seasonal discharges for both Shelbyville ($F = 120$, $p = 0.0001$) and Columbia ($F = 56.4$, $p = 0.0001$). Seasonal differences in discharges are not unusual and Tukey's *a-posteriori* results did not indicate significant differences for any season from post- and pre- RRI improvements. However, mean spring and summer discharges were elevated 24% (Q = 1,098.6 cfs) and 16% (Q = 432.2 cfs) at Shelbyville and 13% (Q = 2,890.5 cfs) and 15% (Q = 833.6 cfs) at Columbia for post-RRI levels respectively (Fig. 2). Although these means were not significantly different, elevation of river levels during peak

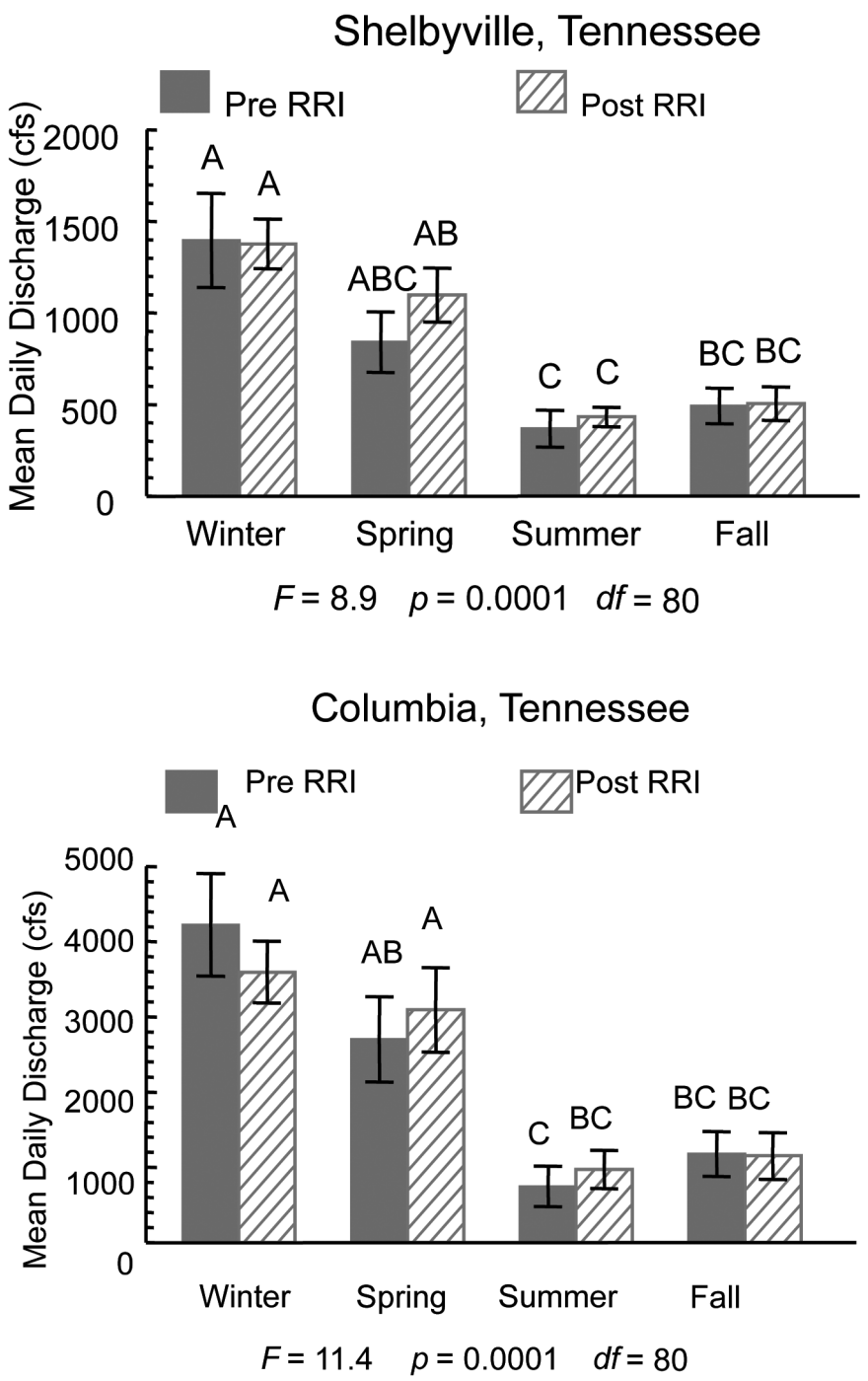


Figure 2— Histogram of mean + standard error daily discharge values reported in cubic feet per second (CFS) obtained from river gauges on the Duck River at Shelbyville (top) and Columbia (bottom), Tennessee by season. Means represent daily discharge values for each month for 10 years pre and 10 years post Reservoir Release Discharge Initiative (RRI) completed at Normandy Dam beginning in late 1991. Letters atop standard error bars indicate significantly different means as determined by Tukey's *a-posteriori* test. Results of analysis of variance (F values and p values) are indicated below each graph.

mussel recruitment periods (spring and summer) is a marked improvement from previous management levels. Other general water quality parameters collected during the study period are summarized in Table 2.

Table 2— Distribution of sample locations examined for freshwater mussels between 2000 and 2003 in the Duck River basin, Tennessee.

Location River	Miles	Samples	Percent
Lower Duck River	DRM 0 – 133	13	11.6%
Middle Duck River	DRM 134 – 221	46	41.1%
Upper Duck River	DRM 221 – 280	15	13.4%
Tributaries		27	24.1%
Buffalo River	BRM 19.1 – 90.5	5	4.4%
Total survey sites		112	

Qualitative mussel sampling

Recent mussel sampling efforts found 54 species of mussels across 76 sites in the Duck River basin (Appendix 1, Fig. 3). Detailed information regarding the species and numbers of mussels found at each site are presented in Appendix 1. A map showing the general location of sampling sites is presented in Fig. 3 and the general locality distribution of sampling sites are presented in Table 3. Mussels were found in the Duck River from the Riverside Country Club, in Shelbyville (Duck River Mile 227) downstream to near the mouth of the river (Hubbs, 1999; Schilling and Williams, 2002). Mussels were eliminated below Normady Dam to nearly Shelbyville from dam operations prior to RRI initiatives. Although sampling sites in the upper basin above Normandy Dam were limited (n = 7), mussels were not found at any site in the upper Duck River basin above Normandy Dam. Mussels have also been eliminated from most tributaries; we found live mussels in only 6 of 33 tributaries examined throughout the basin. An additional 12 streams were dry and not sampled. As with previous surveys, mussel species richness was highest between Lillard Mill and Columbia. Species richness was greatest about 700 m below old Columbia Dam, where 33 species were found between this study and other recent reports (Hubbs, 1999). In the central portion of the basin, species richness was usually greater directly below mill dams than areas sampled immediately above or below mill dams (Table 4).

Table 3— Recent general water quality information collected by the USGS from selected points in the Duck River basin. Data values indicate general range values for each parameter.

Location	pH	Hardness	Conductivity
Eastern Highland Rim	7.3	< 60 mg/l	115 mS/cm
Outer Nashville Basin	7.5	60 –120 mg/l	180 mS/cm
Inner Nashville Basin	7.8	120-180 mg/l	250 mS/cm
Western Highland Rim	7.6	< 60 mg/l	< 100 mS/cm

Figure 3— Distribution of sampling localities (TNC 1-112) in the current study of the Duck River basin. Specific information for each sampling locality is detailed in Table 1. Localities without a box denote samples taken in tributaries.

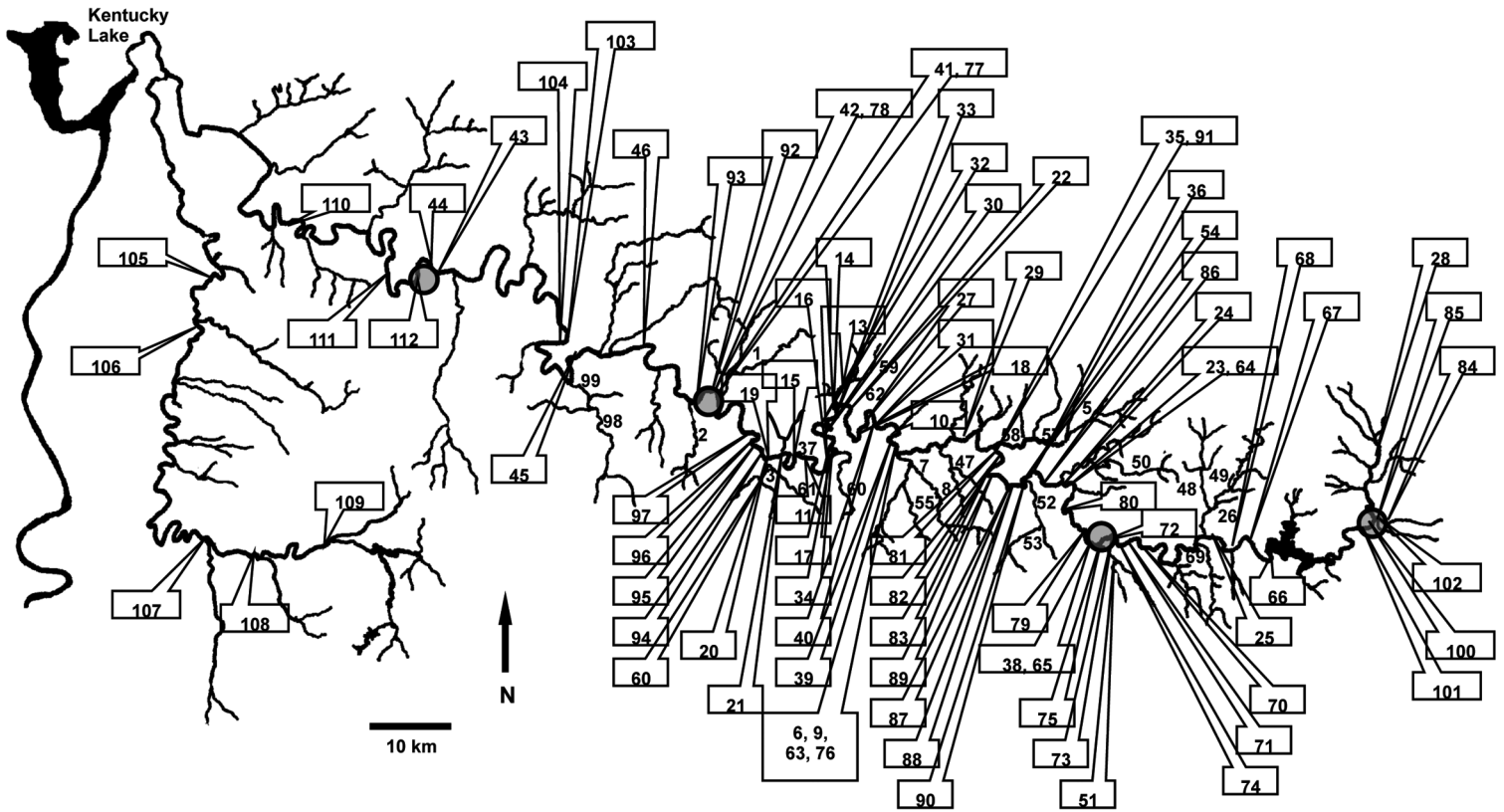


Table 4— Freshwater mussel species richness above, below, and adjacent to low-head mill dams in the Duck River. Site numbers refer to specific localities sampled upriver and downriver of the mill dam presented in Table 1.

Mill Dam – Site Locality	Species Richness	Mussel Abundance CPUE
Shelbyville Dam		
Sims Bridge – TNC 79 DRM 216.2 – above dam.	10	8.2 mussels hr^{-1}
100 M below Dam – TNC 38 / 65 DRM 221.3 – adjacent to dam.	9	46.2 mussels hr^{-1}
Riverside Country Club – TNC 75 DRM 227.7 – below dam.	3	3.3 mussels hr^{-1}
Lillard Mill Dam		
Hopkins Bridge – TNC 91 DRM 192.2 – above dam.	7	15.2 mussels hr^{-1}
100 M below Lillard Mill Dam – TNC 76 DRM 179.1 – adjacent to dam.	26	116 mussels hr^{-1}
Slick Shoals – TNC 39 DRM 178.2 – below dam	22	66.4 mussels hr^{-1}
Hardison Mill Dam		
Osteen Bend – TNC 31 DRM 173 – above dam	21	107.5 mussels hr^{-1}
Hardison Mill – TNC 18 200 M – adjacent to dam	23	52.2 mussels hr^{-1}
Old Trap Island – TNC 27 DRM 170.6 – below dam	26	77.6 mussels hr^{-1}
Old Columbia Dam		
At Goose Creek confluence - TNC 97 DRM 144 – above dam	9	12.1 mussels hr^{-1}
Old Columbia Dam DRM 133.2 - 700 m below dam	30	127.2 mussels hr^{-1}
Monsanto Bridge - TNC 92 DRM 30.4 – below dam	23	30.0 mussels hr^{-1}

Mean mussel numbers and species richness at 21 locations sampled in 1988 and the current study indicated better CPUE for this study (Table 5). Mean mussel number and species capture at localities common to the 3 study dates indicate significant increases over previous investigations (Fig. 4). Results of one-way ANOVA's were significant for both species richness ($F = 120$, $p = 0.0001$) and mussel numbers collected ($F = 56.4$, $p = 0.0001$) at 17 different sampling sites over the 3 study periods. However, a one-way ANOVA examining species richness across 13 historical sites sampled in 1922, 1965, and this study showed no statistical differences in overall species richness ($F = 0.23$, $p = 0$, Table 6) across these historical study periods.

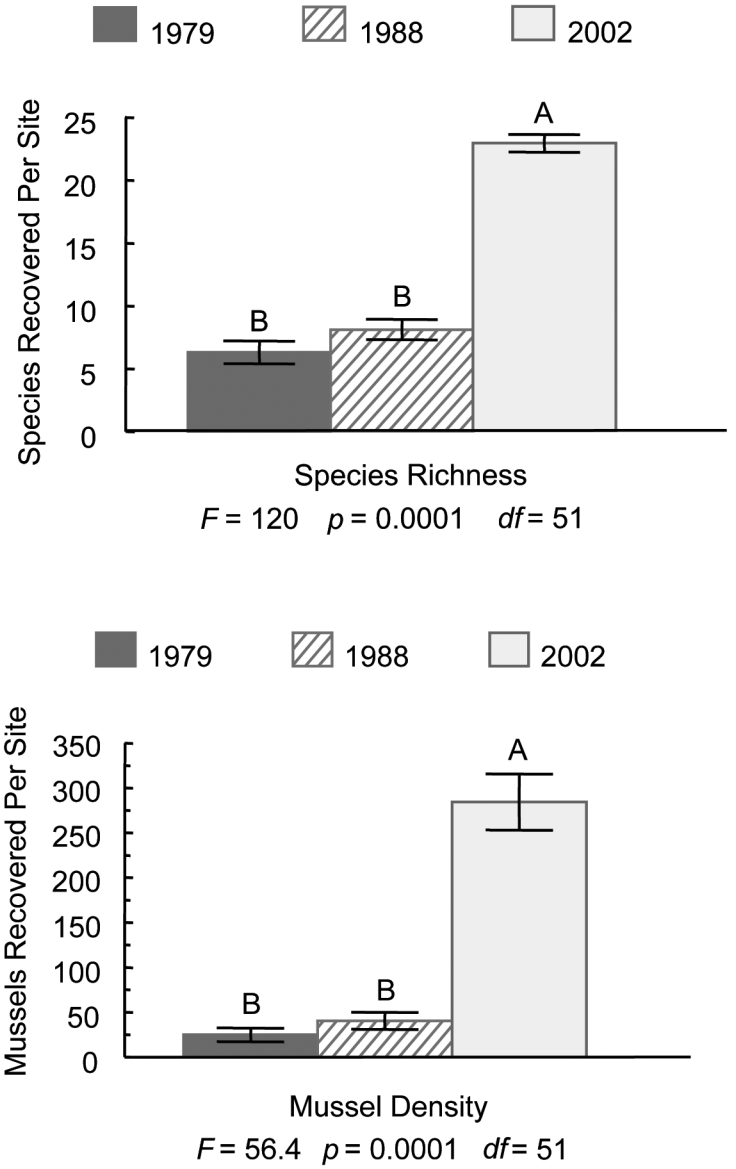


Figure 4— Comparative mean + s.e. of mussel species (top) and mussel number (bottom) sampled from 17 sites in the Duck River in 1977, 1988, and 2002. Letters atop standard error bars indicate statistically different means determined by Tukey's HSD *a-posteriori* test. Results of analysis of variance (F values and p values) are indicated below each graph.

Table 5— Comparison of mussel species richness and total number sampled as Catch Per Unit Effort (CPUE) at 21 locations from the Duck River in 1988 and 2002. For each study means and standard errors of species richness and numbers are standardized by mean sampling time. Lost records from the 1979 survey efforts prevented direct comparison with this data set.

Year	n	Mean Sampling Time (hours)	Mean Species Richness (species hour $^{-1}$)	Mean Mussel Numbers (individuals hour $^{-1}$)
1988	21	1.6 ± 5.9	5.4 ± 0.6	34.8 ± 7.9
2002	21	3.6 ± 2.8	6.6 ± 0.2	79.2 ± 8.5

Table 6— Comparative mussel species richness sampled at 13 different sites in the Duck River in 1922 (Ortmann, 1924), 1965 (Isom and Yokley, 1968), and this study. Results of one-way ANOVA examining species richness across dates are at the bottom.

Site	1922	1965	2002
Centerville	13	21	8
Alexander Bend	19	15	26
Columbia – Monsanto	36	25	22
Columbia Dam	15	29	33
Leftwich	18	23	26
Lillard Mill	20	19	24
Wilhoite Mill	23	22	11
Shelbyville Dam	17	16	9
Normandy	7	8	0
Hiles Bridge	2	8	0
Buffalo River – Riverside	16	0	2
Garrison Fork	7	1	0
Mean Species Richness	16.08	15.58	13.48
	df = 33	= 0.23	= 0.8

SPECIES ACCOUNTS

Results of qualitative mussel sampling along the Duck River main stem are presented as detailed species accounts. A summary of occurrence is presented along with a distribution map with size frequency information. Scientific and common names follow Turgeon *et al*. (1998) with noted exceptions. Common names for putative but undescribed species are in quotations. In the species accounts, an historical summary of the species known from the Duck River main stem is presented (Table 7). Tributary records are generally addressed in a separate section (see Discussion). A brief statement on historical records is followed by the current distribution within the river. To currently describe a species relative distribution within the Duck River we used the terms "generally distributed", "occasional," and "sporadic" (Smith, 1965). "Generally distributed" implies that any suitable habitat should be expected to yield specimens with a reasonably thorough search, "occasional" that suitable-appearing habitat may or may not yield specimens even after prolonged search, and "sporadic" that the encountering of specimens of a given species cannot be predicted at all. The Duck River main stem is roughly divided into upper and lower portions using the old Columbia Dam just upstream from Columbia as the

Table 7— Historical account of freshwater mussel species reported from the Duck River basin, Tennessee. List does not reflect current taxonomy for some species. Changes in federal conservation status and taxonomy have been revised substantially since manuscript submission.

Species	HM	O	V	IY	PK	A	SW	AJ
Actinonaias ligamentina	-	X	X	X	-	X	X	X
Actinonaias pectorosa	X	X	X	X	a	X	-	X
Alasmidonta marginata	-	X	X	X	-	-	-	-
Alasmidonta viridis	-	X	-	X	a	-	-	R
Amblema plicata	X	X	X	X	a	X	X	X
Arcidens confragosus	-	-	-	-	-	-	X	X
Cumberlandia monodonta E	-	-	-	-	-	-	X	X
Cyclonaias tuberculata	X	X	X	X	a	X	X	X
Cyprogenia stegaria E	X	-	-	-	-	-	-	-
Ellipsaria lineolata	X	-	-	-	-	-	X	X
Elliptio crassidens	X	-	-	X	-	-	X	X
Elliptio dilatata	X	X	X	X	a	X	-	X
Epioblasma brevidens E	X	X	X	X	a	-	-	R
Epioblasma sp. cf. *capsaeformis* E	-	X	X	X	a	X	-	X
Epioblasma florentina florentina	-	-	-	-	-	-	-	PB
Epioblasma florentina walkeri E	X	X	X	-	a	X	-	-
Epioblasma lenior	X	-	-	-	-	-	-	-
Epioblasma lewisii	-	-	-	-	-	-	-	PB
Epioblasma phillipsi	X	-	-	-	-	-	-	-
Epioblasma torulosa torulosa E	-	-	-	-	-	-	-	PB
Epioblasma triquetra E	X	X	X	X	-	X	-	X
Epioblasma turgidula E	X	X	-	-	-	-	-	-
Fusconaia barnesiana	X	X	X	X	a	X	X	X
Fusconaia ebena	-	-	-	-	-	-	X	X
Fusconaia flava	-	-	-	-	-	-	X -	
Hemistena lata E	X	X	-	X	a	-	-	-
Lampsilis cardium	-	X	X	-	-	-	-	X
Lampsilis fasciola	X	X	X	X	a	X	X	X
Lampsilis ovata	X	X	X	X	a	X	X	-
Lampsilis teres	-	X	X	X	-	-	-	X
Lasmigona complanata	X	X	X	X	-	X	X	X
Lasmigona costata	X	X	X	X	a	X	X	X
Lasmigona sp. cf. *holstonia*	-	X	-	-	-	-	-	R
Lemiox rimosus E	X	X	X	X	a	X	-	X
Leptodea fragilis	X	X	X	X	-	X	X	X
Leptodea leptodon E	X	-	-	-	-	-	-	-
Lexingtonia dolabelloides E	X	X	X	X	a	X	X	X
Ligumia recta	X	-	-	X	-	-	X	X
Ligumia subrostrata	X	-	-	-	-	-	-	-
Medionidus conradicus	X	X	X	X	a	X	-	X

Table 7— continued

Species	HM	O	V	IY	PK	A	SW	AJ
Megalonaias nervosa	X	X	X	X	-	X	X	X
Obliquaria reflexa	X	X	X	X	-	X	X	X
Obovaria retusa E	X	-	-	-	-	-	-	-
Obovaria subrotunda	X	X	X	X	-	X	-	X
Pegias fabula E	-	-	-	-	a	-	-	-
Plethobasus cooperianus E	-	-	-	?	-	-	-	-
Plethobasus cyphyus E	-	-	-	-	-	-	-	MR
Pleurobema clava E	X	-	-	-	-	-	R	DH
Pleurobema cordatum	-	X	X	X	-	X	X	-
Pleurobema oviforme	X	X	X	X	a	X	-	X
Pleurobema rubrum	X	X	X	-	-	X	-	X
Pleurobema sintoxia	-	X	-	-	-	-	-	X
Potamilus alatus	-	X	X	X	a	X	X	X
Potamilus ohiensis	-	-	-	-	-	-	X	X
Ptychobranchus fasciolaris	X	X	X	X	a	X	-	X
Ptychobranchus subtentum E	X	X	-	-	a	-	-	R
Pyganodon grandis	-	X	X	-	-	-	X	X
Quadrula apiculata	-	-	-	-	-	-	-	X
Quadrula cylindrica cylindrica T	X	X	X	X	a	X	X	X
Quadrula fragosa E	X	X	-	-	-	-	-	-
Quadrula intermedia E	X	X	X	X	a	X	-	X
Quadrula metanevra	-	-	-	-	-	-	X	X
Quadrula pustulosa	X	X	X	X	-	X	X	X
Quadrula quadrula	-	X	X	X	-	X	X	X
Strophitus undulatus	X	X	X	X	-	X	-	X
Toxolasma cylindrellus E	X	X	X	-	a	-	-	-
Toxolasma lividus	-	X	X	X	a	X	-	X
Tritogonia verrucosa	X	X	X	X	-	X	X	X
Truncilla donaciformis	X	X	X	X	-	X	-	X
Truncilla truncata	X	X	X	X	-	X	X	X
Utterbackia imbecillis	-	-	-	-	-	-	X	X
Villosa fabalis E	X	X	X	X	-	X*	-	-
Villosa iris	-	X	X	X	a	X	-	X
Villosa taeniata	-	X	X	X	a	-	X	X
Villosa vanuxemensis		X	X	X	a	X	-	X
Total (75)	**45**	**51**	**44**	**43**	**28**	**37**	32	52

(HM, Hinkley and Marsh, 1885; O, Ortmann, 1924; V, van der Schalie, 1939, 1973; IY, Isom and Yokley, 1968; PK, Parmalee and Klippel, 1986; A, Ahlstedt, 1980, 1991; SW, Schilling and Williams, 2002; AJ, Ahlstedt, Johnson et al., (this study); X, specimens reported; X* 1983 record; -, no specimens reported; E, endangered; R, relict; a, archaeological record; MR, museum record; ?, questionable record; PB, Parmalee and Bogan, 1998; T, threatened; DH, miscellaneous records reported from Don Hubbs).

dividing point. The old Columbia Dam is of sufficient size to block migratory host fish and mussel recruitment between the lower and upper Duck. In the upper portion, no mussels were found within a few kilometers upstream of Shelbyville Dam. When we describe a species' distribution in the upper river, we therefore imply its occurrences downstream from the vicinity of Shelbyville (Duck River Mile 227). We have augmented our current general distributional data with that of Schilling and Williams (2002), who collected at 11 sites in the lowermost Duck downstream of Centerville in 2000, and periodic sampling reported by Hubbs (1999) over the past several years. Candidates for restoration (which includes reintroduction and/or population augmentation efforts) in the Duck are stated. The conservation status as presented by the American Fisheries Society (Williams *et al*., 1993) is given unless the species is either listed under the federal Endangered Species Act (ESA) or is a candidate for listing. Museum abbreviations are as follows: Academy of Natural Sciences Philadelphia (ANSP), Florida State Museum of Natural History (FLMNH), Frank McClung Museum (FMM), Museum of Comparative Zoology (MCZ), Museum of Fluviatile Mollusks (MFM), North Carolina Museum of Natural History (NCSM), Ohio State University Museum of Biological Diversity (OSUM), United States National Museum (USNM), and University of Michigan Museum of Zoology (UMMZ). A database detailing historical species records compiled from the above museums for this study is detailed in Appendix 3. Following is a summary for each mussel species reported from the Duck River.

Margaritiferidae

Cumberlandia monodonta (Say, 1829) Spectaclecase, Fig. 5

A relatively wide-ranging mussel, the Spectaclecase was historically noted only as a museum record from the Duck (Only, Hickman County, UMMZ 30067, Appendix 3, Table 7). Two recent records are available from the lowermost river in Humphreys County (1 live, D. McKinney, TWRA, pers. comm.; 1 fresh dead, Schilling and Williams, 2002), while relict specimens have been found at some other sites (D. W. Hubbs, TWRA; J. R. Powell, USFWS, pers. comm.). The Spectaclecase is therefore sporadic in a reach less than 30 miles long, where it occurs in under sampled habitats such as deeper pools and runs, and under slab rocks. This species is a candidate for restoration and a candidate for protection under the ESA.

Unionidae

Actinonaias ligamentina (Lamarck, 1819) Mucket, Fig. 6

The Mucket is a wide-ranging, larger-stream mussel reported in most surveys. It is currently rare and occasional in the lower river (Schilling and Williams, 2002). We found only 3 large specimens in the lower Duck River in Hickman County. Historical collections place the species above Columbia (Appendix 3). This species is a candidate for restoration in the river. Williams *et al*. (1993) considered it currently stable although it appears to be rare in the lower Tennessee River system.

Actinonaias pectorosa (Conrad, 1834) Pheasantshell, Fig. 7

The Pheasantshell, a Cumberlandian endemic, was first collected in the 1880s and reported in all subsequent surveys (Table 7). Currently, the Pheasantshell is generally distributed but

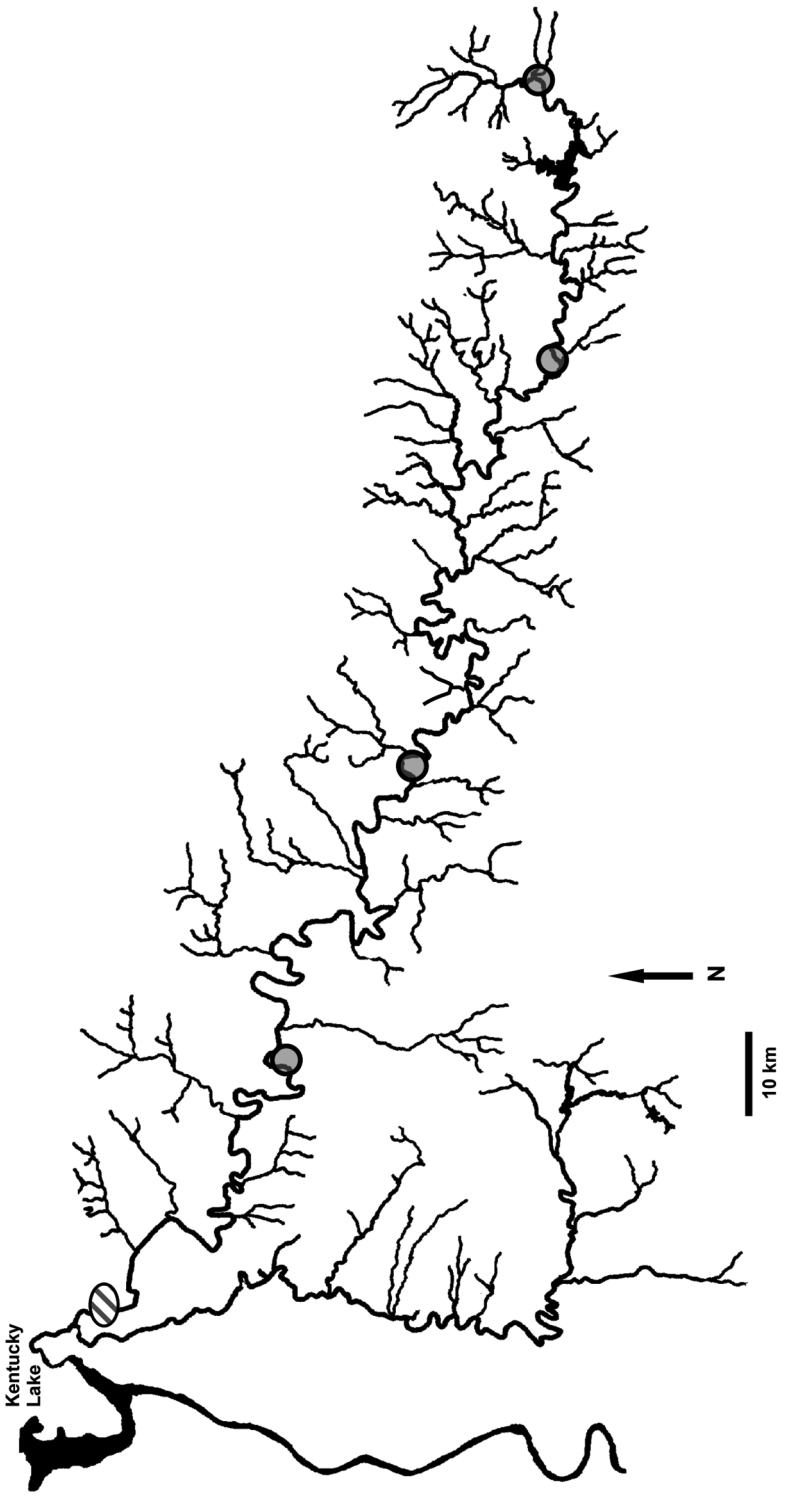


Figure 5— Current distribution of the Spectaclecase, *Cumberlandia monodonta* (Say, 1829), in the Duck River basin. Sample data was collected by D. Hubbs in 1999.

Figure 6— Current distribution and size frequency (mean + s.e.) of the Mucket, *Actinonaias ligamentina* (Lamarck, 1819), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

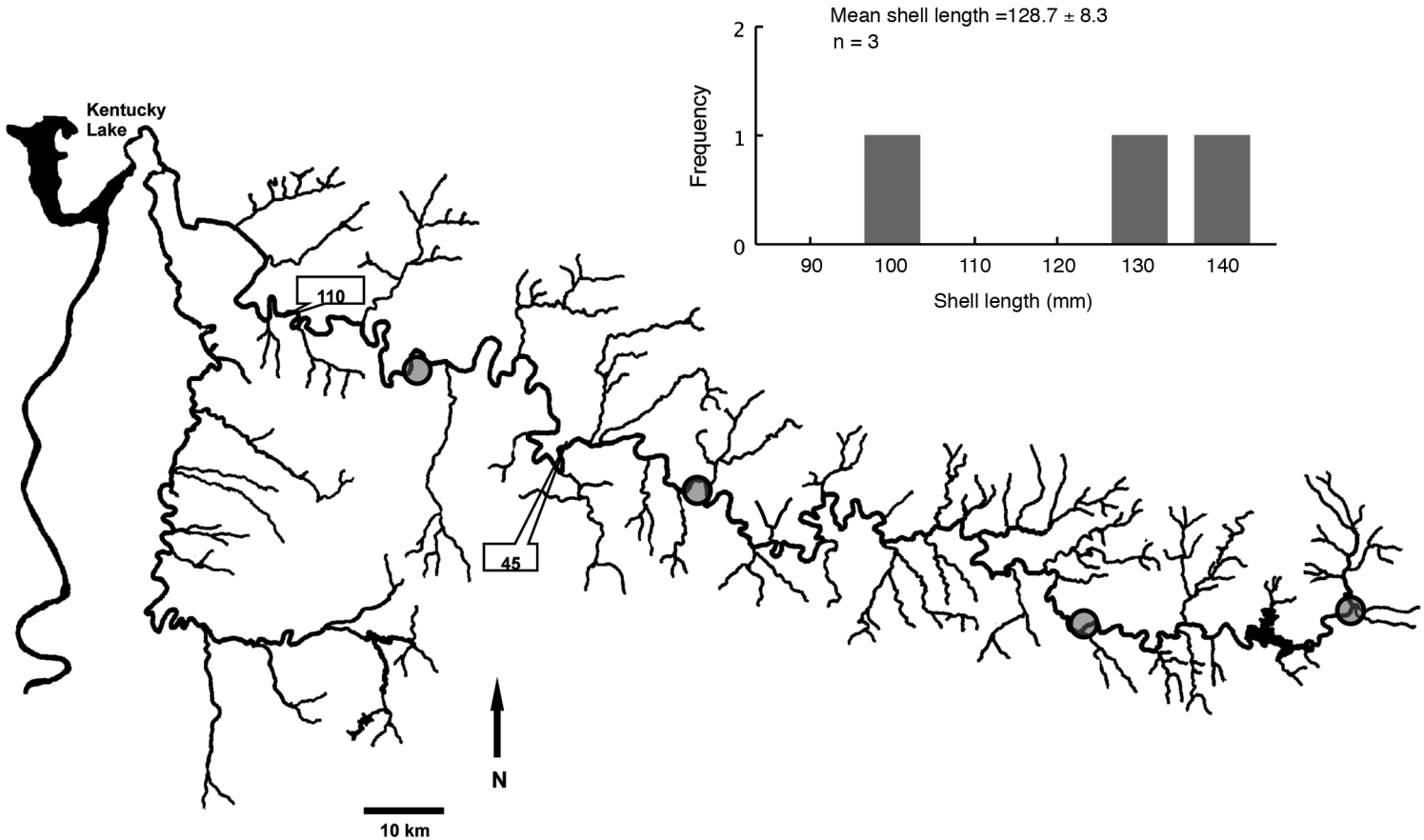
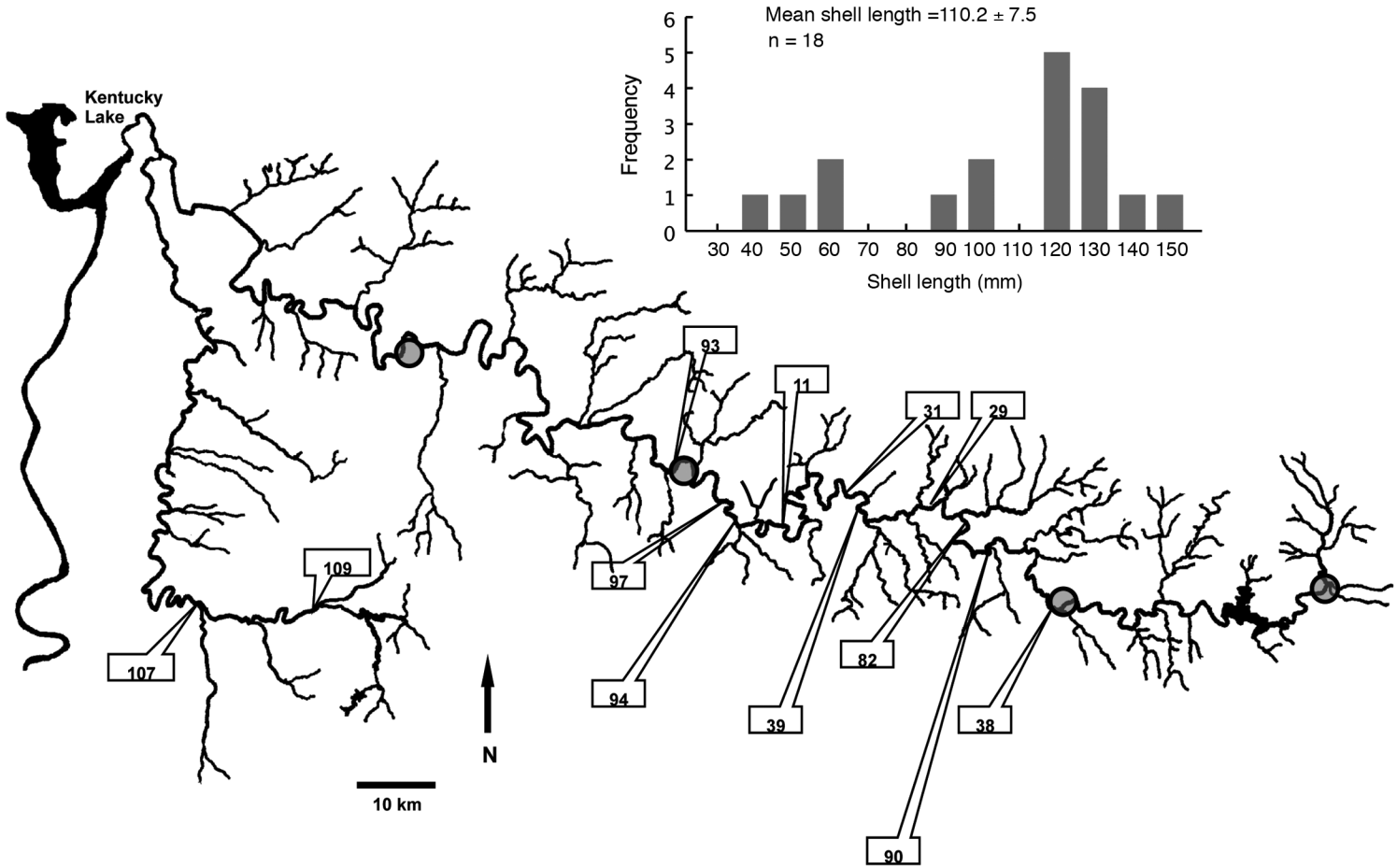


Figure 7— Current distribution and size frequency (mean + s.e.) of the Pheasantshell, *Actinonaias pectorosa* (Conrad, 1834), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Pheasantshell was sampled at localities: 26, 20, 21, 44, 81, 83, 89, 90 that are not indicated on the map.



relatively uncommon in the Duck River between Columbia and Shelbyville (Fig. 6). The species was also found in the upper Buffalo River system and some evidence of recent recruitment exists (Fig. 6). Distribution of *A. pectorosa* is marginally reduced from historical occurrences (Appendix 3). Williams *et al*. (1993) considered *Actinonaias pectorosa* of special concern.

Alasmidonta marginata (Say, 1818) Elktoe

The widely distributed Elktoe was found in early surveys in the middle part of the river until the 1980's (Table 7; Appendix 3). Although we found no specimens, a single live individual was sampled in 1993 at Lillard Mill Dam (station TNC 6) (R. Kirk, TWRA, pers. comm.). It may be extirpated from the Duck but is a candidate for restoration. Williams *et al*. (1993) considered it special concern.

Alasmidonta viridis (Rafinesque, 1820) Slippershell

The Slippershell is a wide-ranging species typically found in headwater streams. There is a sporadic collecting history for this species in the extreme upper river from the 1920s (Ortmann, 1924), 1960s (Isom and Yokley, 1968), and into the 1970's (Table 7, Appendix 3). We found recent a single relict specimen of *A. viridis* in North Fork Creek (TNC 58, Table 1). The Slippershell is believed extirpated from the Duck River but may exist in smaller tributaries. This species is a candidate for restoration in the river. Williams *et al*. (1993) considered it special concern.

Amblema plicata (Say, 1817) Threeridge, Fig. 8

This species is very widespread in distribution and was reported in all previous surveys (Fig. 8, Appendix 3, Table 7). Size frequency data indicated multiple size classes were present (Fig. 8) and the species comprised 4% of all live mussels sampled in this study (Appendix 1). We found the Threeridge generally distributed throughout the river and common. Williams *et al*. (1993) considered it currently stable.

Arcidens confragosus (Say, 1829) Rock Pocketbook, Fig. 9

The Rock Pocketbook is a widely distributed lowland mussel that is considered a recent invader to the Duck River fauna. *Arcidens confragosus* was not sampled in the Duck River in recent TVA studies (1977 and 1988, Appendix 3, Table 7). The host fish has apparently distributed across the old Columbia Dam as *A. confragosus* is not common although generally distributed from Lillard Mill Dam (station TNC 6) in the upper river downstream (Fig. 9). This species may be more common than reported because it has a preference for soft substrates in pool and shoreline habitats. Williams *et al*. (1993) considered it currently stable.

Cyclonaias tuberculata (Rafinesque, 1820) Purple Wartyback, Fig. 10

The wide-ranging Purple Wartyback was recorded in all previous surveys (Appendix 3, Table 7). We found it generally distributed below Shelbyville Dam and the most abundant mussel in our survey, comprising nearly 14.7% of all mussels sampled (over 1,500 individuals, Appendix 1). Williams *et al*. (1993) considered it special concern.

Figure 8— Current distribution and size frequency (mean + s.e.) of the Threeridge, *Amblema plicata* (Say, 1817), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Threeridge was sampled at localities: 11, 12, 14, 16, 17, 18, 21, 22, 31, 32, 33, 39, 40,42, 65, 75, 78, 92, 96, that are not indicated on the map.

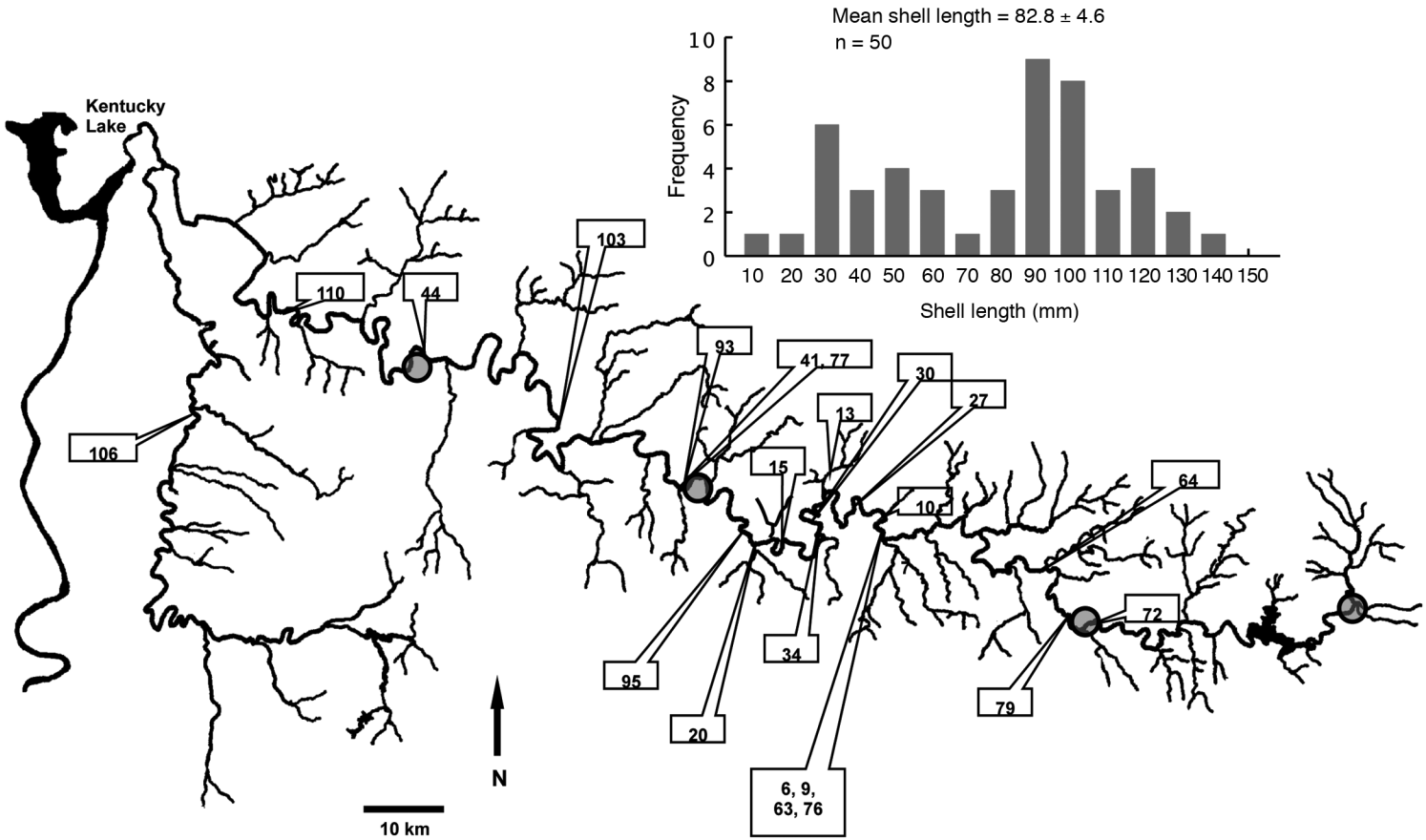


Figure 9— Current distribution and size frequency (mean + s.e.) of the Rock Pocketbook, *Arcidens confragosus* (Say, 1829), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

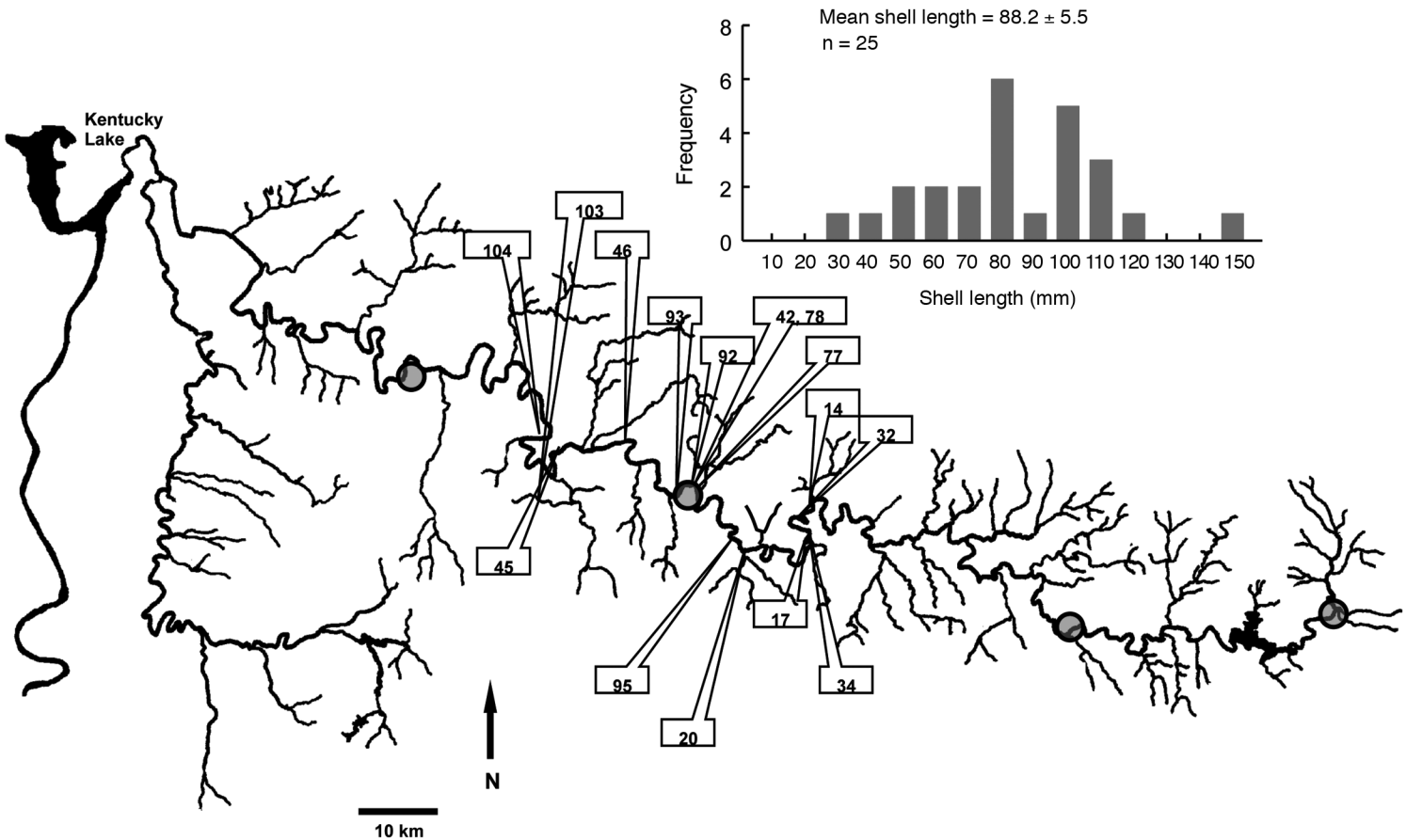
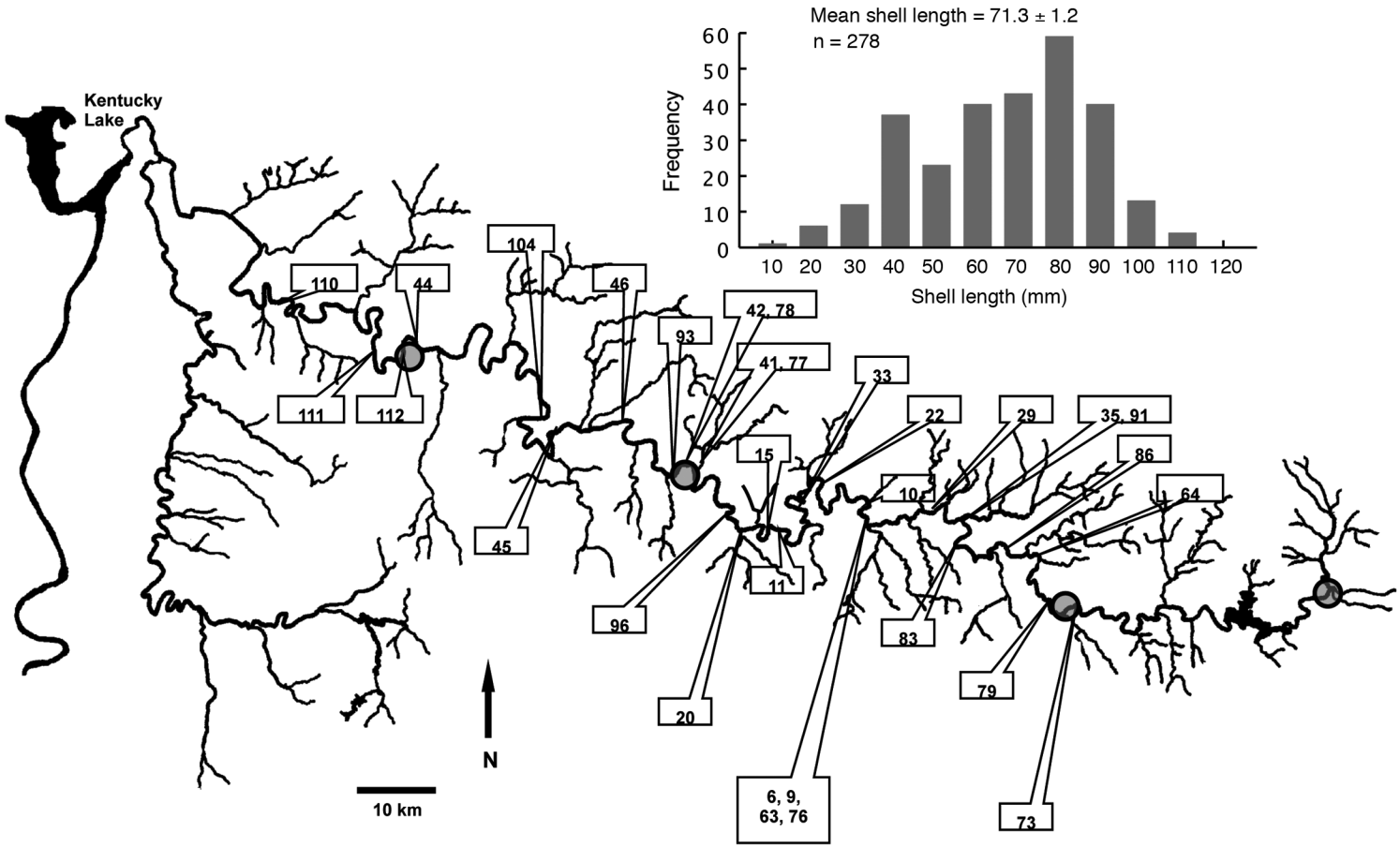


Figure 10— Current distribution and size frequency (mean + s.e.) of the Purple Wartyback, *Cyclonaias tuberculata* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Purple Wartyback was sampled at localities: 12, 13, 14, 15, 16, 17, 18, 21, 27, 30, 31, 32, 34, 39, 40, 65, 75, 81, 82, 87, 89, 90, 92, 94, 95, 97, 103, that are not indicated on the map.



Cyprogenia stegaria (Rafinesque, 1820) Fanshell

The only record for the Fanshell, endemic to the Ohio River system, is from the late 1800s near Columbia (Hinkley and Marsh, 1885). Pre-impoundment records are available for the adjacent Tennessee River (e.g., 1907, USNM 756418) indicating that it may also have occurred in the lowermost Duck. This species is a candidate for restoration and is currently listed as endangered under the ESA.

Ellipsaria lineolata (Rafinesque, 1820) Butterfly, Fig. 11

This widely distributed species was recorded in most previous Duck River surveys (Table 7). The butterfly is limited to the lower river below Columbia and is generally distributed (Fig. 11, Schilling and Williams, 2002). However, historical records place the species near Shelbyville (Appendix 3). It is a candidate for restoration in the upper portion of the lower river. Williams *et al*. (1993) considered it special concern.

Elliptio crassidens (Lamarck, 1819) Elephantear, Fig. 12

The Elephantear is a wide-ranging species that was reported from the Duck River in previous surveys (Table 7). It is a big river species that's generally distributed and uncommon in the lower Duck River (n = 4), although evidence of recent recruitment is present (Fig. 12). This species is a candidate for restoration in the upper Duck River. Williams *et al*. (1993) considered it currently stable.

Elliptio dilatata (Rafinesque, 1820) Spike, Fig. 13

The wide-ranging Spike was reported in most mussel surveys in the Duck (Table 7) but is apparently absent from the lower river (Fig. 13, Schilling and Williams, 2002). However, historical records of the species below Columbia are lacking (Appendix 3). This species is generally distributed and represented the second most abundant species in our survey (n = 1463, 13.6%, Appendix 1). Williams *et al*. (1993) considered it currently stable.

Epioblasma brevidens (I. Lea, 1831) Cumberlandian Combshell

The Cumberlandian Combshell, a Cumberlandian endemic, was reported in early studies until the early 1970's (Appendix 3, Table 7). We found only relict shells at numerous sites in the upper river. The Cumberlandian Combshell is a candidate for restoration in the river and is listed as endangered under the ESA.

Epioblasma sp. cf. *capsaeformis* "Darter Snapper," Fig. 14

The Oyster Mussel, *Epioblasma capsaeformis* (I. Lea, 1834), is a Cumberlandian endemic reported by most early investigators in the Duck (Table 7). It is restricted to a limited reach of the upper river below Lillard Mill Dam (station TNC 6) but is generally distributed and locally common in this reach. We located the species downstream to just above the I-65 Bridge (TNC 11), a distance of 28 miles. Previous investigations found 4 specimens at Lillard Mill (Ahlstedt, 1981), but none were found in 1988. The range expansion and increased numbers

Figure 11— Current distribution and size frequency (mean + s.e.) of the Butterfly, *Ellipsaria lineolata* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

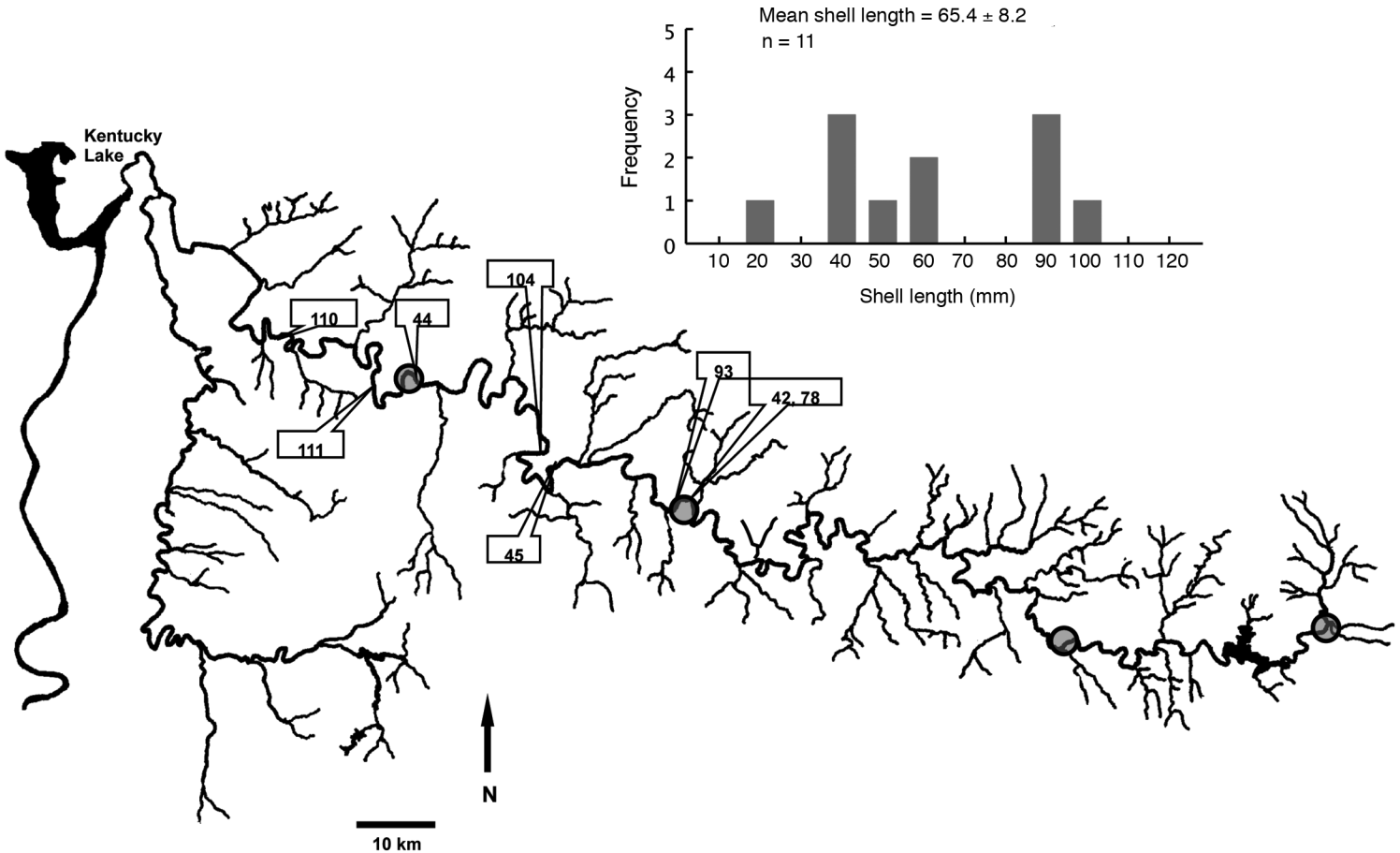


Figure 12— Current distribution of the Elephantear, *Elliptio crassidens* (Lamarck,1819), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

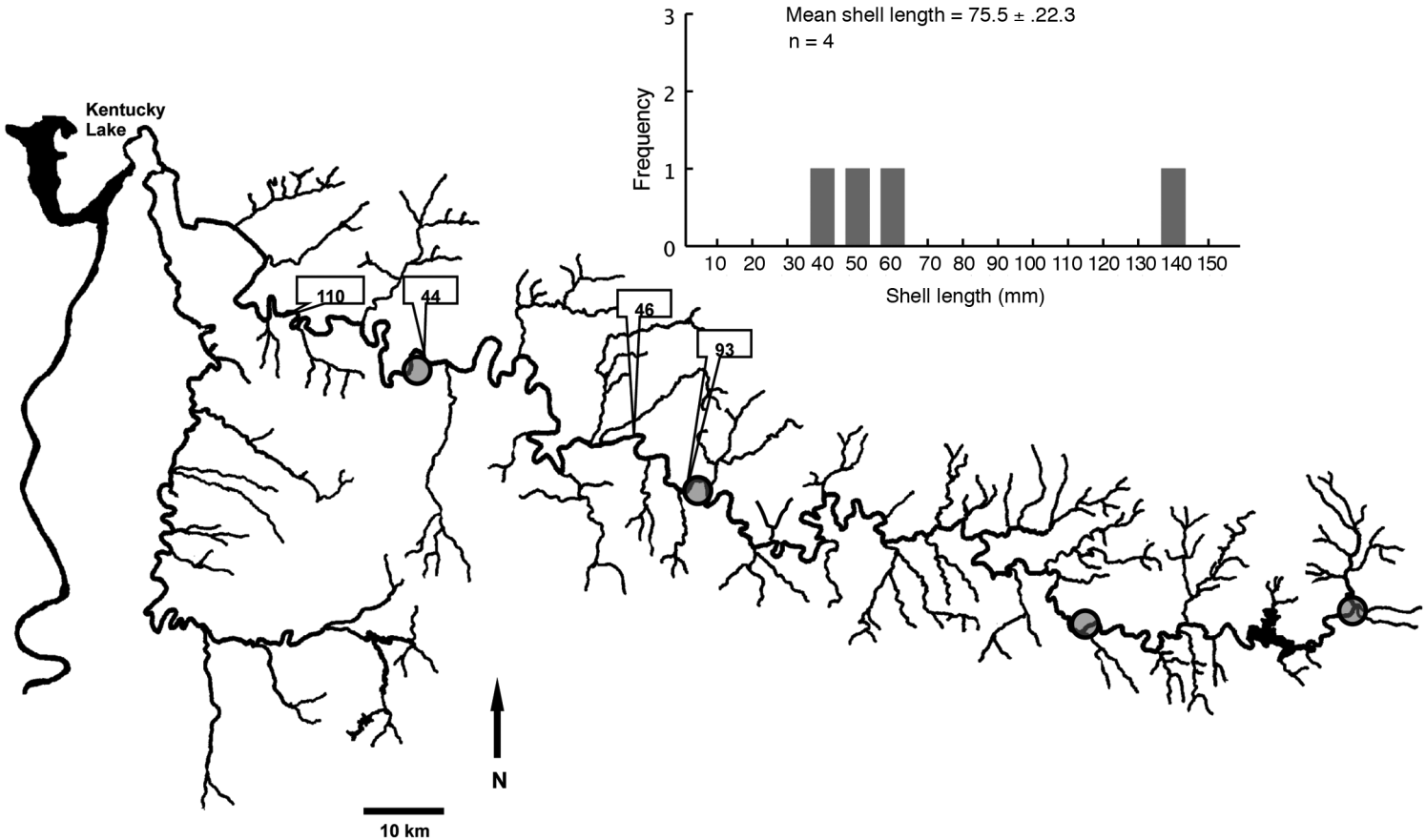


Figure 13— Current distribution of the Spike, *Elliptio dilatata* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Spike was sampled at localities: 11, 12, 14, 16, 17, 18, 22, 27, 30, 32, 33, 39, 40, 81, 83, 86, 89, 91, 95, 96, 94, that are not indicated on the map.

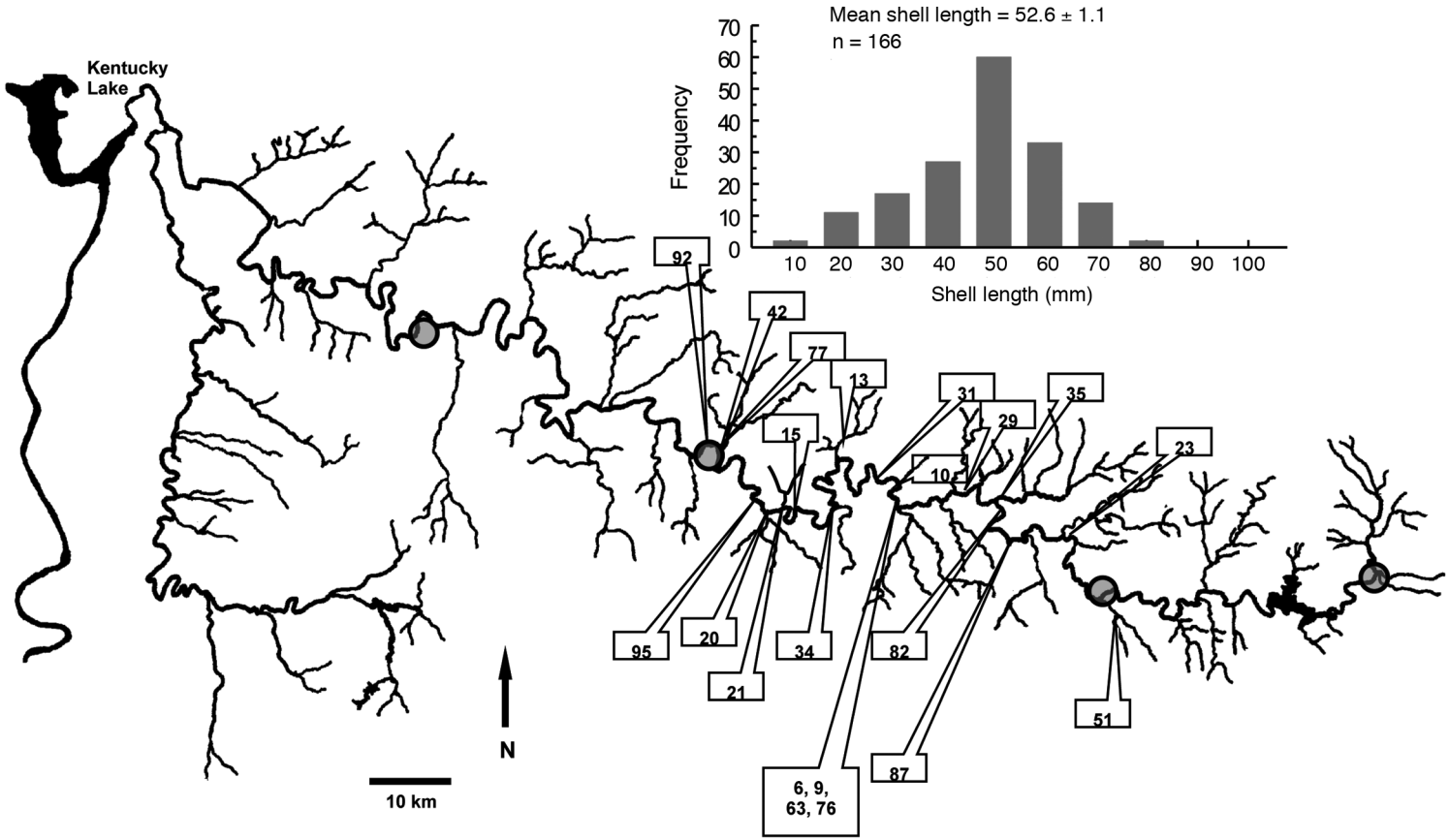
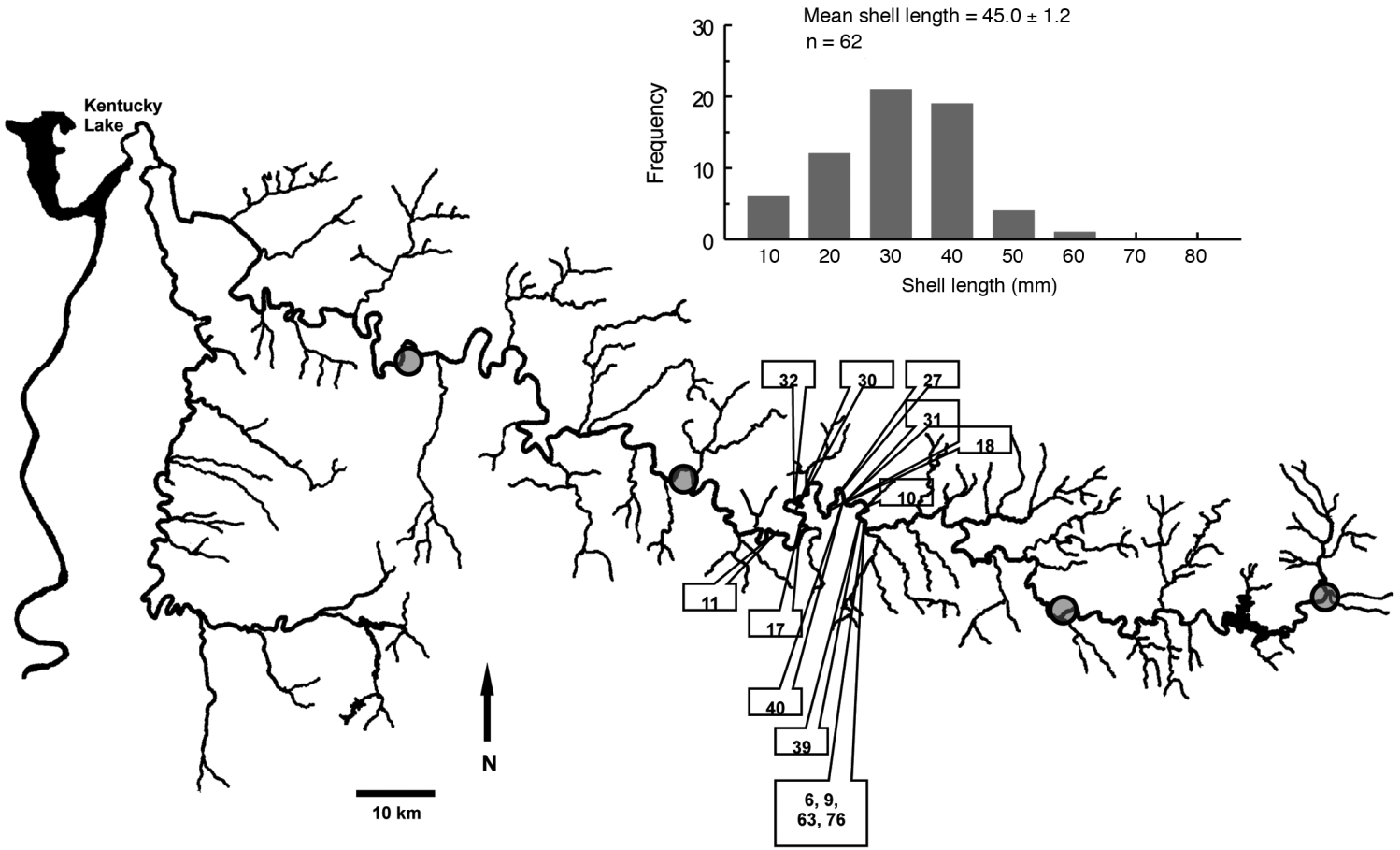


Figure 14— Current distribution of the Darter Snapper Pearlymussel, *Epioblasma* sp. cf *capsaeformis* (I. Lea, 1834), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.



(nearly 2% of all mussels sampled) of *E*. sp. cf. *capsaeformis* have been extensive (Appendix 1, Fig. 14). Ortmann (1924) commented on the females in the Duck River as having a grayish-to-blackish mantle pad instead of the bluish or bluish-white pad observed for individuals in the upper Tennessee system. This mussel in the Duck appears to be an undescribed species based on life-history traits, shell morphology, soft anatomy, genetic markers, and other differences (J. Jones, Virginia Polytechnic Institute, pers. comm.). This species is a candidate for restoration in the uppermost section of the lower river below old Columbia Dam and the upper river above Lillard Mill Dam. It is currently listed as endangered under the ESA.

Epioblasma florentina florentina (I. Lea, 1857) Yellow Blossom

The Yellow Blossom is a Cumberlandian endemic reported in the Duck River by Hinkley and Marsh (1885). Ortmann (1924) did not see the specimen but thought that this species was "probably" *E. florentina walkeri*. Ortmann further noted that *E. f. florentina* is more of a big river species and *E. f. walkeri* is more of a headwater species but both are closely allied and intergrades into one another. However, the specimen is currently housed at OSUM (269061) (Appendix 3). Parmalee and Bogan (1998) reported both species from the Duck (Table 7). No individuals were found during the present survey. This species is currently listed as endangered under the ESA but is likely extinct (Williams *et al*., 1993; Turgeon *et al*., 1998).

Epioblasma florentina walkeri (Wilson and Clark, 1914) Tan Riffleshell

The Tan Riffleshell, a Cumberlandian endemic, has a sporadic collecting history in the Duck River (Table 7). The last records were for two individuals collected in 1964 (OSUM 15150) and a fresh dead shell found in 1988 upstream from the old Columbia Dam (Ahlstedt, 1991, OSUM 29072, Appendix 3).

The Tan Riffleshell is a candidate for restoration in the river and is currently listed as endangered under the ESA.

Epioblasma lenior (I. Lea, 1842) Narrow Catspaw

A Cumberlandian endemic, the Narrow Catspaw was first collected from the Duck River by Hinkley and Marsh (1885). Although Ortmann (1924) considered it to be a rare and easily overlooked species, no additional specimens have ever been found (Table 7). We found no other historical records of *E. lenior* from the Duck River during our search of museum records (Appendix 3). Williams *et al*. (1993) considered it possibly extinct.

Epioblasma lewisii (Walker, 1919) Forkshell

The Forkshell is a Cumberlandian endemic reported from the Duck River by Parmalee and Bogan (1998). This represents the only record of its occurrence in the Duck but this uncommon species was identified in aboriginal shell middens in the lower Tennessee River (Table 7). Williams *et al*. (1993) considers *E. lewisii* possibly extinct.

Epioblasma phillipsi (Conrad, 1835) Cincinnati Riffleshell

An Ohio River system endemic, this poorly understood mussel was reported from the Duck River at Columbia by Hinkley and Marsh (1885). They considered it very rare and the first oc-

currence in the state, but Ortmann (1924) thought the record doubtful. The Cincinnati Riffleshell was not recognized by Williams *et al*. (1993), Turgeon *et al*. (1998), nor Parmalee and Bogan (1998), but it is considered a valid species (e.g., Cicerello and Schuster, 2004; G.T. Watters, OSUM, pers. comm.) and included herein (Table 7). This mussel is now considered extinct.

Epioblasma torulosa torulosa (Rafinesque, 1820) Tuberculed Blossom

The Tuberculed Blossom is an Ohio River basin endemic known from the Duck River by a single record in Marshall County by H. D. Athearn (Parmalee and Bogan, 1998; Table 7). Although our search of museum records including an extensive search of MFM records failed to produce the specimen. This species is currently listed as endangered under the ESA but considered extinct by Williams *et al*. (1993) and Turgeon *et al*. (1998).

Epioblasma triquetra (Rafinesque, 1820) Snuffbox, Fig. 15

The Snuffbox is the most wide-ranging member of this highly imperiled genus and the only member not federally listed or considered extinct. First found in the 1890s (MCZ 6153, USNM 477012), it was subsequently reported in all published surveys of the upper river (Appendix 3, Table 7). We found a single live large individual (68.8 mm) at site TNC 20 upstream from the mouth of Fountain Creek (Table 1). Additionally relict shells were collected at numerous other sites (Table 1, Appendix 1, Fig. 15). The Snuffbox is a candidate for restoration in the river. Williams *et al*. (1993) considered it threatened.

Epioblasma turgidula (I. Lea, 1858) Turgid Blossom

The Turgid Blossom, a Cumberlandian endemic, was reported during the first two studies in the Duck River (Hinkley and Marsh, 1885; Ortmann, 1924; Table 7). Ortmann considered it abundant. The last record for this headwater Duck River species was in 1972 prior to completion of TVA's Normandy Dam in 1976 (OSUM 33840, Appendix 3). This mussel is currently listed as endangered under the ESA, but Williams *et al*. (1993) considered it possibly extinct.

Fusconaia barnesiana (I. Lea, 1838) Tennessee Pigtoe, Fig. 16

The Tennessee Pigtoe, a Cumberlandina endemic, was reported in all previous studies (Table 7). It is generally distributed in the upper part of the lower river near the old Columbia Dam and the upper river to Shelbyville (Fig. 16) but is seldom common, comprising just 1.7% of all mussels sampled (Appendix 1). Historically the species was found in many tributaries and the Buffalo River but is now confined to the main stem Duck River (Appendix 3). The Duck River population probably represents the larger river form (Ortmann, 1924) that is now extremely rare. Williams *et al*. (1993) considered it special concern.

Fusconaia ebena (I. Lea, 1831) Ebonyshell, Fig. 17

This wide-ranging species is a recent invader (1993) to the Duck River fauna (D.W. Hubbs, TWRA, pers. comm.), and has not been encountered during previous wide-ranging surveys (Appendix 3, Table 7). The Ebonyshell is now generally distributed in the lower river but occasional individuals are found in the lower part of the upper river above the old Columbia Dam (Fig. 17). Williams *et al*. (1993) considered it currently stable.

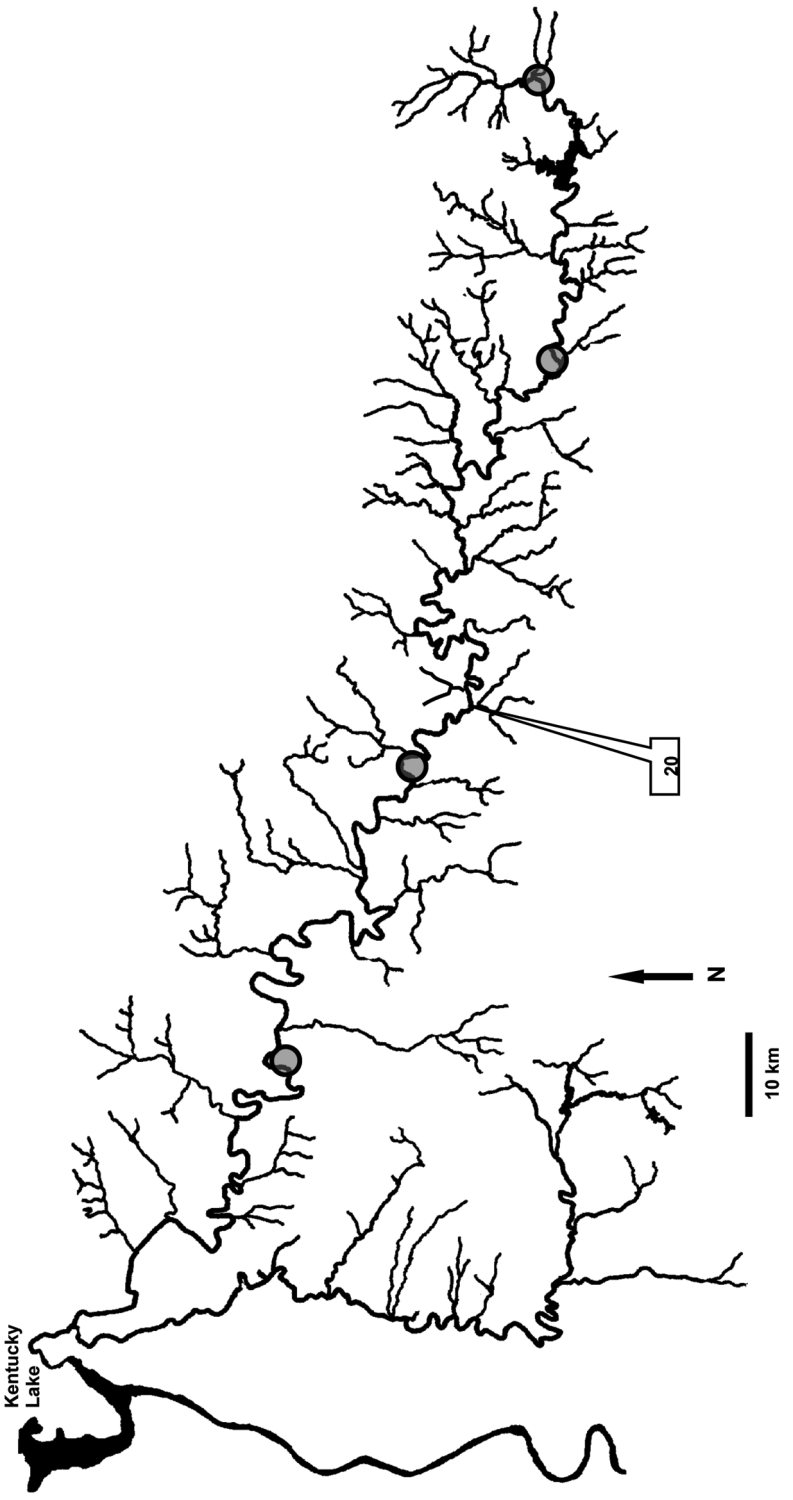


Figure 15— Current distribution of the Snuffbox, *Epioblasma triquetra* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

Figure 16— Current distribution of the Tennessee Pigtoe, *Fusconaia barnesiana* (I. Lea, 1838), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Tennessee Pigtoe was sampled at localities: 12, 13, 16, 17, 18, 21, 27, 30, 31, 32, 33, 39, 42, 78, 81, 82, 89, 94, 96, that are not indicated on the map.

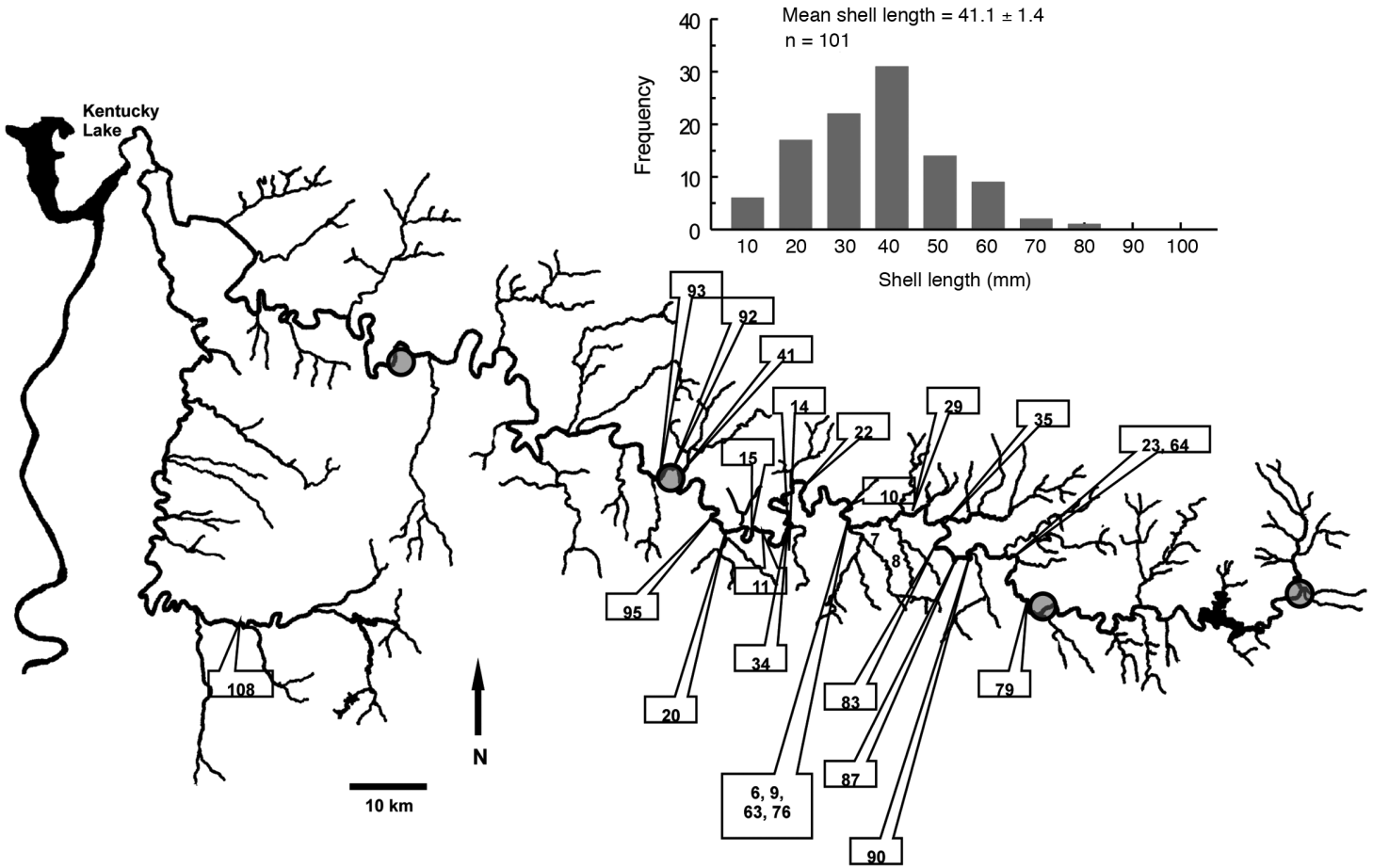
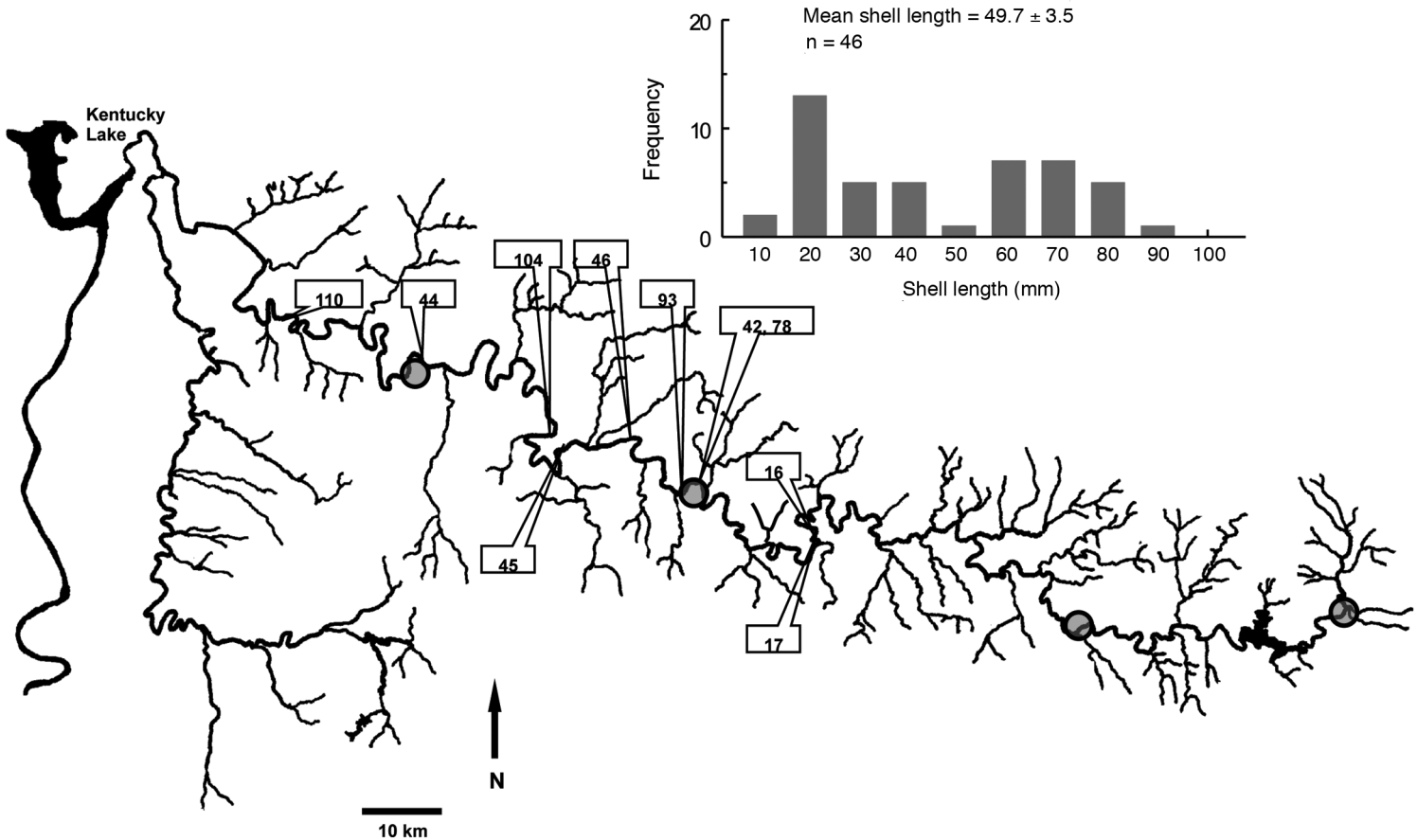


Figure 17— Current distribution of the Ebonyshell, *Fusconaia ebena* (I. Lea, 1831), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Ebonyshell was sampled at localities: 44, 45, 46, 110, that are not indicated on the map.



Fusconaia flava (Rafinesque, 1820), Wabash Pigtoe, Fig. 18

The Wabash Pigtoe is another wide-ranging recent invader in the Duck River (Table 7). Schilling and Williams (2002) found it occasionally (fresh dead) during 2000 sampling in the lower river (Fig. 18). In our search of museum records, no historical specimens of *F. flava* from the Duck River basin were found (Appendix 3). Williams *et al*. (1993) considered it currently stable.

Hemistena lata (Rafinesque, 1820), Cracking Pearlymussel

An Ohio River endemic, the Cracking Pearlymussel was generally considered rare range-wide (Ortmann 1924) and last reported in the Buffalo River (Isom and Yokley, 1968, Appendix 3, Table 7). Historical records place the species up to Columbia (Appendix 3). This species is a candidate for restoration and is currently listed as endangered under the ESA.

Lampsilis cardium (Rafinesque, 1820), Plain Pocketbook, Fig. 19

The wide-ranging Plain Pocketbook and equally widely distributed Pocketbook, *Lampsilis ovata* (Say, 1820) have both been reported from the Duck River during previous surveys (Table 7). In our report, we consider Duck records to be *L. cardium*, while recognizing that some individuals exhibit character traits that may resemble *L. ovata*. The Plain Pocketbook is relatively common and generally distributed throughout the river except for it absence from the very lower river (Schilling and Williams, 2002). The Plain Pocketbook upper limit is just below Shelbyville (Fig. 19) and it apparently has been eliminated from several large tributaries where it previously occurred (Appendix 3). Williams *et al*. (1993) considered both species special concern.

Lampsilis fasciola (Rafinesque, 1820), Wavyrayed Lampmussel, Fig. 20

This is a widely distributed mussel reported in all previous surveys (Tables 7). It is one of the most common species in the Duck and generally distributed from just above Shelbyville with the exception of the lowermost river where it is occasionally found (Schilling and Williams 2002, Fig. 20). The species comprised over 6% of all mussels sampled during the study (Appendix 1). Uncommon in tributaries (Appendix 1), *L. fasciola* remains extant in Big Rock Creek (TNC 7, Appendix 1). Williams *et al*. (1993) considered it currently stable.

Lampsilis teres (Rafinesque, 1820), Yellow Sandshell, Fig. 21

The Yellow Sandshell was more commonly taken in surveys after 1960, although the species was taken by Ortmann in 1924 (Appendix 3, Table 7). Currently, *Lampsilis teres* is a widely distributed species most commonly encountered below Columbia (Fig. 21). This species is occasional and uncommon from Venable Spring downstream to Centerville. Williams *et al*. (1993) considered it currently stable.

Lasmigona complanata (Barnes, 1823) White Heelsplitter, Fig. 22

The White Heelsplitter is a widely distributed species that was collected in most historical surveys (Appendix 3, Table 7). This species is occasional and uncommon in the lower river

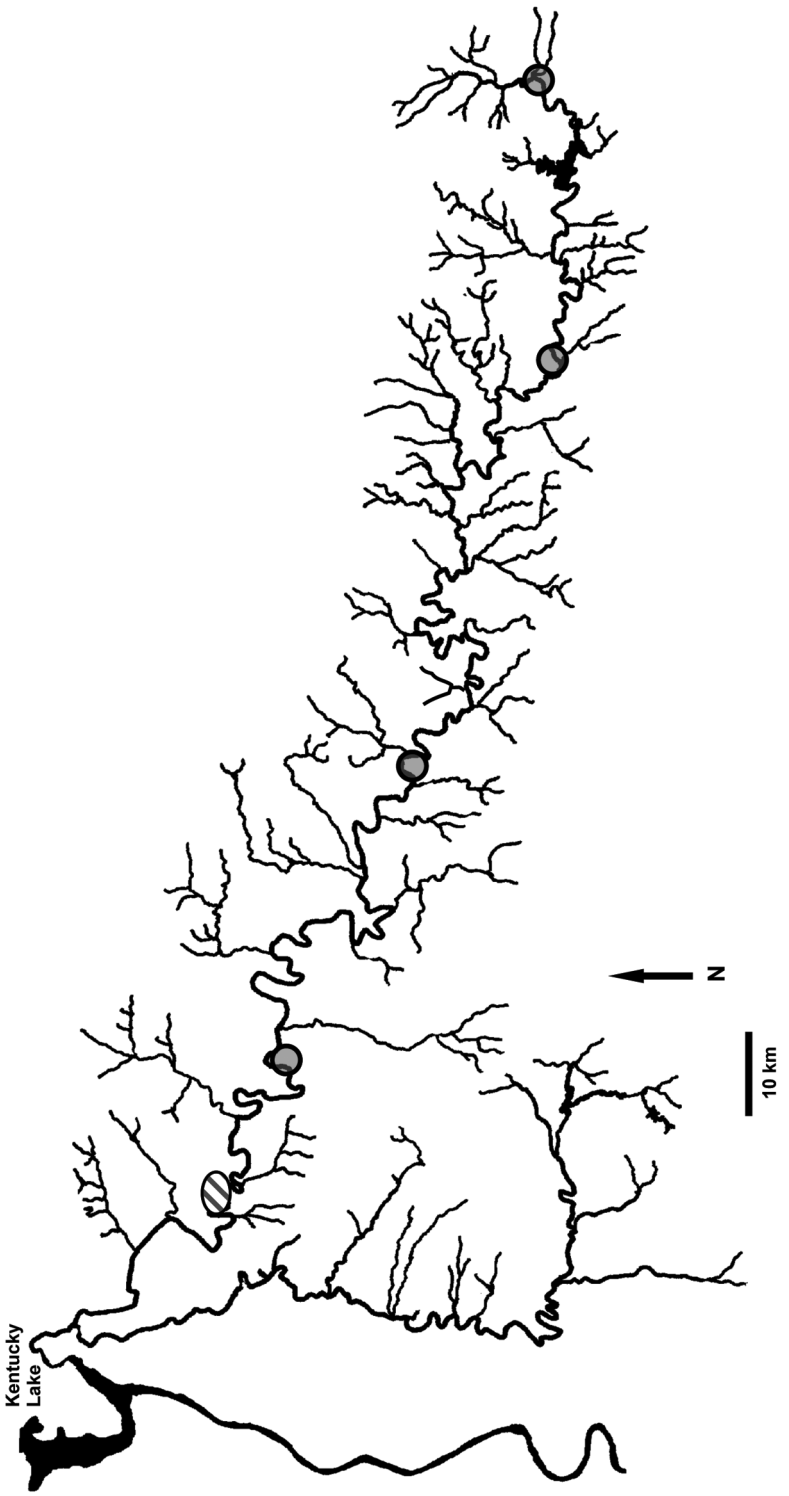


Figure 18— Current distribution of the Wabash Pigtoe, *Fusconaia flava* (Rafinesque, 1820), in the Duck River basin. Sample data collected by Schilling and Williams, 2002.

Figure 19— Current distribution of the Plain Pocketbook, *Lampsilis cardium* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Plain Pocketbook was sampled at localities: 9, 12, 13, 16, 17, 18, 19, 21, 24, 27, 30, 31, 32, 33, 34, 39, 40, 42, 78, 81, 90, 92, 94, 96, 97, 103, that are not indicated on the map.

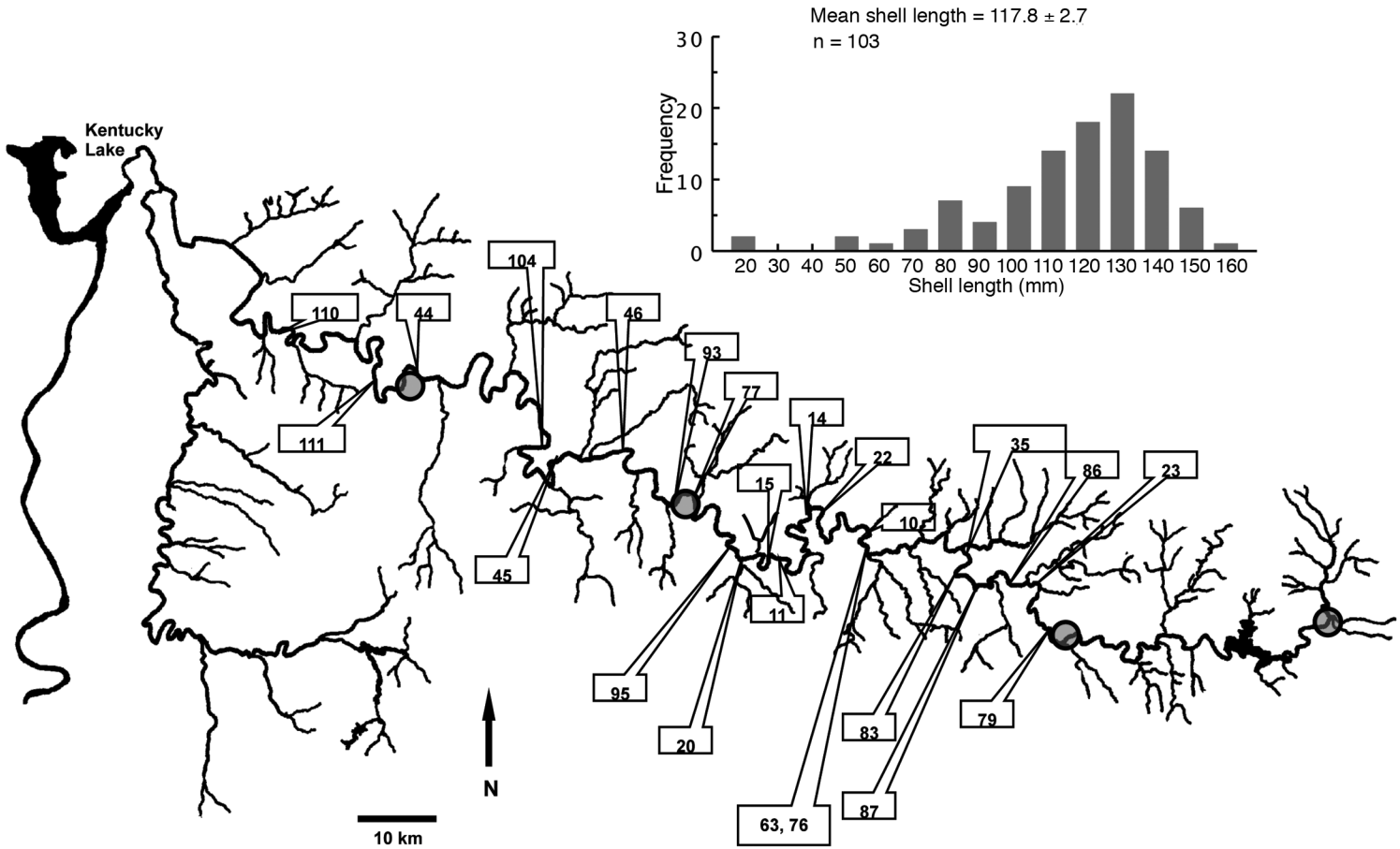


Figure 20— Current distribution of the Wavyrayed Lampmussel, *Lampsilis fasciola* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Wavyrayed Lampmussel was sampled at localities: 11, 12, 13, 16, 18, 19, 21, 23, 27, 30, 31, 32, 33, 34, 36, 38, 39, 42, 64, 65, 78, 81, 82, 86, 88, 89, 92, 95, 96, 103, that are not indicated on the map.

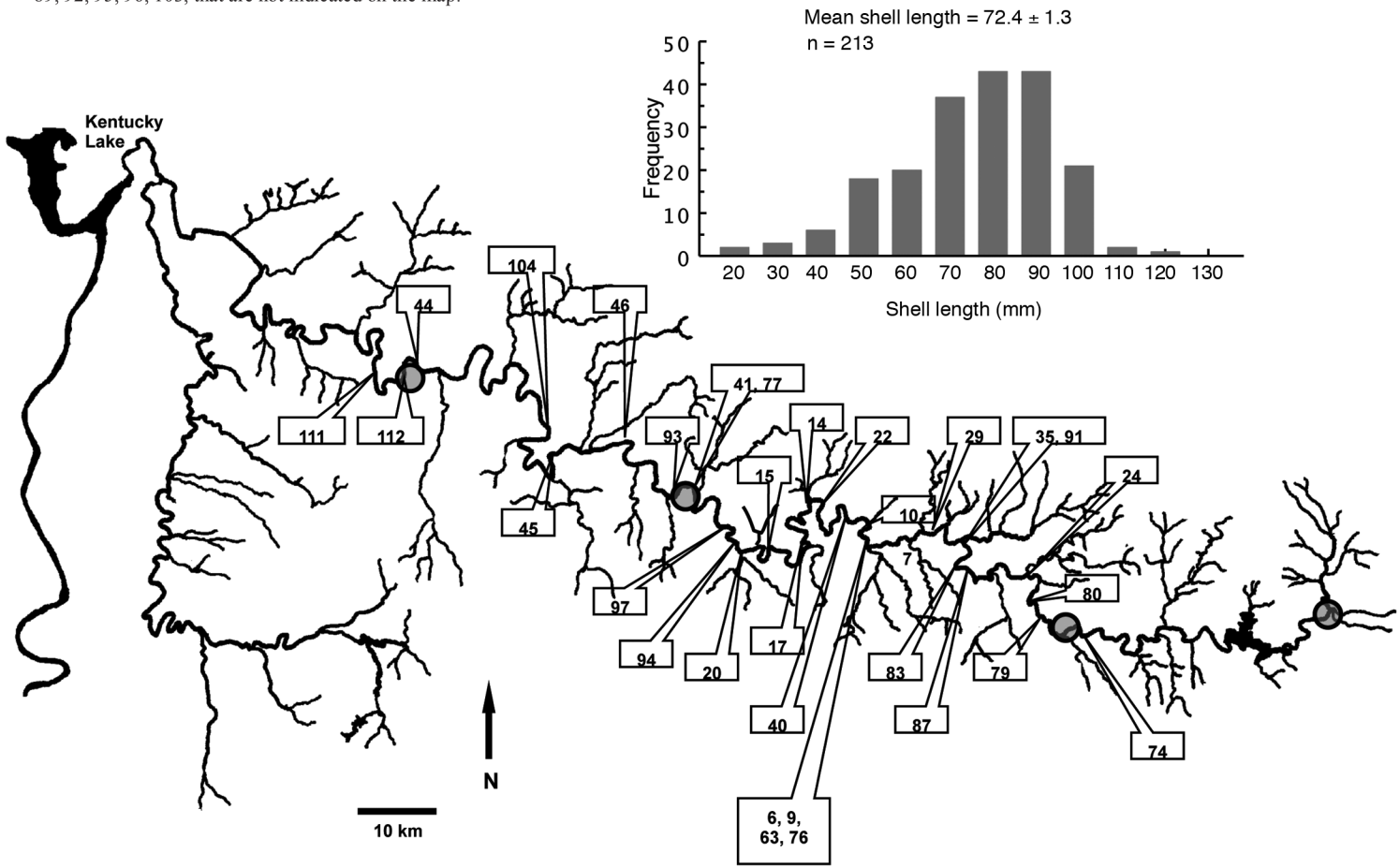


Figure 21— Current distribution of the Yellow Sandshell, *Lampsilis teres* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

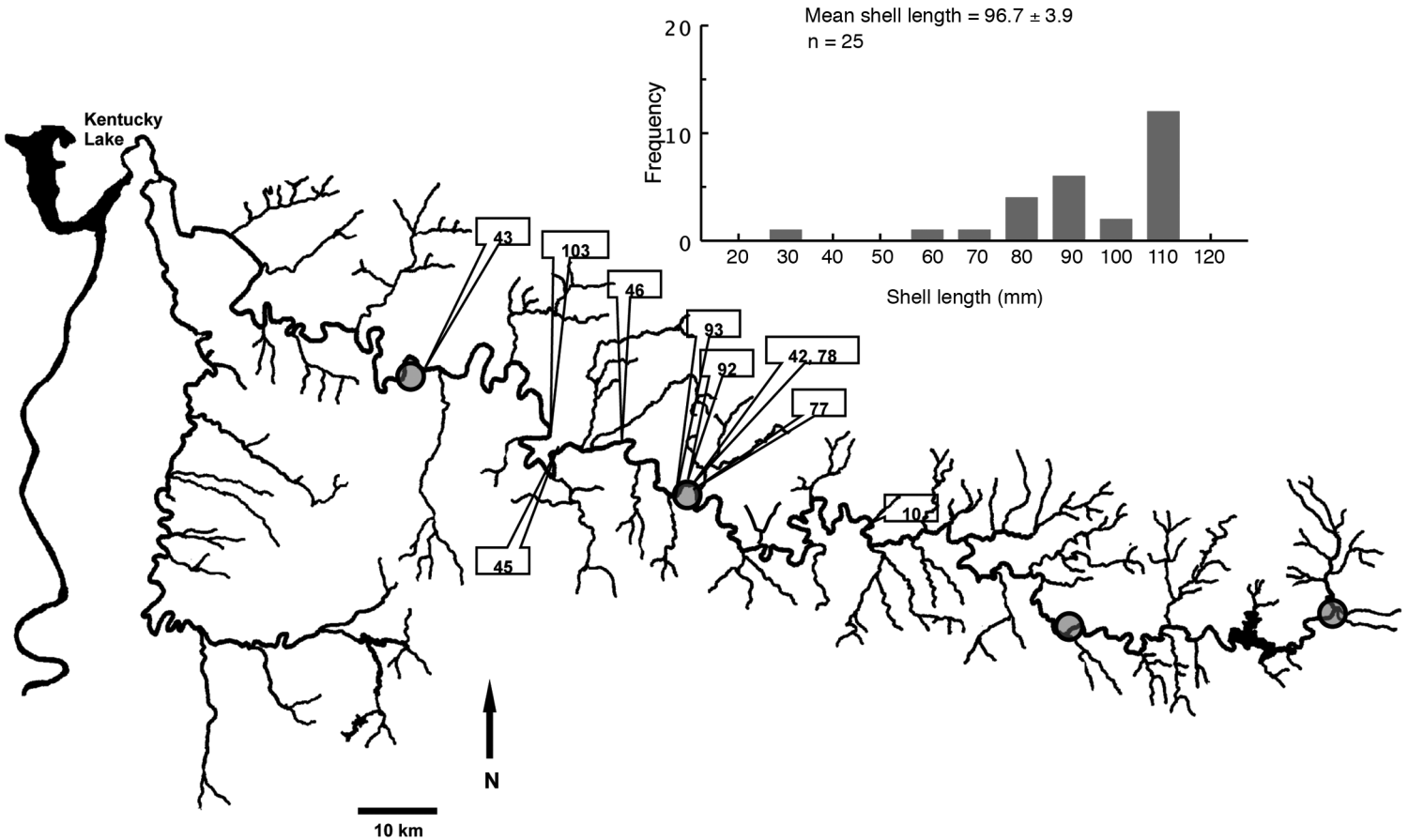
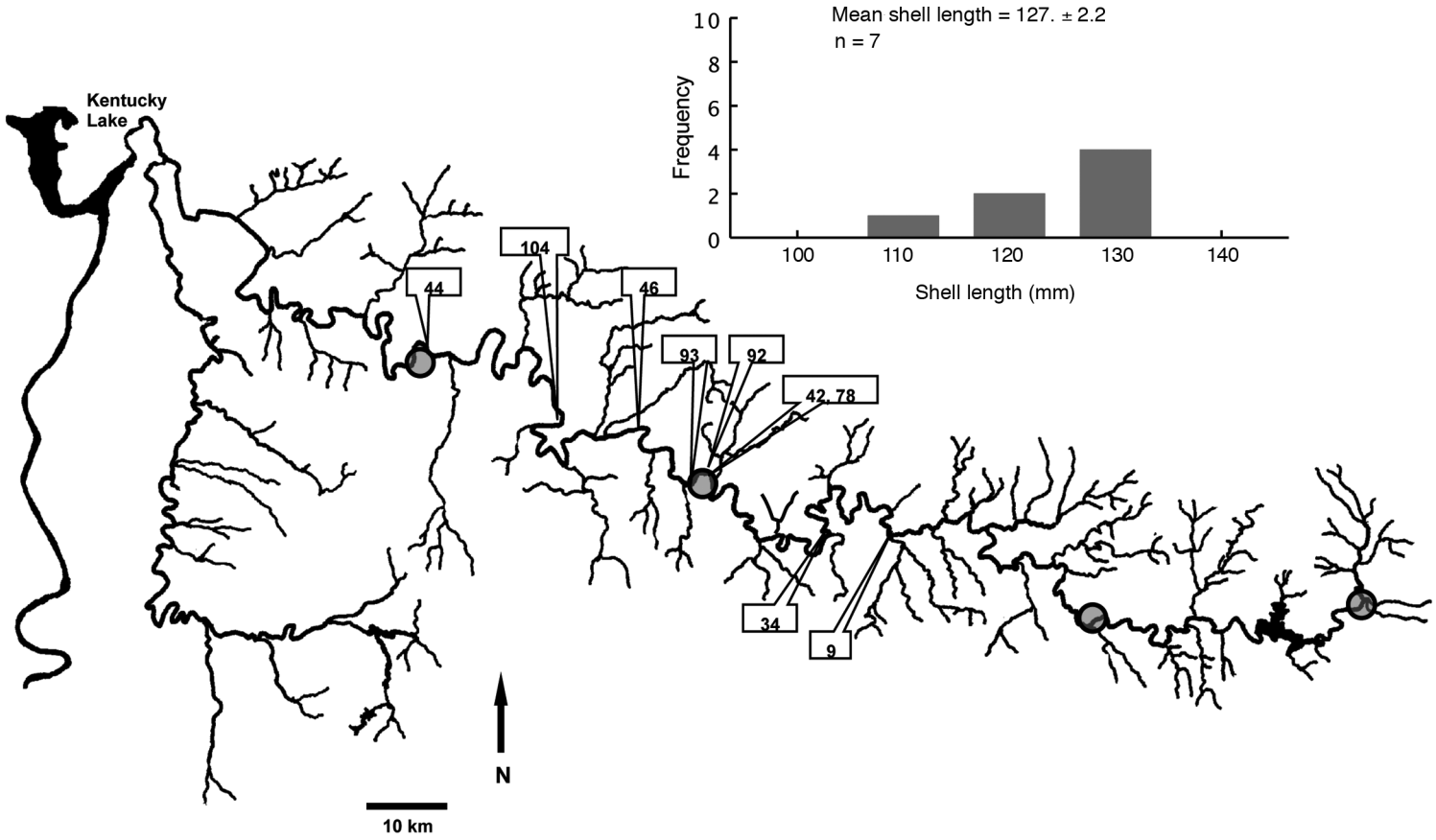


Figure 22— Current distribution of the White Heelsplitter, *Lasmigona complanata* (Barnes, 1823), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.



and can be found upstream to Lillard Mill (Fig. 21). This distribution was identical to historically sampled localities (Appendix 3). Williams *et al*., (1993) considered it currently stable.

Lasmigona costata (Rafinesque, 1820) Fluted Shell, Fig. 23

The wide-ranging Fluted Shell was reported in all previous surveys (Table 7). It is generally distributed throughout the Duck River below Shelbyville and represented the third most abundant mussel found in the river (7.5% of all mussels sampled, Appendix 1). Historical accounts of the species place it in the Duck at the present site of Normandy Reservoir (MFM 19796, Appendix 3). Williams *et al*., (1993) considered it currently stable.

Lasmigona sp. cf. *holstonia* (I. Lea, 1838) "Barrens Toesplitter," Fig. 24

This is a putative undescribed Cumberlandian species restricted to the uppermost Duck River and upper Caney Fork systems (R. M. Anderson, USFWS; M. E. Gordon, pers. comm.). The Barrens Toesplitter has a sporadic collection history in the Duck River as *L. holstonia* (Lea, 1838), the Tennessee Heelsplitter (e.g., Ortmann, 1924, Parmalee and Bogan, 1998; Table 7), last reported in 1967 near Shelbyville (MCZ 274844, Appendix 3). The two forms are recognizable by shell characters and distribution. It is a headwater species and all records are for the uppermost Duck River, although we did not find it there (see Tributary data). Regardless of its true identity, this species is a candidate for restoration. We found a single relict specimen in North Fork Creek in this study (TNC 57, Fig. 24). Williams *et al*., (1993) considered it special concern.

Lemiox rimosus (Rafinesque, 1831) Birdwing Pearlymussel, Fig. 25

A Cumberlandian endemic, this mussel was reported in all previous surveys except in the lower river (Schilling and Williams, 2002; Table 7). Apparently rare historically, the Birdwing Pearlymussel in the Duck River has increased dramatically in population size and now represents the last significant population range wide. It is generally distributed and fairly common although restricted to the 35-mile upper river reach between the old Columbia and Lillard Mill dams (45 miles), a near doubling of the range distribution of *L. rimosus* since 1988 (Fig. 25). Numbers of *L. rimosus* sampled qualitatively for this study (n = 324) increased nearly 5-fold from the 1988 investigation (n = 65). From 1974–75, 33 individuals were translocated into the upper river below Shelbyville Dam (P. Yokley, pers. comm.). However no live individuals were found to occur in the river upstream from Lillard Mill Dam. A few individuals are documented (D.W. Hubbs, TWRA, pers. comm.) downstream from the old Columbia Dam and may either be cohorts from 49 translocated individuals placed here in 1975 (P. Yokley, pers. comm.) or more likely represent downstream movement of infected fish carrying glochidia. It is a candidate for restoration upstream from Lillard Mill Dam and downstream from the old Columbia Dam. This species is currently listed as endangered under the ESA.

Leptodea fragilis (Rafinesque, 1820) Fragile Papershell, Fig. 26

The Fragile Papershell is a widely distributed species and was recorded in all previous surveys (Appendix 3, Table 7). It is generally distributed and one of the most commonly encountered mussels in the Duck River, located from Shelbyville to near the mouth of the river (Schilling and Williams 2002, Fig. 25). Williams *et al*. (1993) considered it currently stable.

Figure 23— Current distribution of the Fluted Shell, *Lasmigona costata* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Fluted Shell was sampled at localities: 11, 12, 13, 16, 18, 21, 27, 29, 30, 33, 34, 36, 39, 42, 78, 83, 86, 87, 89, 94, 96, 103, that are not indicated on the map.

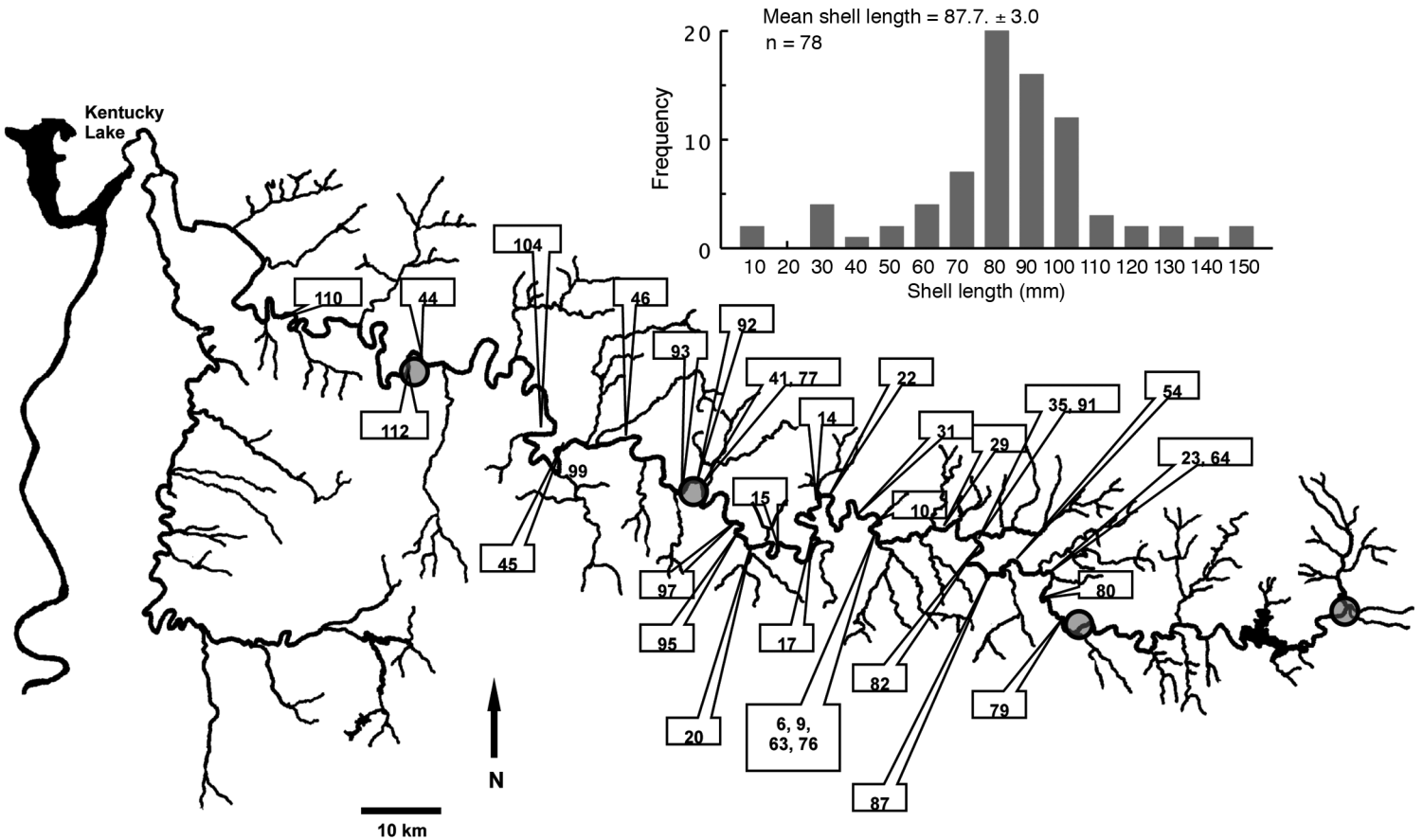


Figure 24— Current distribution of the Barrens toesplitter, *Lasmigona* sp. cf. *holstonia* (I. Lea, 1838), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

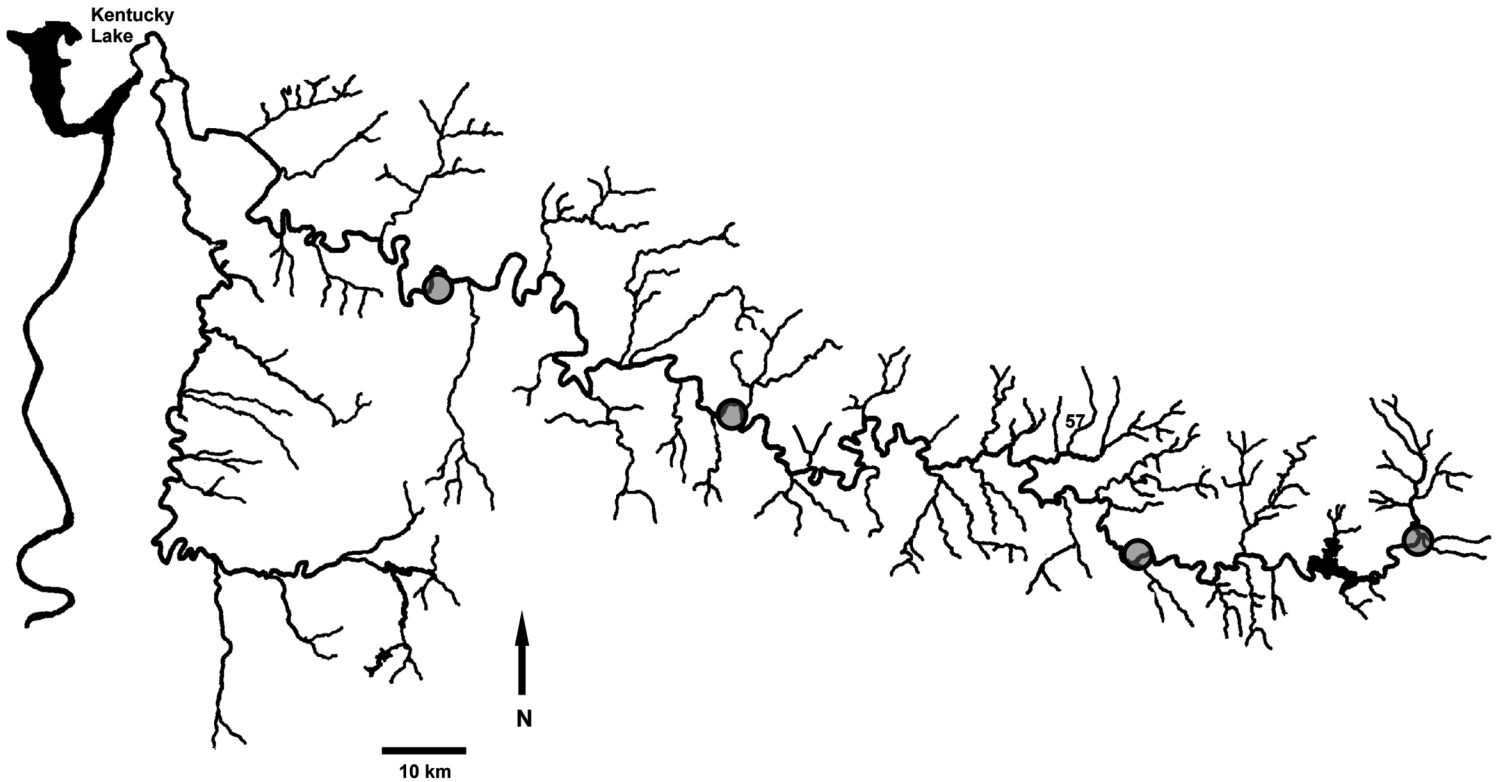


Figure 25— Current distribution of the Birdwing Pearlymussel, *Lemiox rimosus* (Rafinesque, 1831), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Birdwing Pearlymussel was sampled at localities: 12, 13, 16, 21, 22, 27, 32, 33, 34, 39, that are not indicated on the map.

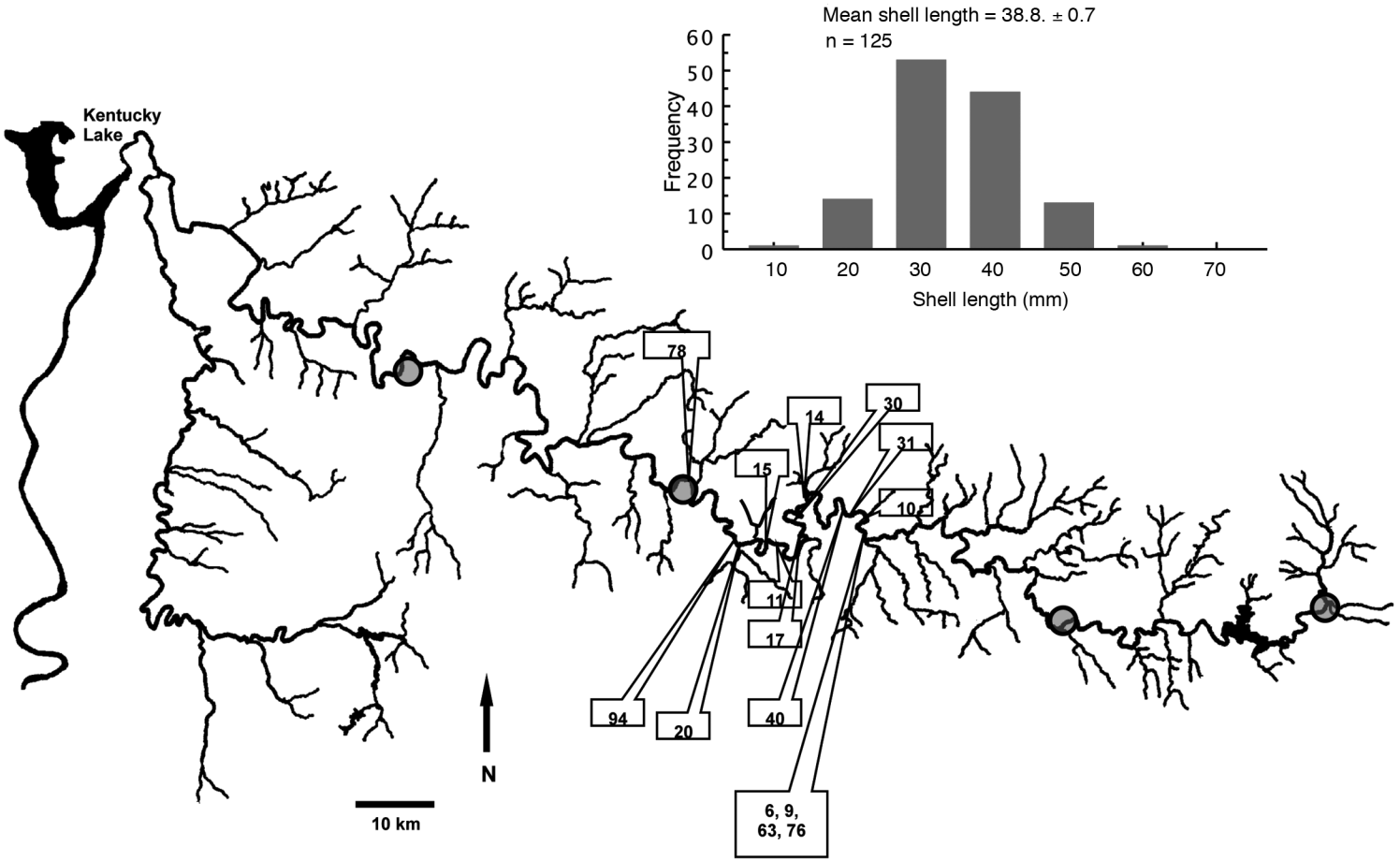
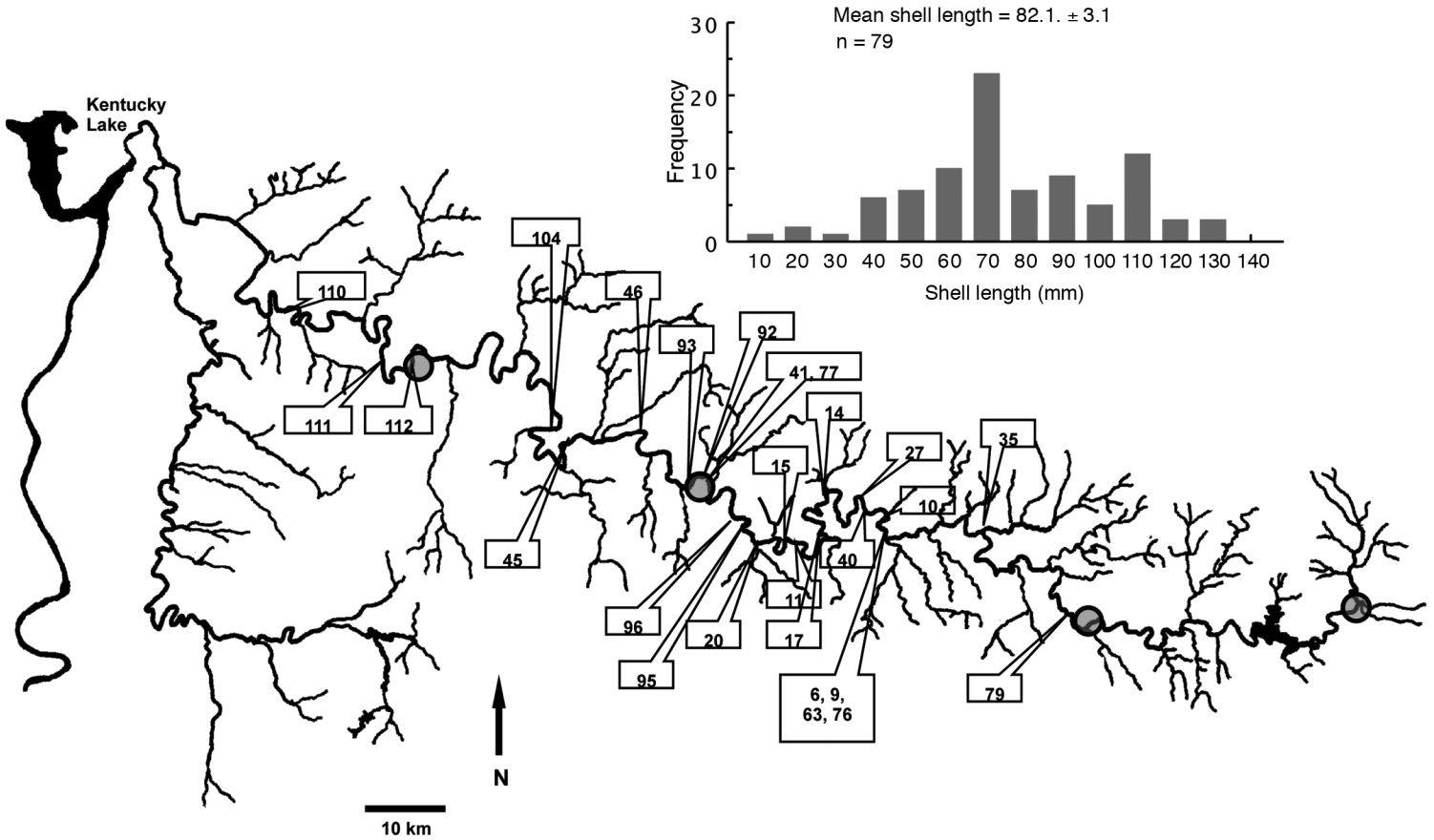


Figure 26— Current distribution of the Fragile Papershell, *Leptodea fragilis* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Fragile Papershell was sampled at localities: 12, 16, 18, 19, 21, 30, 31, 32, 33, 34, 39, 42, 43, 78, 103, that are not indicated on the map.



Leptodea leptodon (Rafinesque, 1820) Scaleshell

Formerly a widely distributed species, Hinkley and Marsh (1885) is the only published record for the Scaleshell from the Duck but one record exists in museum collections (UMMZ 83019, no information; Appendix 3, Table 7). Currently *L. leptodon* is extirpated from the entire Ohio River system but is a candidate for restoration. This species is listed as endangered under the ESA.

Lexingtonia dolabelloides (I. Lea, 1840) Slabside Pearlymussel, Fig. 27

The Cumberlandian endemic Slabside Pearlymussel was reported in all previous surveys of the Duck River, sometimes abundantly (*e.g*., Ortmann, 1924; Table 7). For this study *Lexingtonia dolabelloides* was common (nearly 3% of all mussels collected) and is most abundant between Lillard Mill and old Columbia Dam (Appendix 1, Fig. 27). The Slabside Pearlymusssel is encountered sporadically in the lower river (D.W. Hubbs, TWRA, pers. comm., Schilling and Williams, 2002). This species is a candidate for restoration in the river and a candidate for protection under the ESA.

Ligumia recta (Lamarck, 1819) Black Sandshell, Fig. 28

The Black Sandshell is a very wide-ranging species that was historically rare in the lower Duck and only reported in 2 studies (Hinkley and Marsh 1885; Isom and Yokley 1968; Table 7). Our study and others (Schilling and Williams, 2002; D.W. Hubbs, TWRA, pers. comm.) found it to be occasional and uncommon in the lower river (Appendix 1, Fig. 28). The Black Sandshell is a candidate for restoration. Williams *et al*. (1993) considered it special concern, although this assessment is probably optimistic as the species has completely disappeared from the Mobile River basin and is presently declining in several other drainages.

Ligumia subrostrata (Say, 1831) Pondmussel

This widespread lowland species was recorded in the Duck River only by Hinkley and Marsh (1885) and includes an undated museum record (ANSP 126188). No individuals were found during our survey. The Pondmussel is a candidate for restoration in the lower river. However, the species may do well in small ponds and oxbows adjacent to the river. Williams *et al*., (1993) considered it special concern.

Medionidus conradicus (I. Lea, 1834) Cumberland Moccasinshell, Fig. 29

This Cumberlandian endemic is reported in all previous surveys except Schilling and Williams (2002, Table 7). A headwater species, the Cumberland Moccasinshell is generally distributed in the upper Duck downstream to just below the old Columbia Dam (Fig. 29). This species is locally abundant; a large population exists just below Shelbyville Dam, the upstream-most record. It is also present in Big Rock Creek (Fig. 29), but has been eliminated from other tributary systems (Appendix 3). This species is a candidate for restoration above Shelbyville. Williams *et al*., (1993) considered it special concern.

Figure 27— Current distribution of the Slabside Pearlymussel, *Lexingtonia dolabelloides* (I. Lea, 1840), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Slabside Pearlymussel was sampled at localities: 12, 13, 16, 18, 21, 27, 30, 31, 32, 33, 34, 39, 42, 78, 81, 82, 89, 95, that are not indicated on the map.

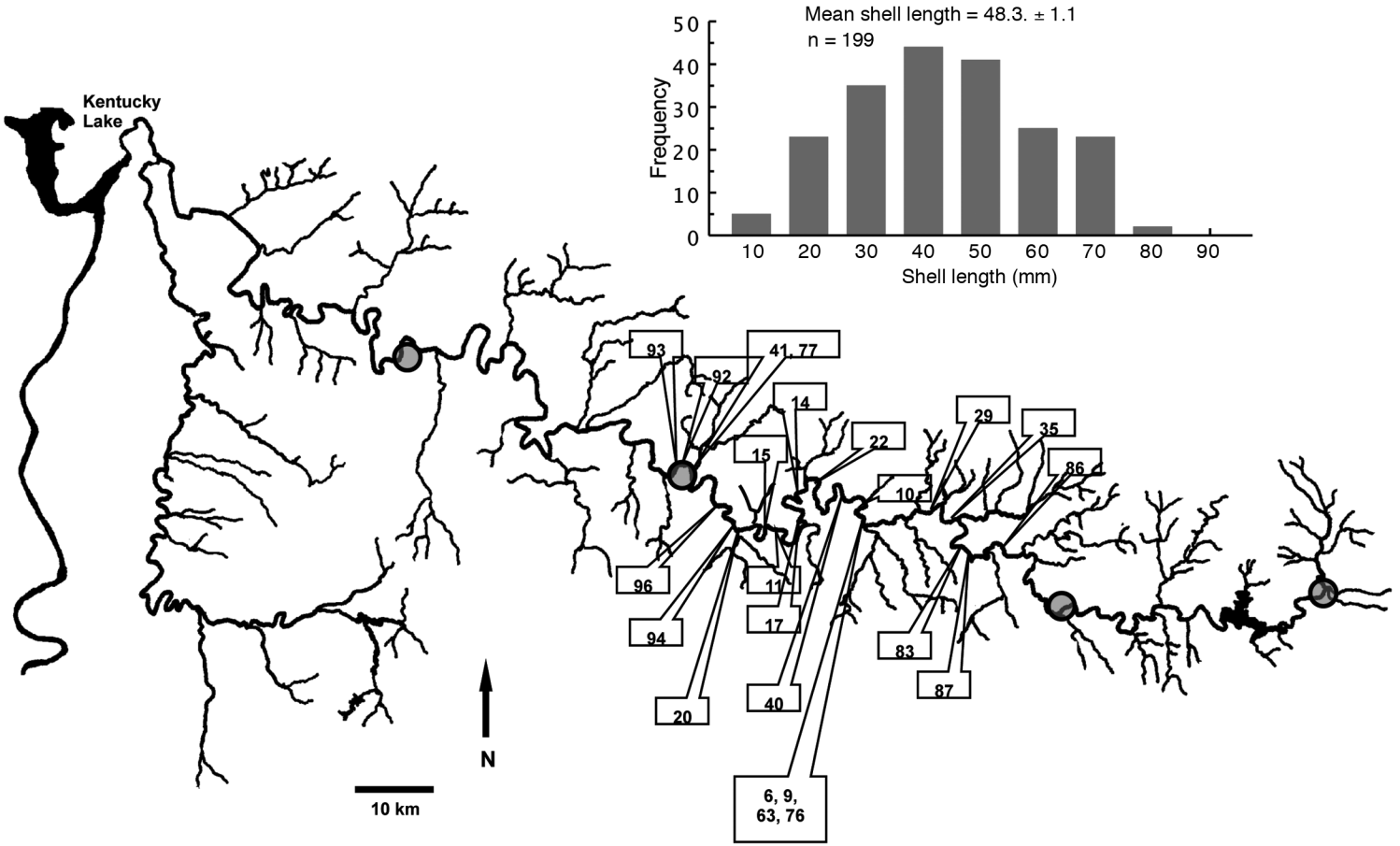


Figure 28— Current distribution of the Black Sandshell, *Ligumia recta* (Lamarck, 1819), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

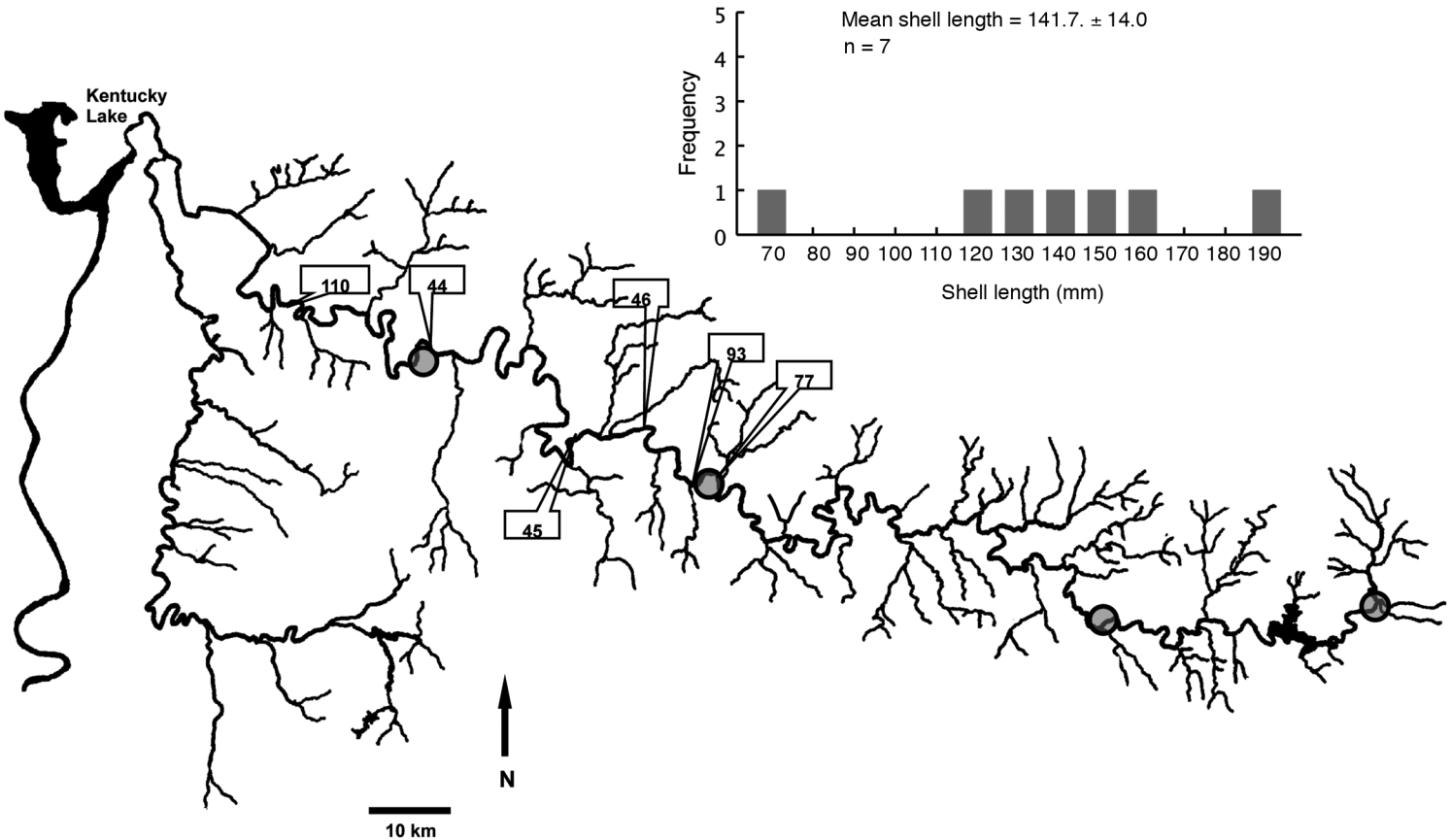
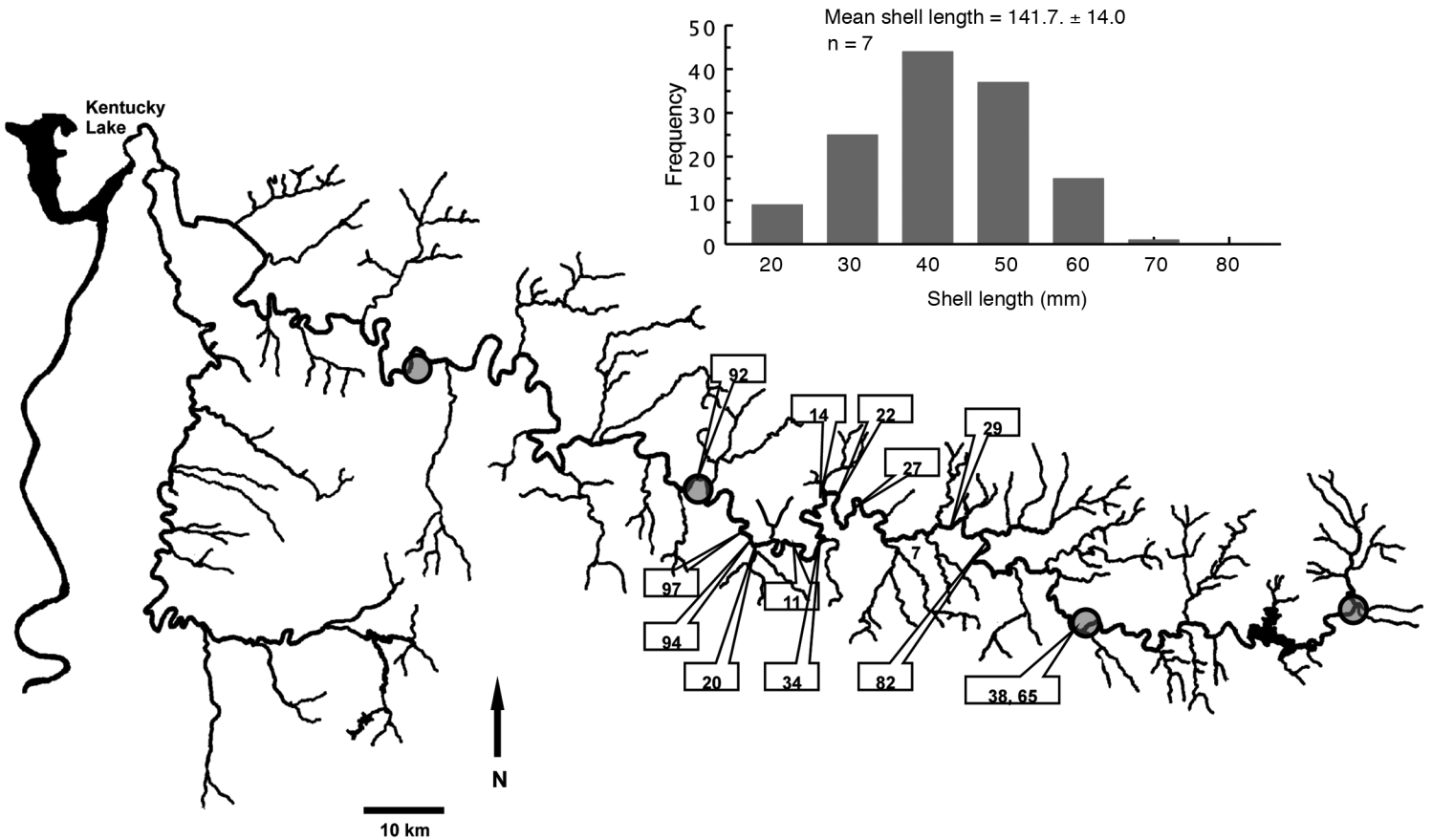


Figure 29— Current distribution of the Cumberland Moccasinshell, *Medionidus conradicus* (I. Lea, 1834), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Cumberland Moccasinshell was sampled at localities: 12, 15, 13, 16, 17, 18, 21, 32, 33, 93, 95, 96, that are not indicated on the map.



Megalonaias nervosa (Rafinesque, 1820) Washboard, Fig. 30

This large river species is widely distributed and was reported in all previous surveys of the Duck River (Table 7). The Washboard is fairly common and distributed throughout the lower river upstream to Wilhoite Mills near Henry Horton State Park (TNC 29, Fig. 30). This distribution is identical to early surveys (Appendix 3). The washboard is a candidate for restoration in the upper Duck River upstream from Wilhoite Mills. Williams *et al*. (1993) considered it currently stable.

Obliquaria reflexa Rafinesque, 1820 Threehorn Wartyback, Fig. 31

The Threehorn Wartyback is a wide-ranging species reported in all previous surveys (Table 7). It is generally distributed and one of the most common species in the river from Lillard Mill Dam downstream. Williams *et al*. (1993) considered it currently stable.

Obovaria retusa (Lamarck, 1819) Ring Pink

Hinkley and Marsh (1885) were the only individuals to report this big river Ohio River system endemic from the Duck River (Table 7). Ortmann (1924) accepted their record based on its easy identification. Further, the now extirpated lower Tennessee River populations had ready access to the Duck. This species, which is now restricted to the Green River in Kentucky, is a candidate for restoration and is currently listed as endangered under the ESA.

Obovaria subrotunda (Rafinesque, 1820) Round Hickorynut, Fig. 32

The Round Hickorynut, a relatively wide-ranging species, was reported in all previous surveys (Table 7) except Schilling and Williams (2002). During our survey, it was generally distributed but uncommon in the upper Duck (Appendix 1; Fig. 32). The Round Hickorynut is a candidate for restoration. Williams *et al*. (1993) considered it special concern.

Pegias fabula (I. Lea, 1838) Littlewing Pearlymussel

A single specimen of this Cumberlandian endemic was collected in the Duck River in 1888 (USNM 86229, Appendix 3), but archaeological specimens are known from the upper river including Fountain Creek (Parmalee and Klippel, 1986). No other records exist (Appendix 3). This species is a candidate for restoration in the upper river and currently listed as endangered under the ESA.

Plethobasus cooperianus (I. Lea, 1834) Orangefoot Pimpleback

Endemic to the Ohio River system, the Orangefoot Pimpleback is a big river species known from a single record downstream from old Columbia Dam (Isom and Yokley, 1968, Table 7). D.H. Stansbery considered this record a misidentification (Parmalee and Bogan, 1998). However, the still extant lower Tennessee River population historically had access to the un-impounded Duck lending credence to its former occurrence in the lower river. This species is a candidate for restoration in the lower river and currently listed as endangered under the ESA.

Figure 30— Current distribution of the Washboard, *Megalonaias nervosa* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Washboard was sampled at localities: 9, 16, 17, 18, 21, 27, 30, 32, 33, 39, 40, 42, 77, 78, 95, 96 that are not indicated on the map.

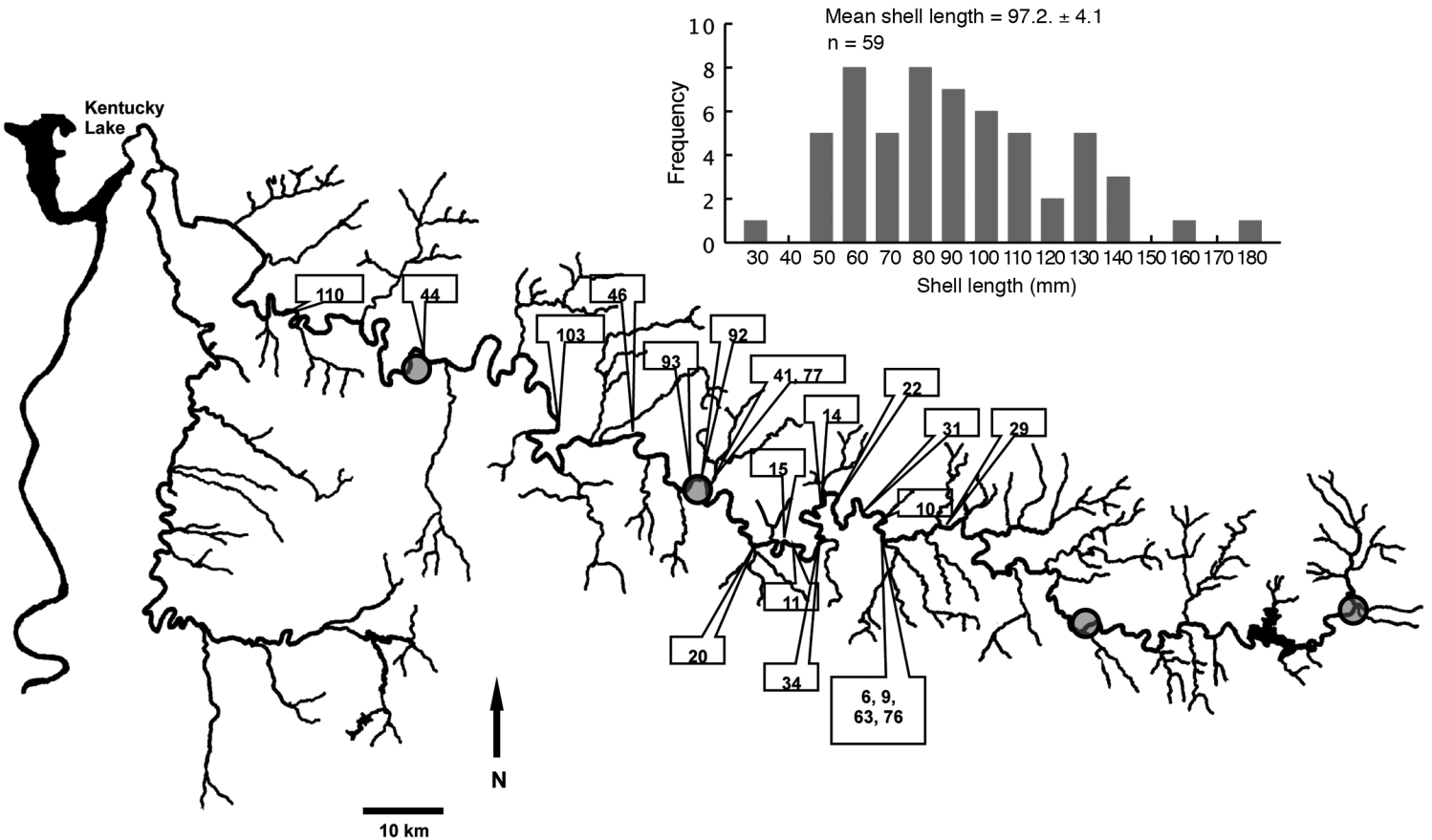


Figure 31— Current distribution of the Threehorn Wartyback, *Obliquaria reflexa* Rafinesque, 1820, in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Threehorn Wartyback was sampled at localities: 13, 16, 17, 18, 21, 32, 33, 39, 40, 42, 78, 94, 95, 103, that are not indicated on the map.

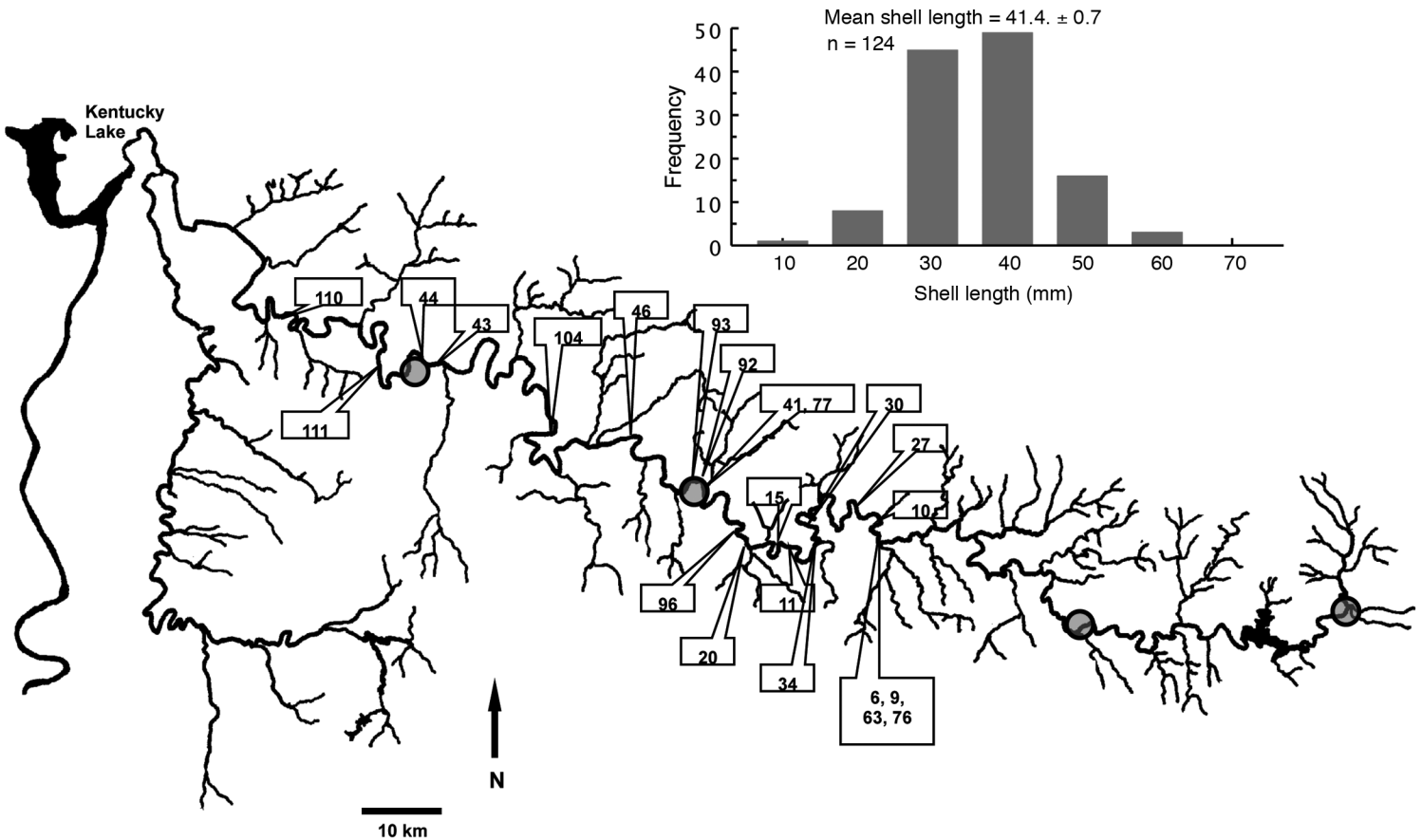
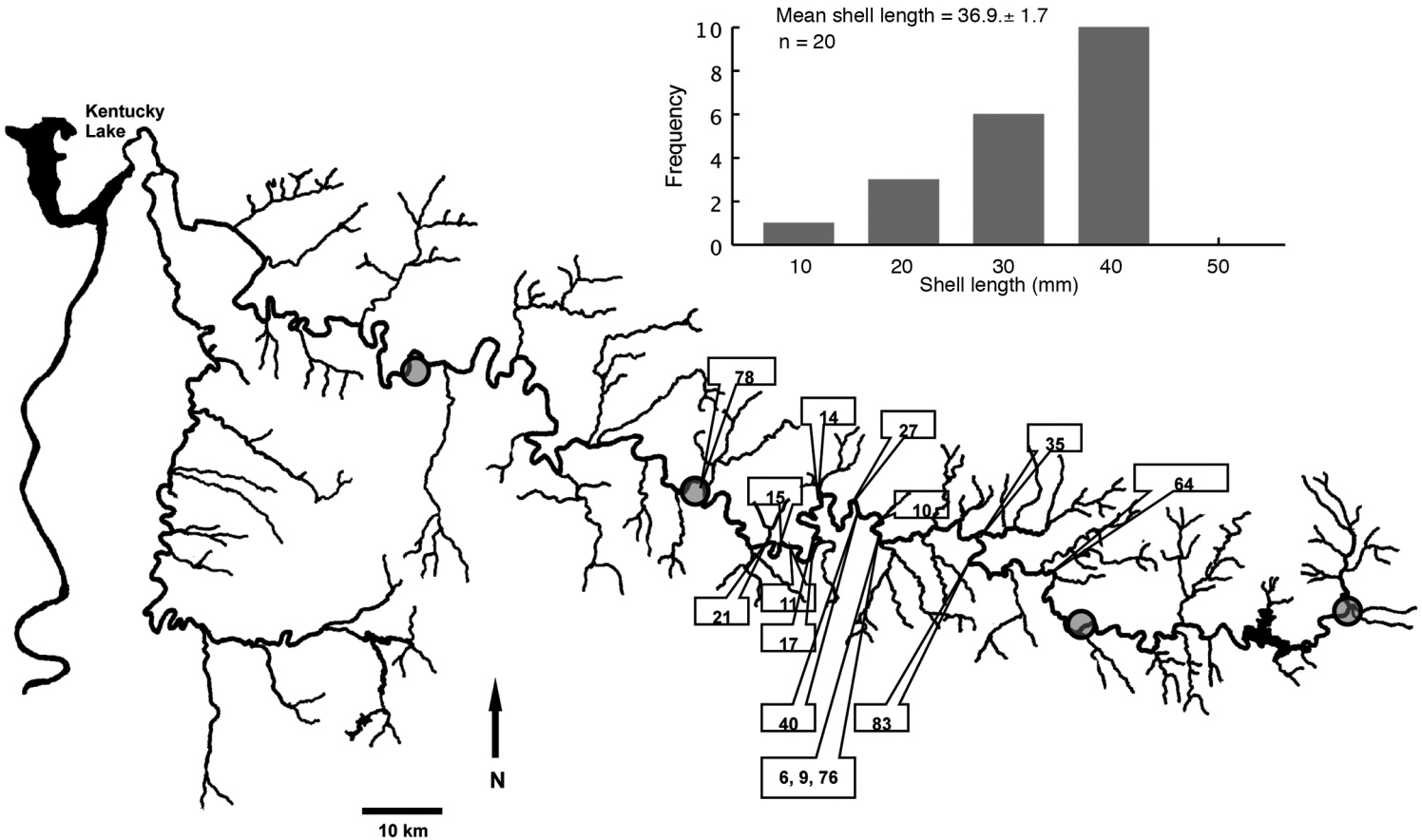


Figure 32— Current distribution of the Round Hickorynut, *Obovaria subrotunda* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Round Hickorynut was sampled at localities: 16, 18, 30, 31, 32, 39, 81, 89, that are not indicated on the map.



Plethobasus cyphyus (Rafinesque, 1820) Sheepnose, Fig. 33

There are no published reports of the widely distributed Sheepnose, but an early museum record exists from the lower Duck River collected by C. M. Wheatley (ANSP 127384, Appendix 3). In 2003, a live individual was found just downstream from the old Columbia Dam by TVA fisheries biologists (A. Wales, TVA, pers. comm.). The individual was photographed and its identification confirmed (J.D. Williams, USGS, pers. com.). This represents its first occurrence in the river in over a century. The Sheepnose is a candidate for restoration and a candidate for protection under the ESA.

Pleurobema clava (Lamarck, 1819) Clubshell, Fig. 34

The Ohio River system endemic Clubshell was reported roughly 100 years ago (e.g., Hinkley and Marsh, 1885, MCZ 5090, USNM 150456, Appendix 3, Table 7). Although Ortmann (1924) refuted Call's identification of the MCZ record (considering it the closely related *P. oviforme*, Schilling and Williams, 2002), we consider the record valid after examination of the museum lots. No specimens were found during our study, but a relic individual was reported from a lower Duck River site (Schilling and Williams, 2002; Fig. 34). The Clubshell, believed extirpated from the entire Tennessee River system, is a candidate for restoration in the river. This species is currently listed endangered under the ESA.

Pleurobema cordatum (Rafinesque, 1820) Ohio Pigtoe, Fig. 35

Also endemic to the Ohio River system, this big river species was first found in 1891 and in subsequent surveys (Table 7, Appendix 3). However, other taxa considered part of the *Pleurobema cordatum* complex (i.e., *P. rubrum*, *P. sintoxia*) could have been undifferentiated from the Ohio Pigtoe in some Duck River reports (Table 7). It was not found during our survey, but Schilling and Williams (2002) reported it as fresh dead (Fig. 35). We consider it sporadic in the lower river, but it has always been uncommon despite the once large population in the lower Tennessee River. This species is a candidate for restoration. Williams *et al*., (1993) considered it special concern.

Pleurobema oviforme (Conrad, 1834) Tennessee Clubshell, Fig. 36

This Cumberlandian endemic is reported in all previous surveys but not from the lower river (Schilling and Williams, 2002; Table 7). We found the Tennessee Clubshell at a single site (Lillard Mill Dam, TNC 6, Fig. 36). A highly variable mussel and probable species complex—Ortmann (1924) reported three different forms from the Duck—this species needs a taxonomic study to determine if multiple species are present and to differentiate it from *P. clava*. Historically, *P. oviforme* was widespread in the basin, and was historically the most commonly collected *Pleurobema* spp. in the basin (Appendix 3). It is a candidate for restoration. Williams *et al*., (1993) considered it special concern.

Pleurobema rubrum (Rafinesque, 1820) Pyramid Pigtoe, Fig. 37

The Pyramid Pigtoe is a fairly wide-ranging mussel that was reported from the Duck during some historical surveys (Table 7). Ortmann (1924) thought it occurred further upstream in the

Figure 33— Current distribution of the Sheepnose, *Plethobasus cypyus* (Rafinesque, 1820) in the Duck River basin. Sample information was collected after the completion of this study. Sample locality was near TNC 42.

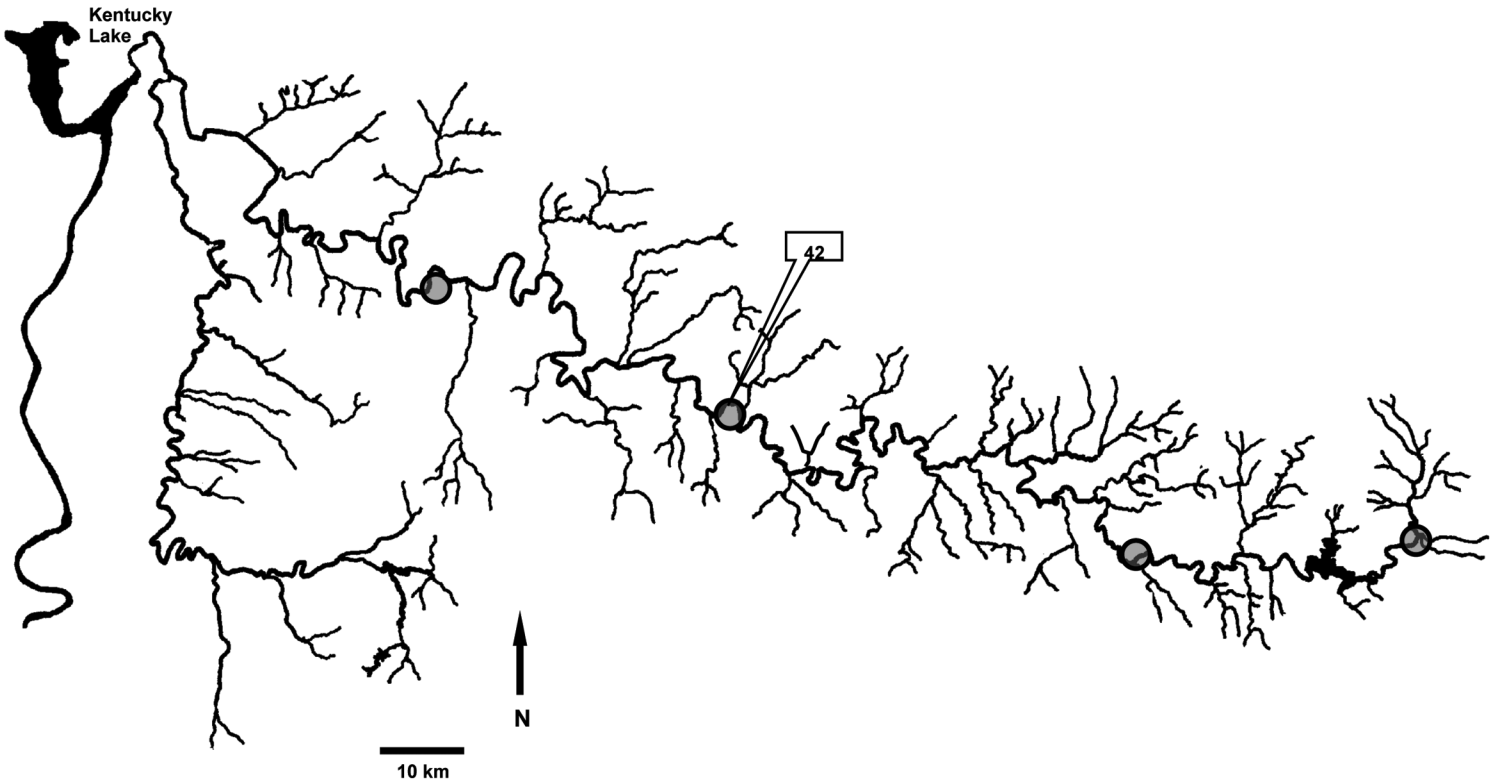


Figure 34— Current distribution of the Clubshell, *Pleurobema clava* (Lamarck, 1819), in the Duck River basin. Sample data collected by Schilling and Williams, 2002, and the record is represented by shell material only.

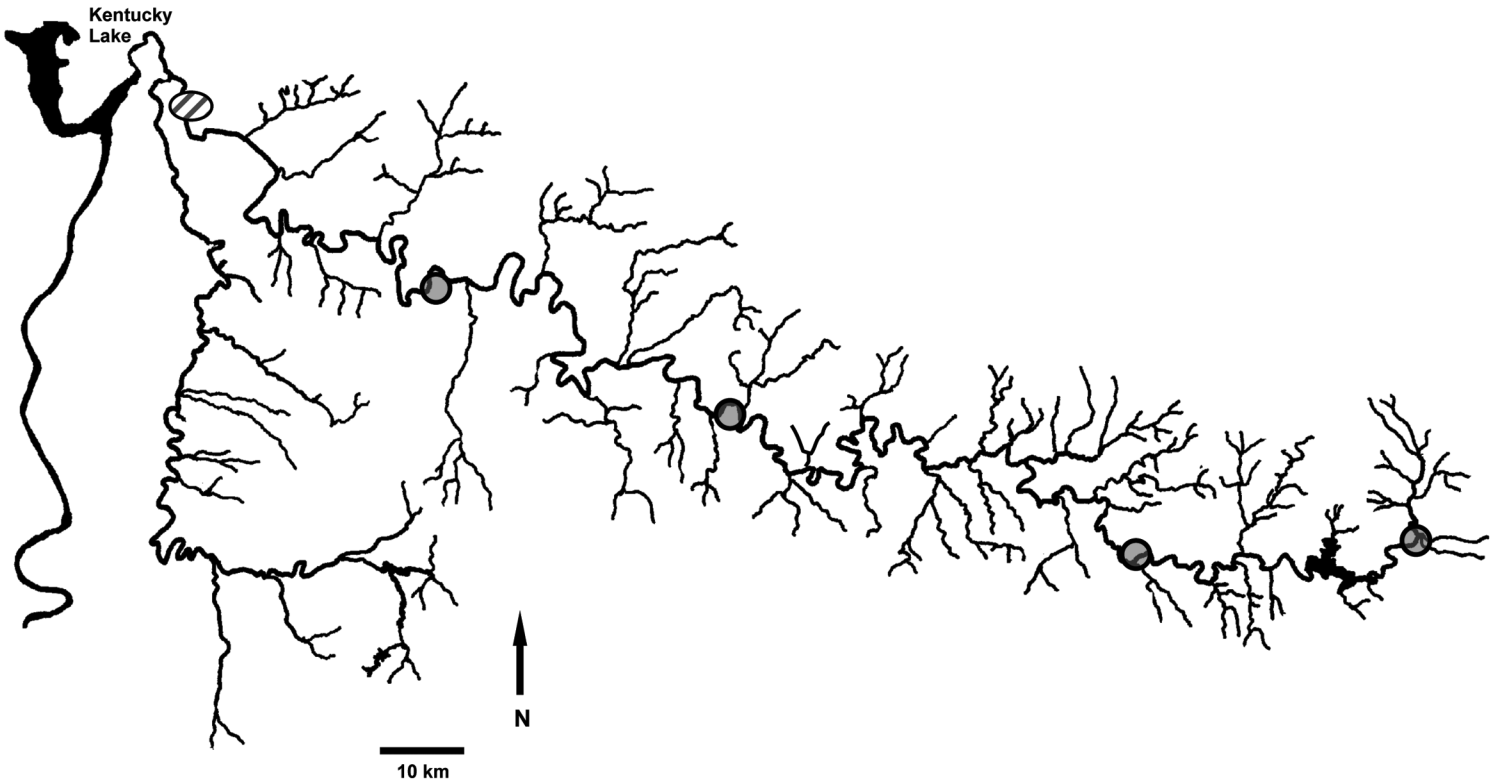


Figure 35— Current distribution of the Ohio Pigtoe, *Pleurobema cordatum* (Rafinesque, 1820), in the Duck River basin. Sample data collected by Schilling and Williams, 2002, and the record is represented by shell material only.

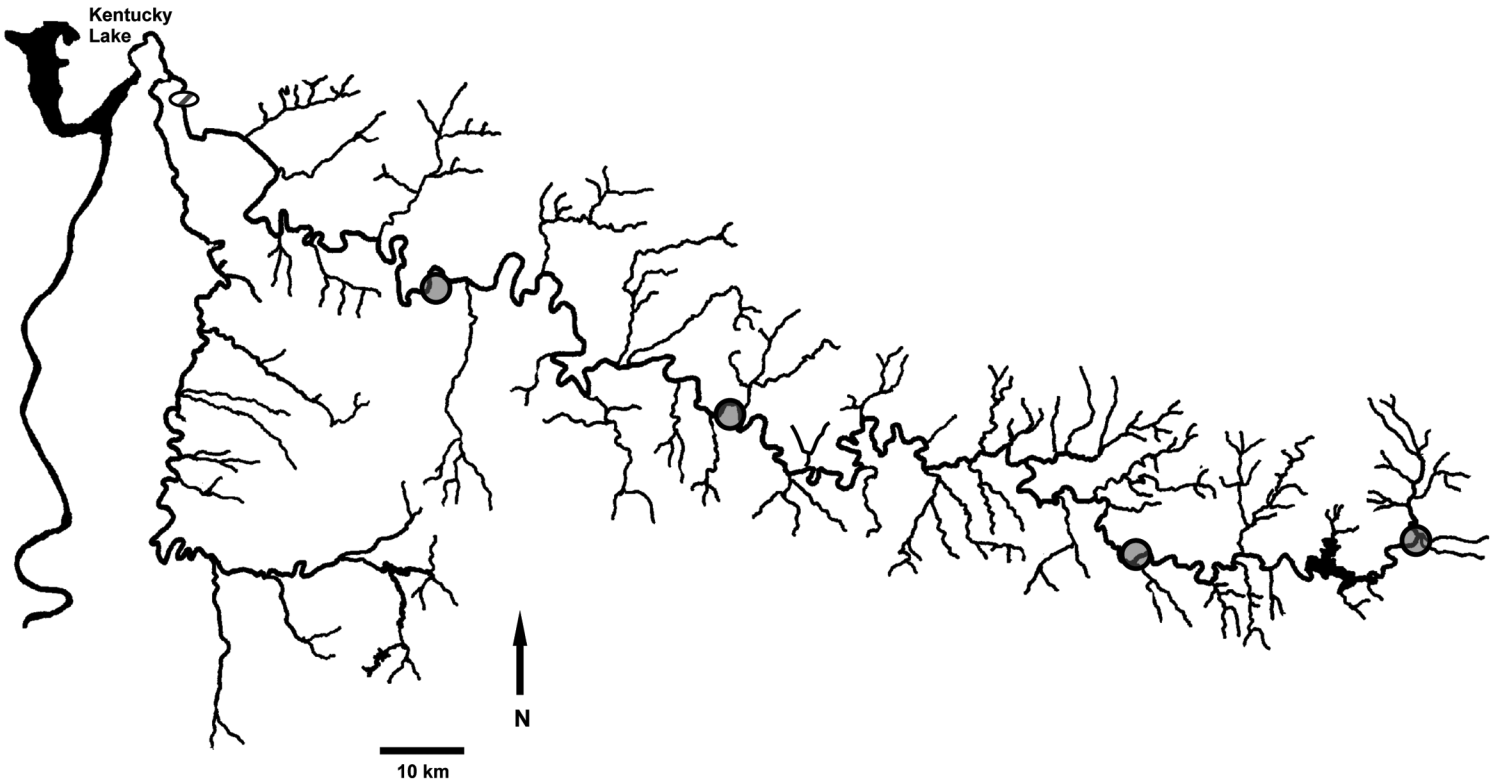


Figure 36— Current distribution of the Tennessee Clubshell, *Pleurobema oviforme* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

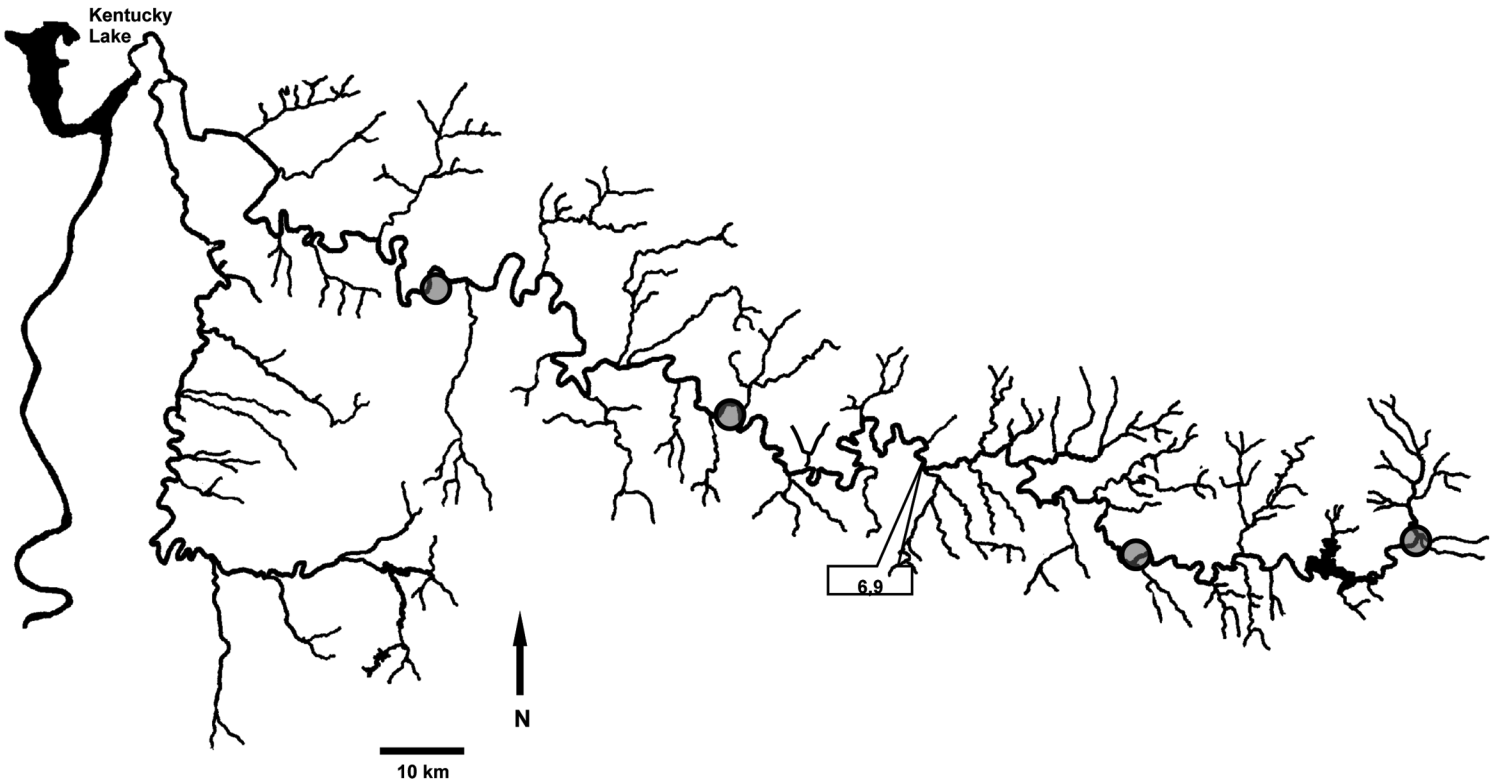
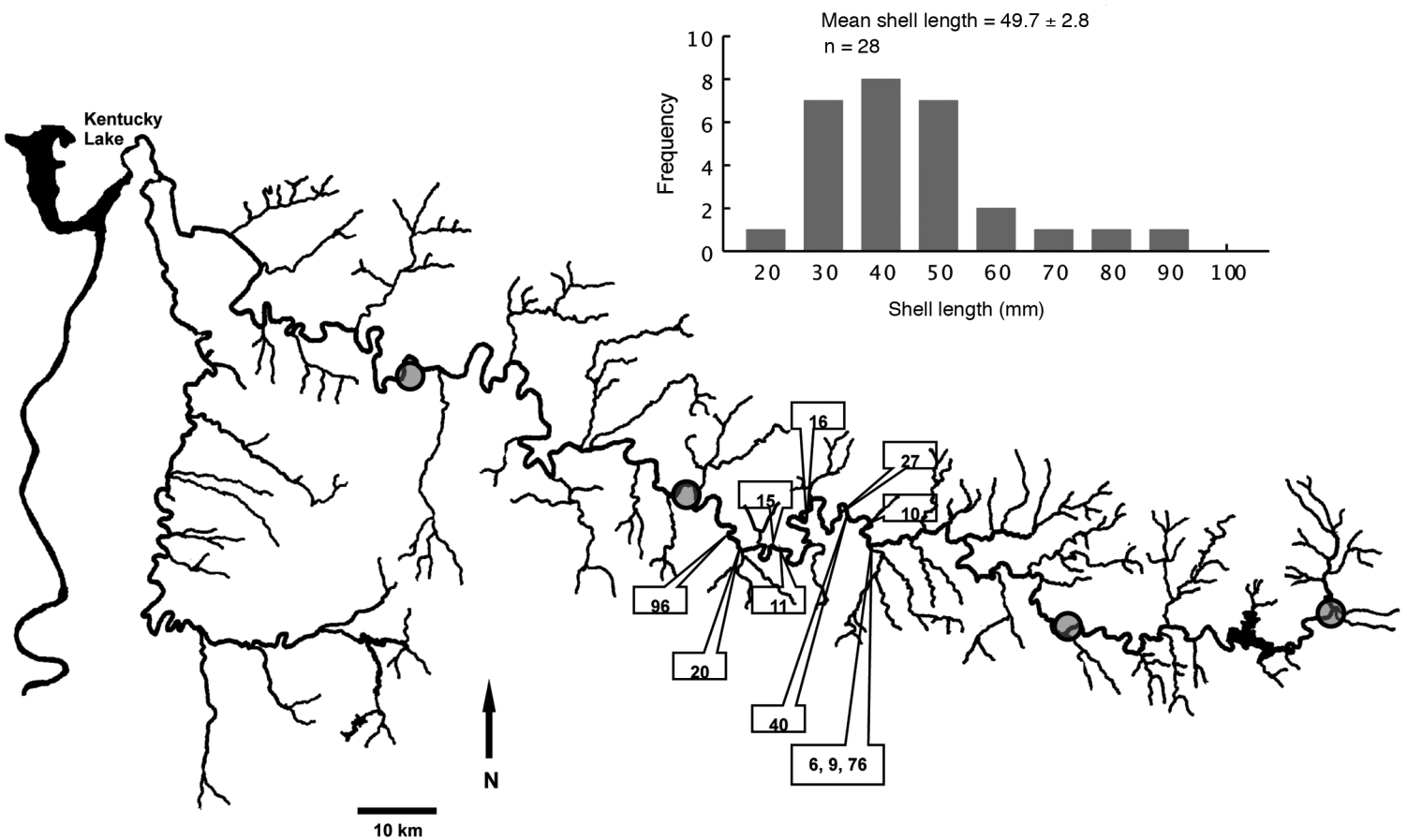


Figure 37— Current distribution of the Pyramid Pigtoe *Pleurobema rubrum* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Pyramid Pigtoe was sampled at localities: 12, 17, 18, 21, 30, 32, 33, 34, 39, 95, that are not indicated on the map.



river than its sympatric congeners of the *P. cordatum* complex (i.e., *P. cordatum, P. sintoxia*). It was also probably undifferentiated from these species in certain surveys. During our survey, it was generally distributed but rare in the upper Duck from Lillard Mill Dam downstream nearly to the old Columbia Dam (Fig. 37). This species is a candidate for restoration. Williams *et al*. (1993) considered it threatened.

Pleurobema sintoxia (Rafinesque, 1820) Round Pigtoe, Fig. 38

The Round Pigtoe is another wide-ranging *Pleurobema*. It was first reported from the Duck River at Columbia as a museum record collected by B. Shimek in 1891 (USNM 540303, Appendix 3). Historical surveys may have confused this species with its congeners of the *P. cordatum* complex (see previous accounts, Table 7). We found a single live individual (89.7 mm) below Hardison Mill Dam (TNC 18). This species is a candidate for restoration in the river. Although Williams *et al*., (1993) considered it stable it's rare in the Tennessee River system.

Potamilus alatus (Say, 1817) Pink Heelsplitter, Fig. 39

This widely distributed species was reported in most previous surveys of the river (Table 7). It is generally distributed, relatively common, and found throughout the length of the river from Tarpley Bluff (TNC 23) down to nearly the mouth of the river (Schilling and Williams 2002, Fig. 39). Williams *et al*., (1993) considered it currently stable.

Potamilus ohiensis (Rafinesque, 1820) Pink Papershell, Fig. 40

The Pink Papershell is another wide-ranging *Potamilus* that may be a recent invader in the Duck. A 1965 record (OSUM 34199) by Isom and Yokley (1968) was either misidentified or omitted from their report, and represents the only historical record (Appendix 3). Although we did not find it, Schilling and Williams, (2002) found it occasionally in the lower river (Fig. 39). Williams *et al*. (1993) considered it currently stable.

Ptychobranchus fasciolaris (Rafinesque, 1820) Kidneyshell, Fig. 41

The widely distributed Kidneyshell was reported in all previous surveys of the river but not found in the lower river (Schilling and Williams, 2002; Table 7). We found it occasionally in the lower portion of the upper river below Lillard Mill Dam and sporadic in the lower river below old Columbia Dam (Fig. 40). Collections for this species are somewhat rare (Appendix 3). The Kidneyshell is a candidate for restoration particularly in the upper river. Williams *et al*., (1993) considered it currently stable.

Ptychobranchus subtentum (Say, 1825) Fluted Kidneyshell

Ortmann (1924) was the last investigator to publish a record of this Cumberlandian endemic, although a 1965 record (OSUM 16235) is available from collections made, but unpublished, by Isom and Yokley (1968) (Appendix 3, Table 7). During our survey only relic shells were found and it is likely extirpated from the river. The Fluted Kidneyshell is a candidate for restoration in the Duck and a candidate for protection under the ESA.

Figure 38— Current distribution of the Round Pigtoe, *Pleurobema sintoxia* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

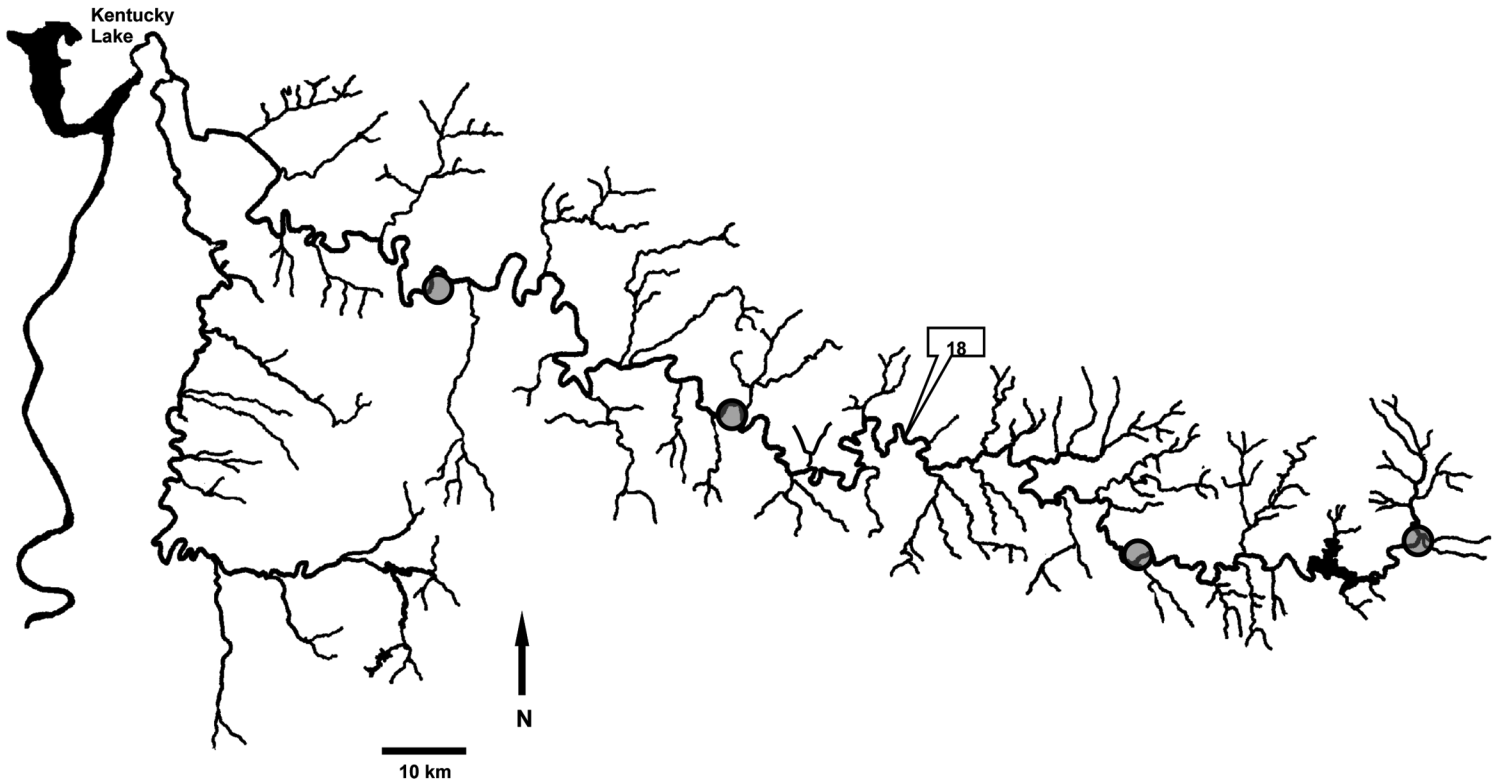
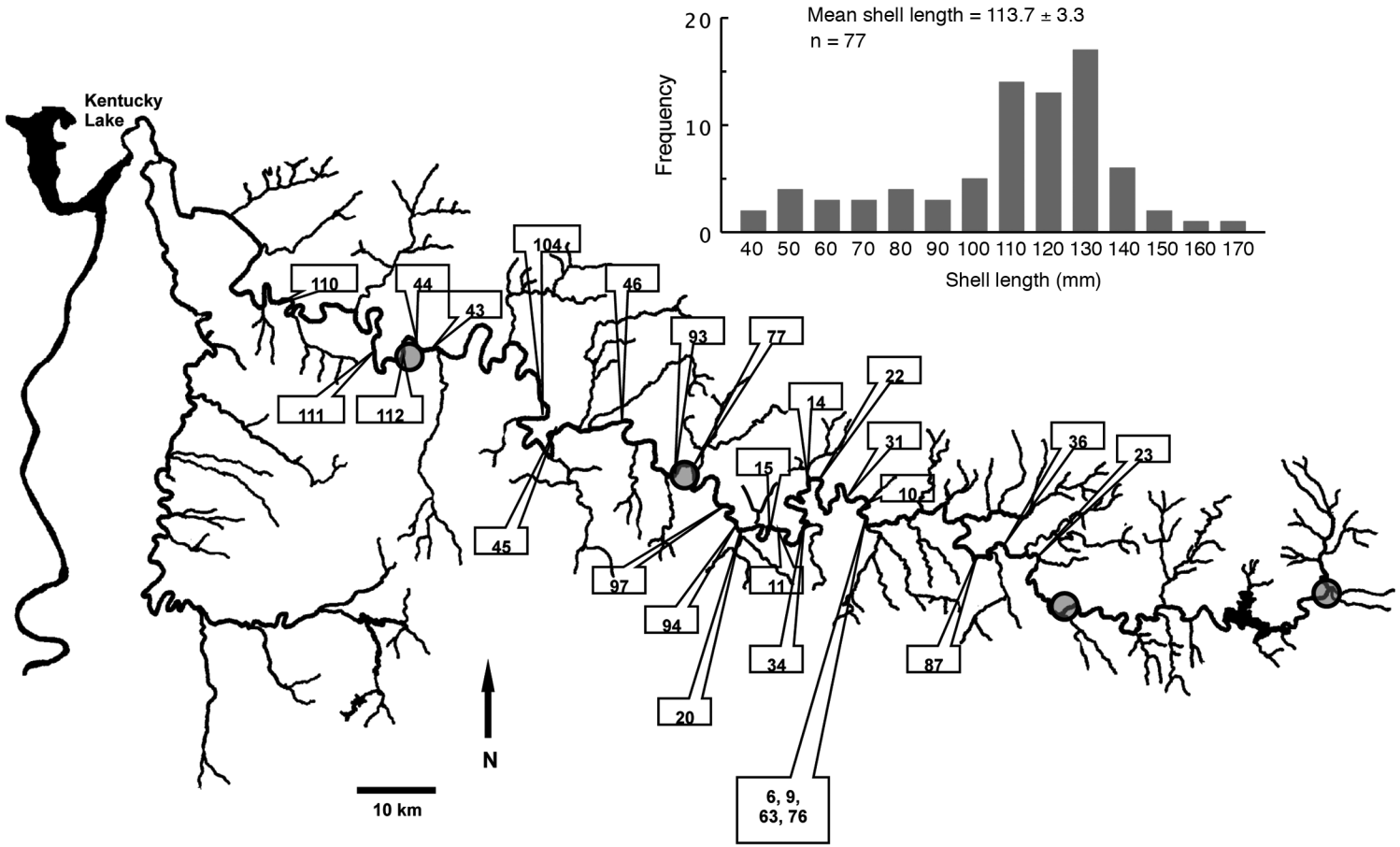


Figure 39— Current distribution of the Pink Heelsplitter, *Potamilus alatus* (Say, 1817), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Pink Heelsplitter was sampled at localities: 13, 16, 17, 18, 21, 27, 30, 32, 33, 39, 40, 42, 78, 92, 95, 103, that are not indicated on the map.



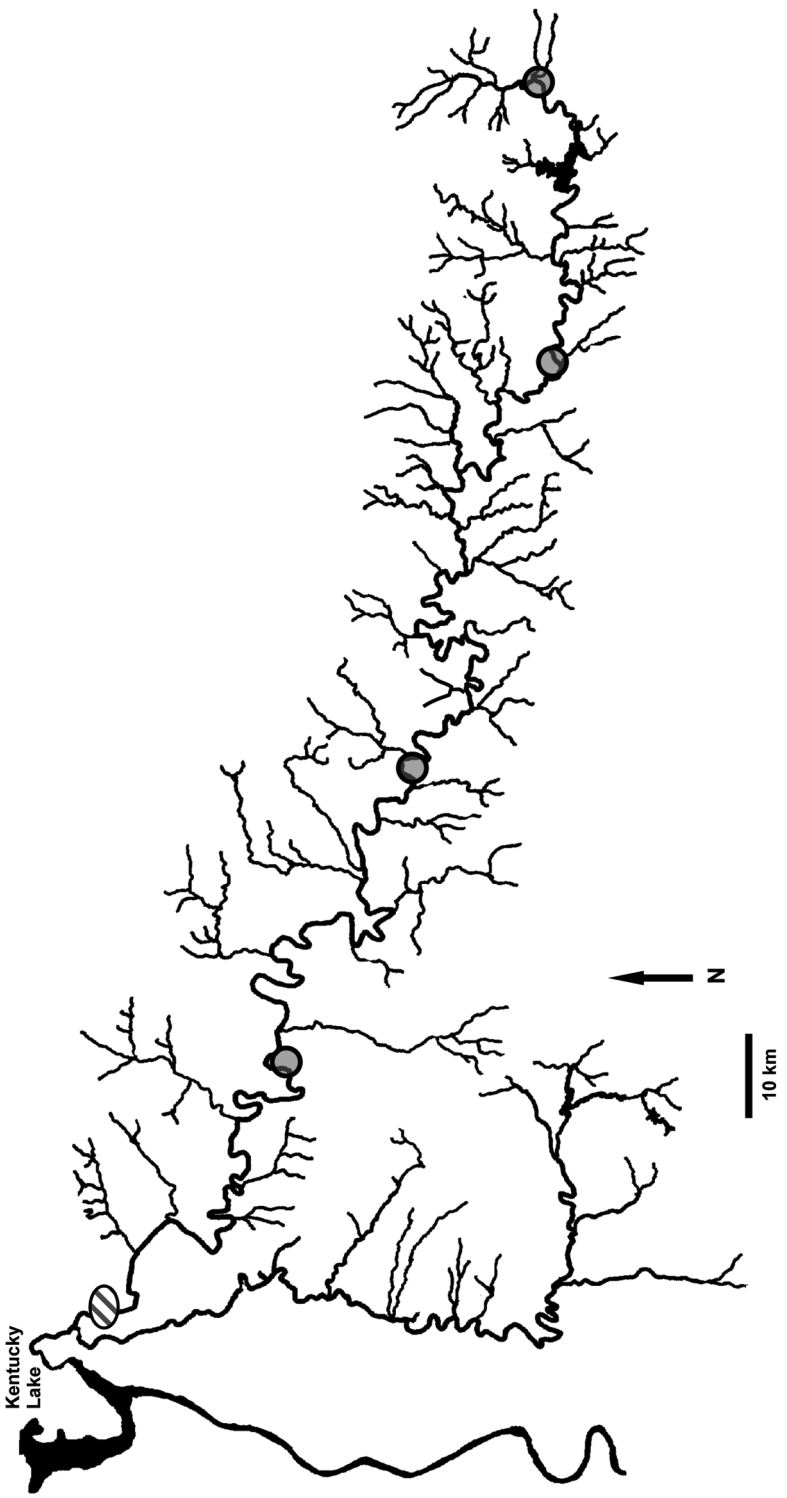
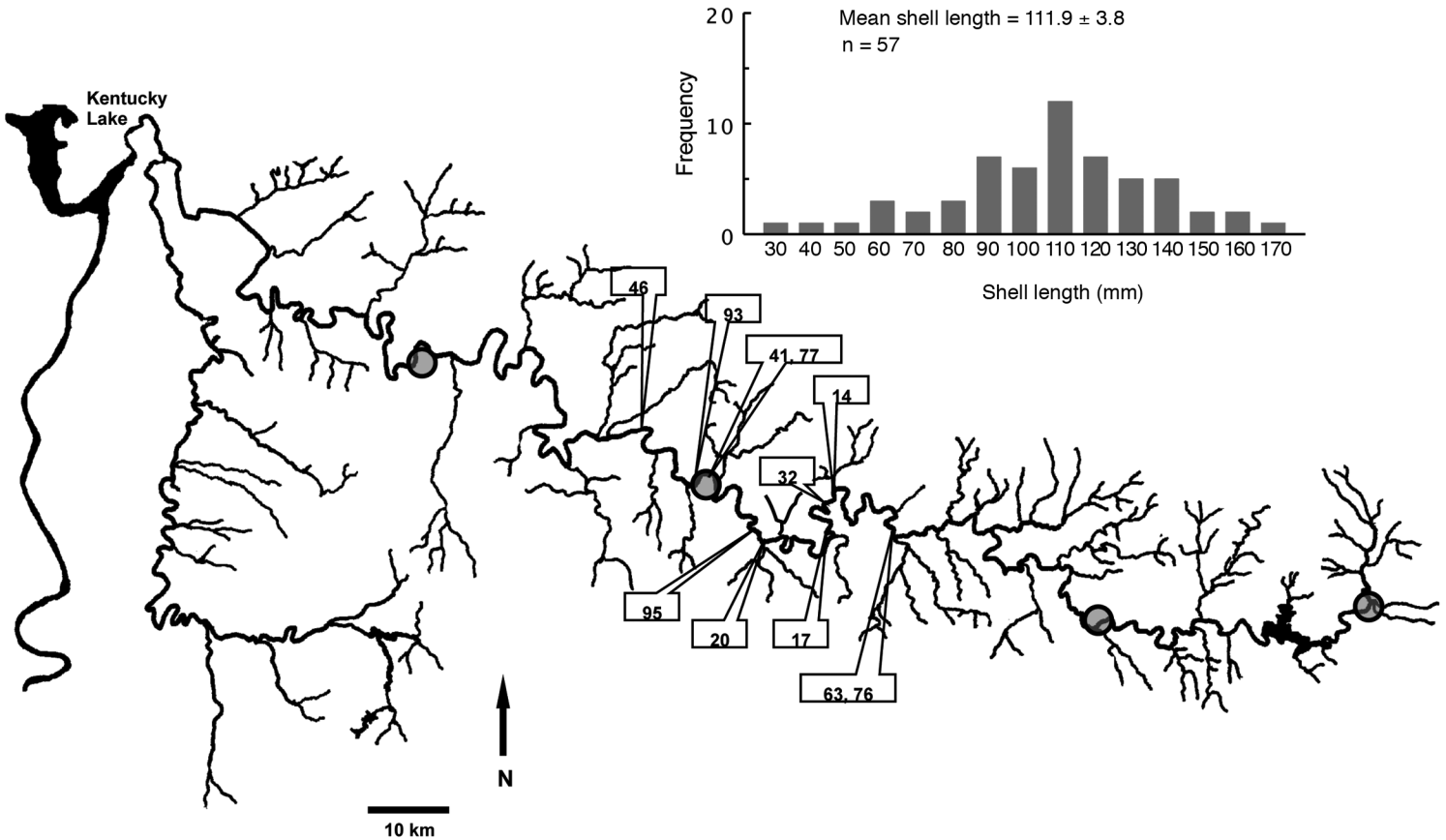


Figure 40— Current distribution of the Pink Papershell, *Potamilus ohiensis* (Rafinesque, 1820), in the Duck River basin. Sample data collected by Schilling and Williams, 2002.

Figure 41— Current distribution of the Kidneyshell, *Ptychobranchus fasciolaris* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Kidneyshell was sampled at localities: 16, 21, 42, 78, 92, that are not indicated on the map.



Pyganodon grandis (Say, 1829) Giant Floater, Fig. 42

The Giant Floater is a very widely distributed species that was reported by most historical and recent investigators (Table 7). It is occasionally distributed but its pool and backwater habitats in soft substrates were under-sampled (Fig. 42). Historically the species was found in several tributary drainages (Appendix 3). Williams *et al*. (1993) considered it currently stable.

Quadrula apiculata (Say, 1829) Southern Mapleleaf, Fig. 43

The Southern Mapleleaf is a recent invader of the Duck apparently having been introduced into the lower Tennessee River from southern drainages by commercial mussel-fishermen (Parmalee and Bogan, 1998, Garner and McGregor, 2001). No historical records of the species were found in our search of museum material (Appendix 3). The mussel is considered sporadic and rare in the Duck (Fig. 43). Williams *et al*. (1993) considered it currently stable.

Quadrula cylindrica cylindrica (Say, 1817) Rabbitsfoot, Fig. 44

The wide-ranging Rabbitsfoot was reported in all previous surveys (Table 7, Appendix 3). This sub-species is generally distributed in the upper river and occasional downstream (Fig. 44). Major populations were found at some sites (e.g., Venable Spring TNC 10). Its distinctive habitat is in shallow, low-flow shoreline areas. The Rabbitsfoot population in the Duck River represents one of the best-known range-wide and is a candidate for restoration in the river. Williams *et al*. (1993) considered it threatened.

Quadrula fragosa (Conrad, 1835) Winged Mapleleaf

The once widely distributed species was last reported in the early 1900s (Ortmann, 1924, UMMZ 75809). Relic shells were collected in 1990 and 1991 at Wilhoite Mills and Lillard Mill Dam (OSUM 30638 and 30653, Appendix 3). The Winged Mapleleaf is now extirpated from the entire Ohio River system. This species is a candidate for restoration and is currently listed as endangered under the ESA.

Quadrula intermedia (Conrad, 1836) Cumberland Monkeyface, Fig. 45

This Cumberlandian endemic was reported in all previous surveys (Table 7) but not in the lower river (Schilling and Williams, 2002). The Cumberland Monkeyface is restricted to an approximately 22 mile reach of upper-river from Lillard Mill Dam to Jackson's Bend where it is generally distributed but rare (Fig. 45, Appendix 1). This is an increase of 9 miles from previous surveys (1977), and numbers increased over 7 fold. The Duck has the best remaining population range-wide of this species. It is a candidate for restoration in the river and is currently listed as endangered under the ESA.

Quadrula metanevra (Rafinesque, 1820) Monkeyface, Fig. 46

The monkeyface is a wide-ranging, large-river species restricted in distribution to the lower Duck River and may account for its absence from early surveys in more upstream reaches (Table 7). Our inventory of museum records consisted of five lots of the Monkeyface in the Duck River (Appendix 3). The species is generally distributed in the lowermost river (Schilling and

Figure 42— Current distribution of the Giant Floater, *Pyganodon grandis* (Say, 1829), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The giant floater was sampled at locality 64 that is not indicated on the map.

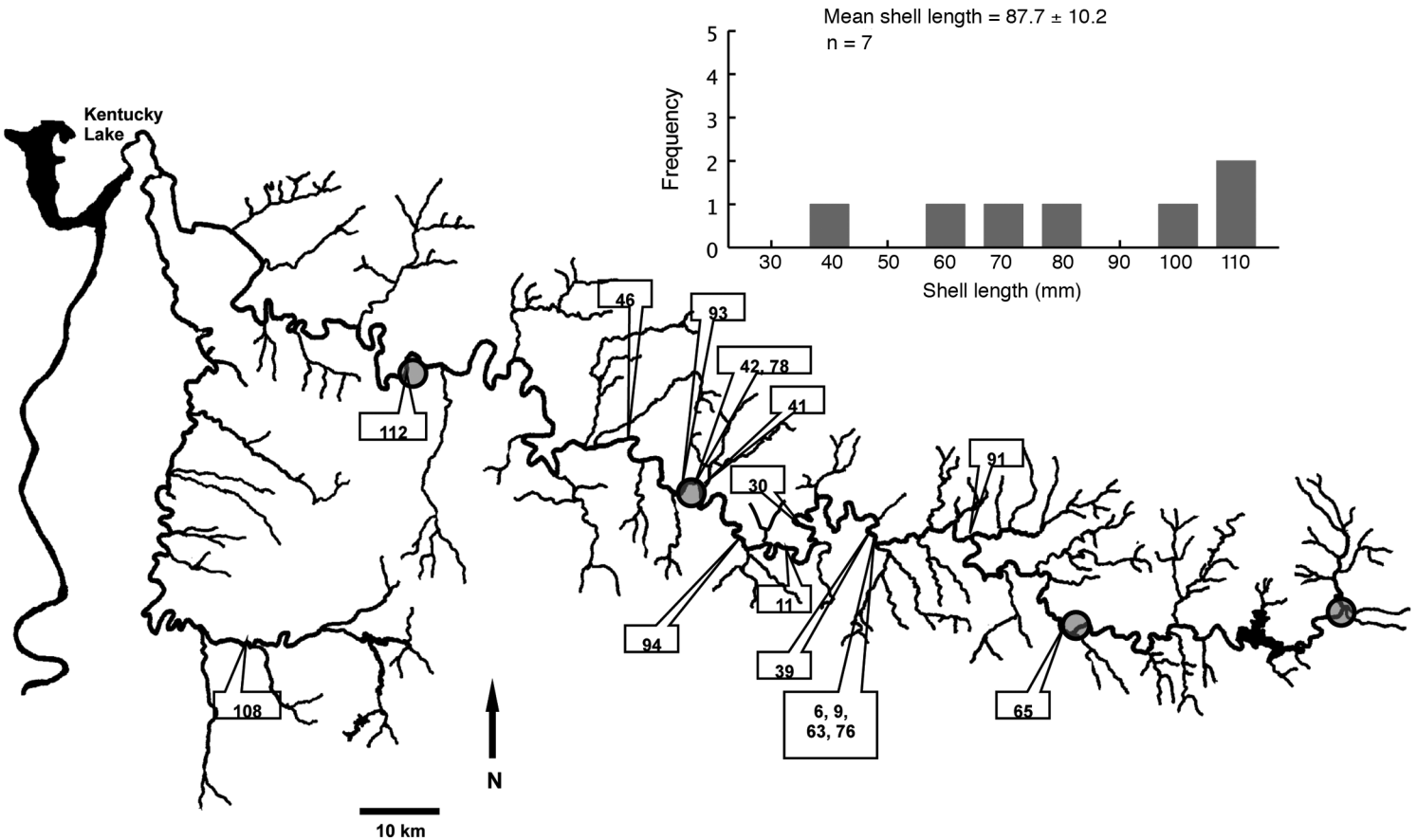


Figure 43— Current distribution of the Southern Mapleleaf, *Quadrula apiculata* (Say, 1829), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

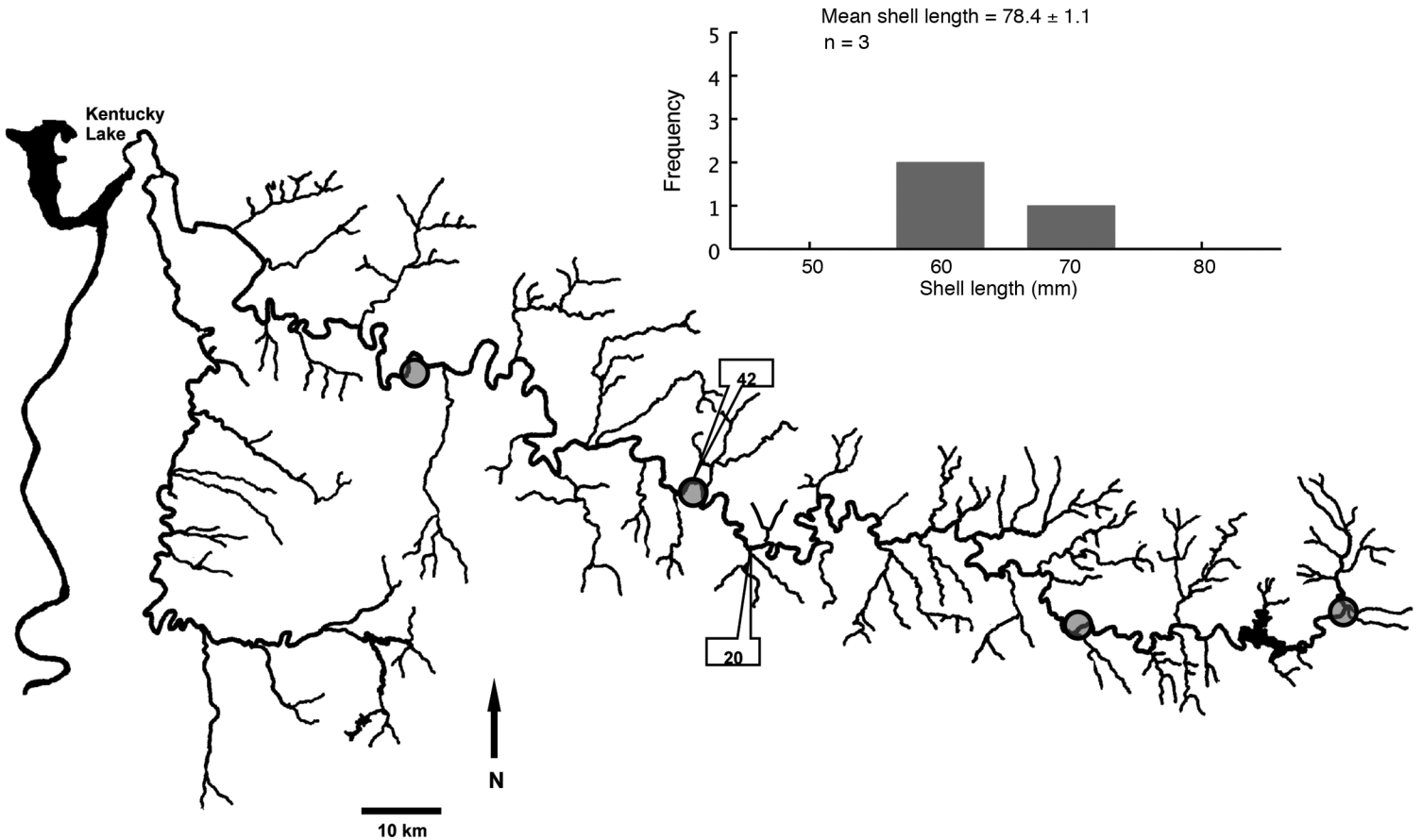


Figure 44— Current distribution of the Rabbitsfoot, *Quadrula cylindrica cylindrica* (Say, 1817), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Rabbitsfoot was sampled at localities: 12, 13, 16, 17, 18, 19, 21, 27, 30, 31, 32, 33, 39, 40, 95, that are not indicated on the map.

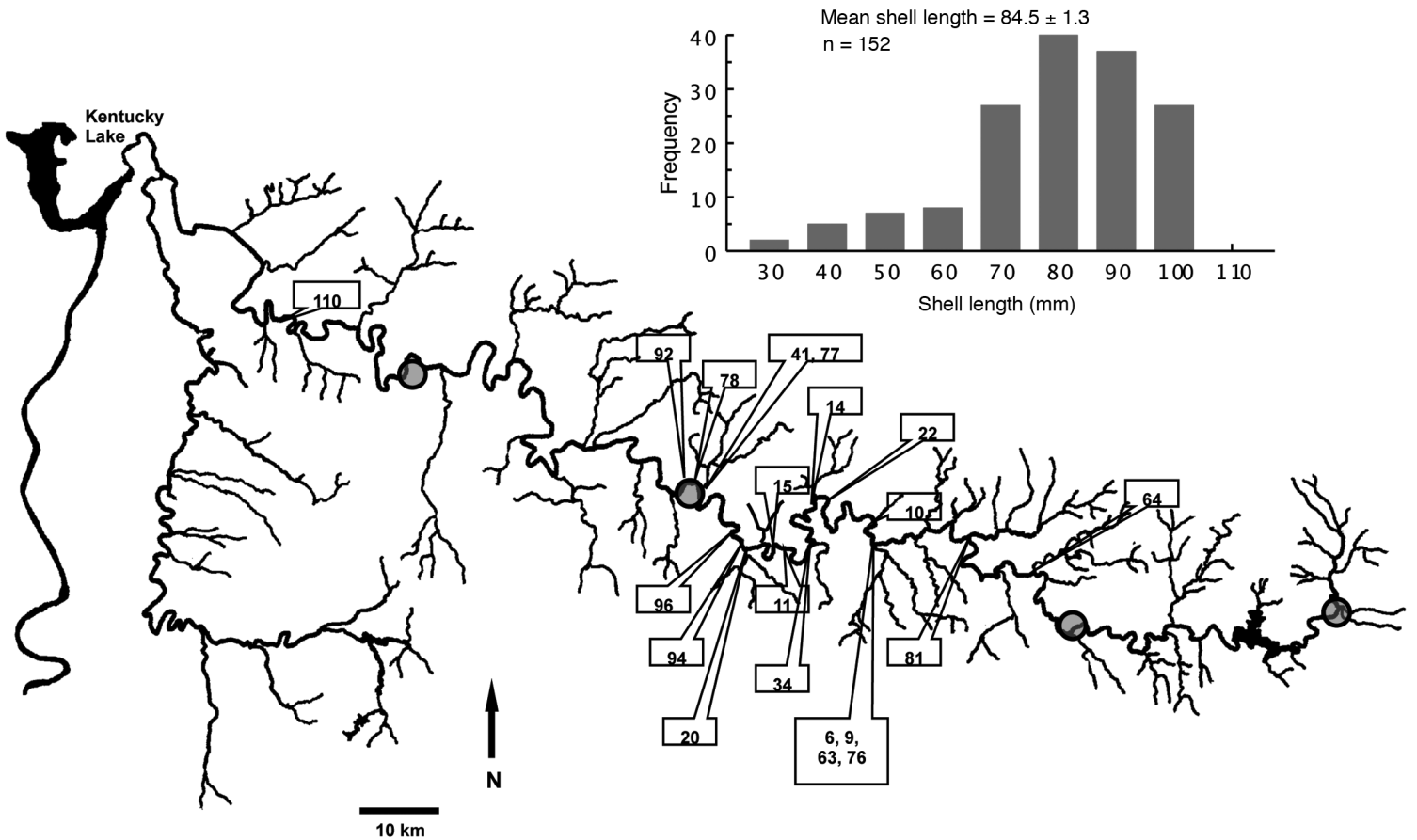
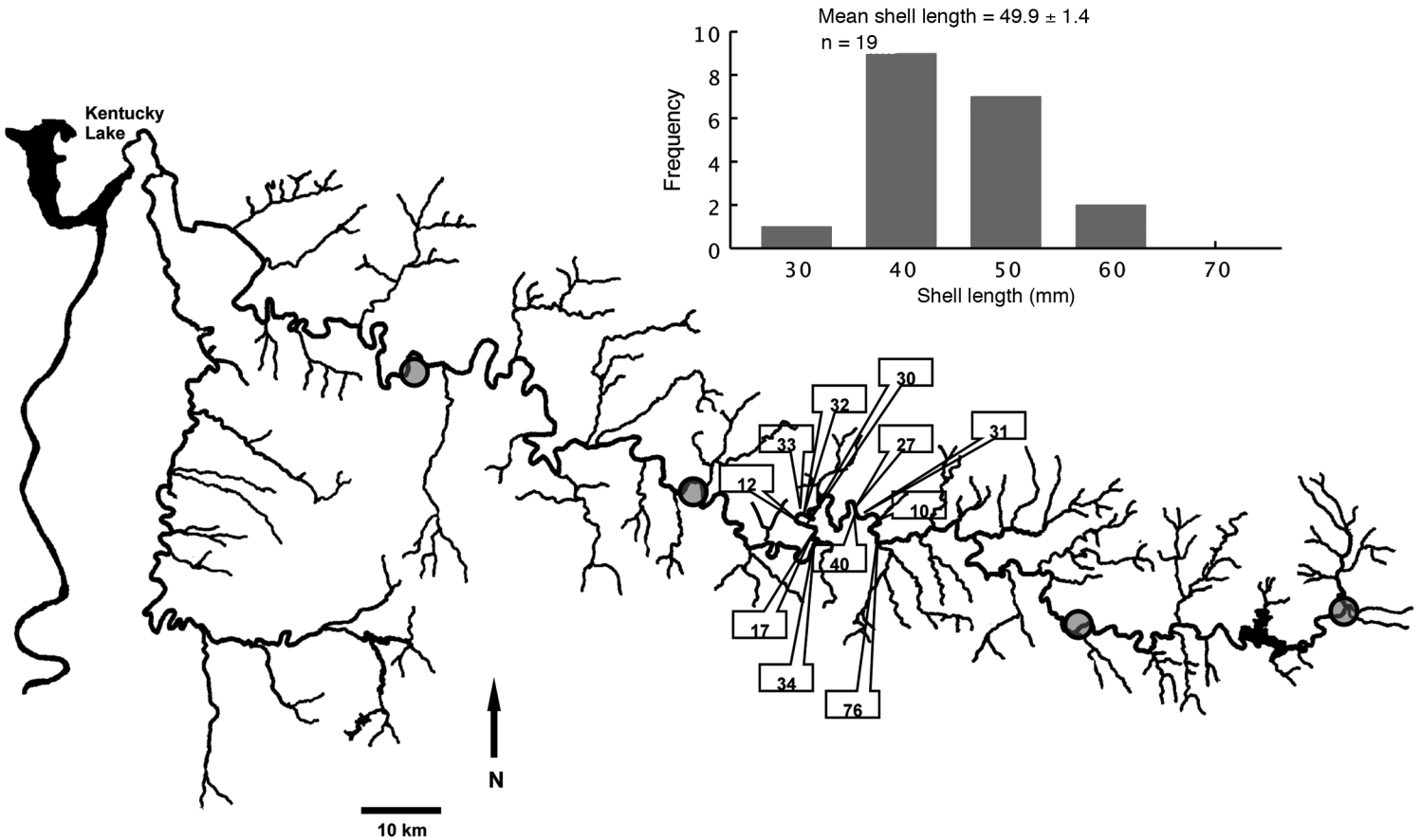


Figure 45— Current distribution of the Cumberland Monkeyface, *Quadrula intermedia* (Conrad, 1836), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.



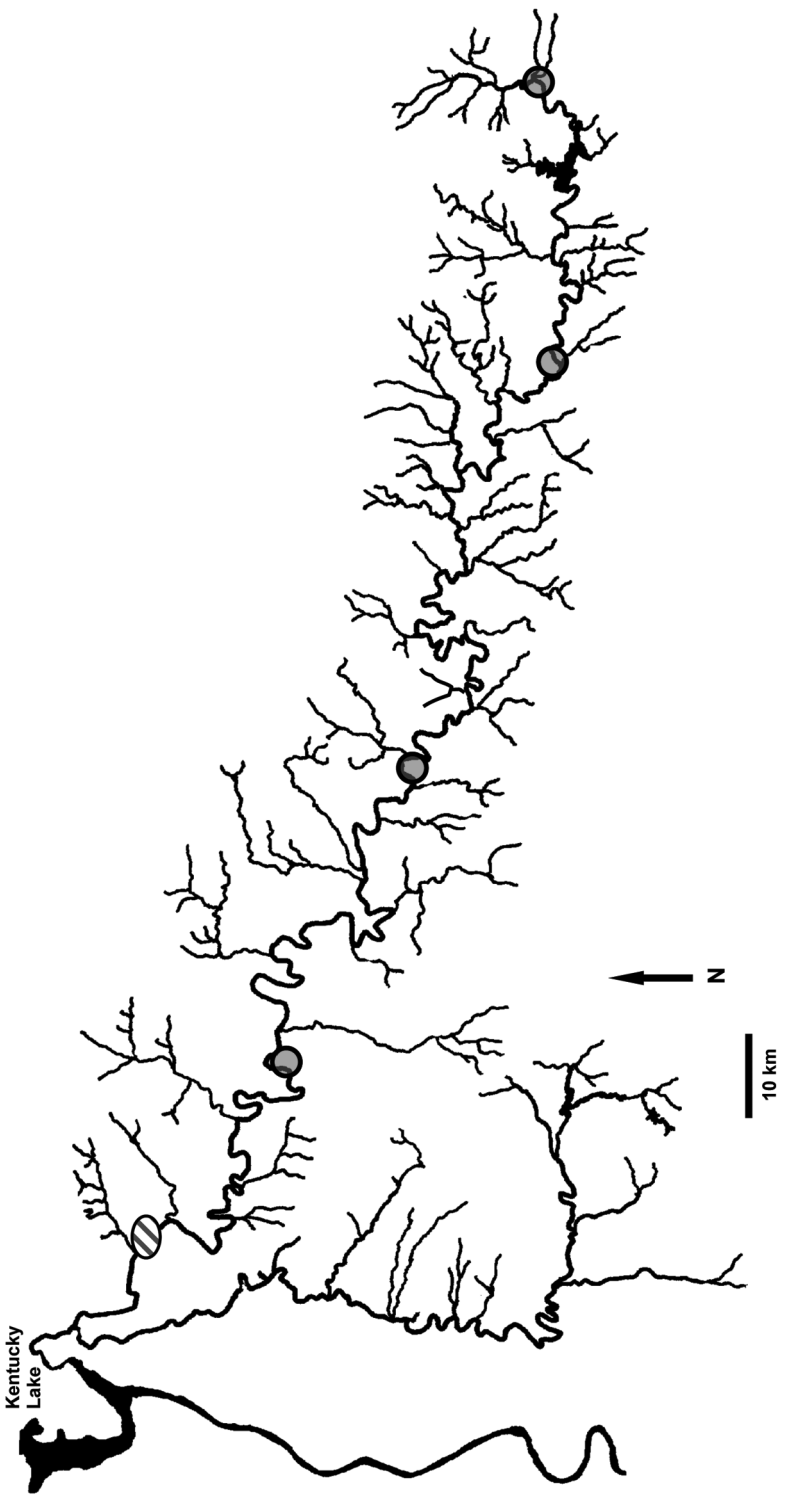


Figure 46— Current distribution of the Monkeyface, *Quadrula metanevra* (Rafinesque, 1820), in the Duck River basin. Sample data collected by Hubbs, 1999, and Schilling and Williams, 2002.

Williams, 2002, D. W. Hubbs, TWRA, pers. comm., Fig. 46). This species is a candidate for restoration in the lower river. Williams *et al*., (1993) considered it currently stable.

Quadrula pustulosa (I. Lea, 1831) Pimpleback, Fig. 47

The very wide-ranging Pimpleback was reported in all previous surveys (Table 7). It is generally distributed (Fig. 47) and one of the most common mussels in the river comprising nearly 6% of all mussels sampled (Appendix 1). Williams *et al*. (1993) considered it currently stable.

Quadrula quadrula (Rafinesque, 1820) Mapleleaf, Fig. 48

Another species with a widespread distribution, the mapleleaf was reported in most historical surveys (Table 7). This species is occasional in the upper river below Lillard Mill Dam and downstream from the old Columbia Dam (Fig. 48) but is more generally distributed in the lowermost river (Schilling and Williams, 2002). Most historical records place the species below Columbia, but there is one occurrence at Hardison Mill (UMMZ 58350, Appendix 3). It is a candidate for restoration in the upper river. Williams *et al*., (1993) considered it currently stable.

Strophitus undulatus (Say, 1817) Creeper, Fig. 49

The Creeper is widespread and was reported in all previous surveys (Table 7) except for the lower river (Schilling and Williams, 2002). It is occasional throughout the river but never common (Fig. 48). However, the current distribution is nearly identical to historical records (Appendix 3). Williams *et al*., (1993) considered it currently stable.

Toxolasma cylindrellus (I. Lea, 1868) Pale Lilliput

A Cumberlandian endemic, the Pale Lilliput was first reported in the Duck River in the original description by I. Lea. Except for Ortmann (1924), subsequent investigators often failed to differentiate this species from the very similar Purple Lilliput making its collection history in the Duck problematic (Table 7). For instance, van der Schalie (1939, 1973) combined the two species, while Isom and Yokley (1968) misidentified some Pale Lilliput specimens (OSUM 33121). The last confirmed records for the Pale Lilliput were by H. D. Athearn in 1970 (MFM 21686) and 1980 (MFM 6911A) (Appendix 3). This species is extirpated from the Duck River but is a candidate for restoration in the upper river. It is listed as endangered under the ESA.

Toxolasma lividus (Rafinesque, 1820) Purple Lilliput, Fig. 50

The Purple Lilliput is a fairly wide-ranging mussel first reported in the Duck River by Ortmann (1924) (see Pale Lilliput account). The Purple Lilliput was also found during several other historical investigations (Table 7). This species is occasional and uncommon in the upper river from Lillard Mill Dam downstream to below the old Columbia Dam (Fig. 50). The Purple Lilliput is a candidate for restoration and Williams *et al*. (1993) considered it special concern.

Tritogonia verrucosa (Rafinesque, 1820) Pistolgrip, Fig. 51

Another species with a widespread distribution, the Pistolgrip was reported in all previous surveys. It is generally distributed throughout the Duck and we found it to be one of the most common species encountered (Fig. 51). We do not follow the advice of Serb *et al*. (2003) in

Figure 47— Current distribution of the Pimpleback, *Quadrula pustulosa* (Conrad, 1835), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Pimpleback was sampled at localities: 11, 12, 13, 16, 17, 18, 21, 27, 30, 31, 32, 33, 39, 42, 78, 94, 95, 103, that are not indicated on the map.

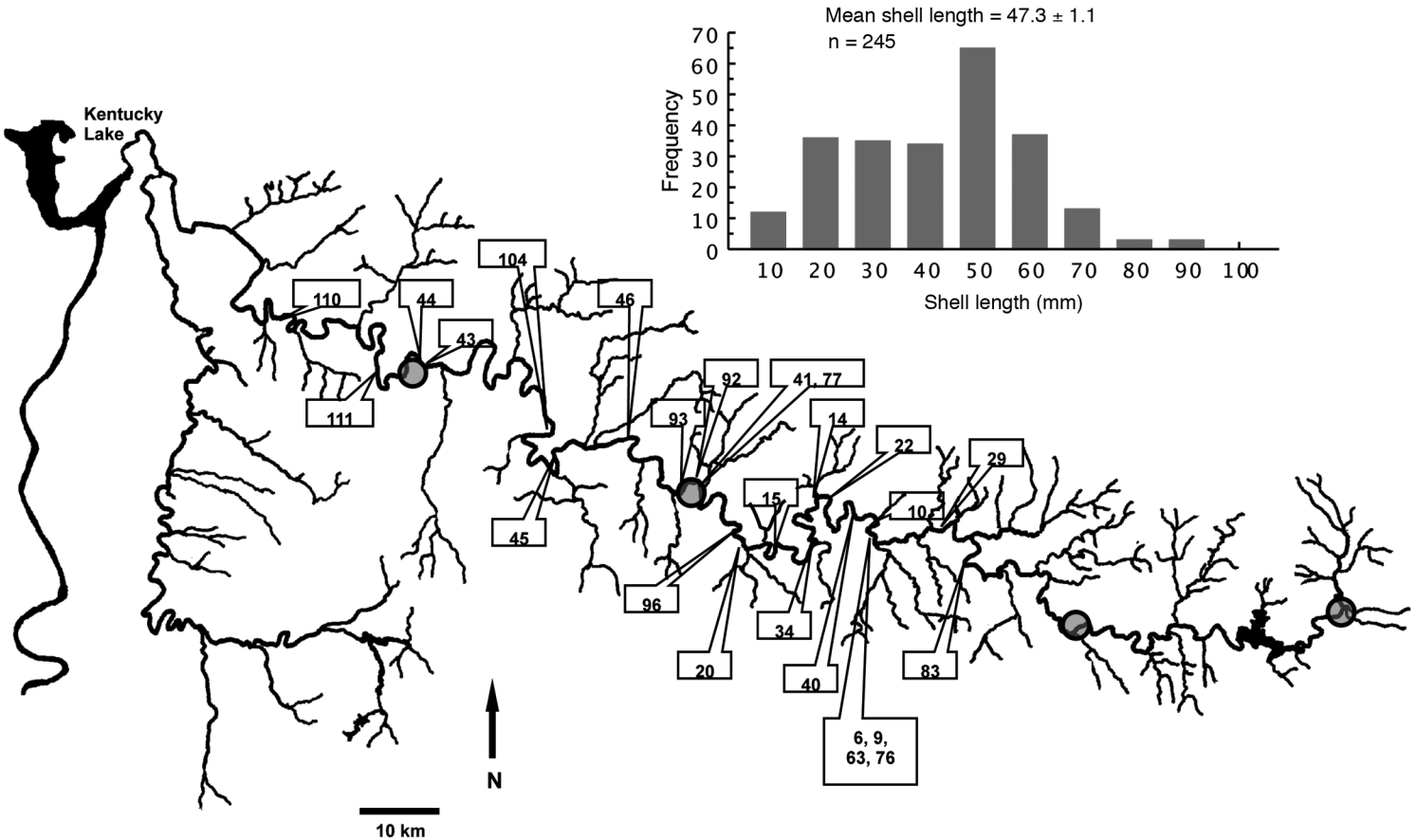


Figure 48— Current distribution of the Mapleleaf, *Quadrula quadrula* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

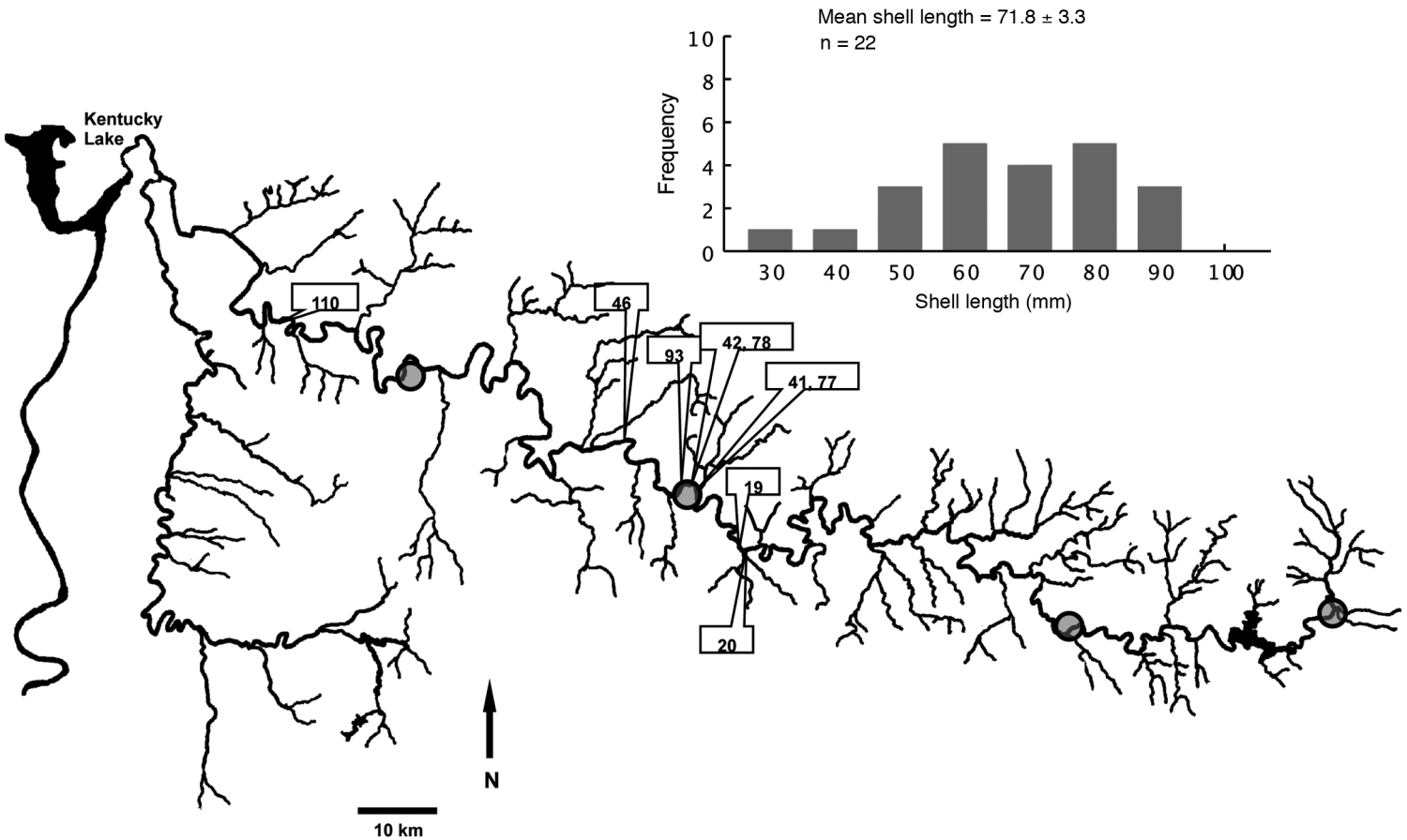


Figure 49— Current distribution of the Creeper, *Strophitus undulatus* (Say, 1817), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Creeper was sampled at localities: 64 and 35, that are not indicated on the map.

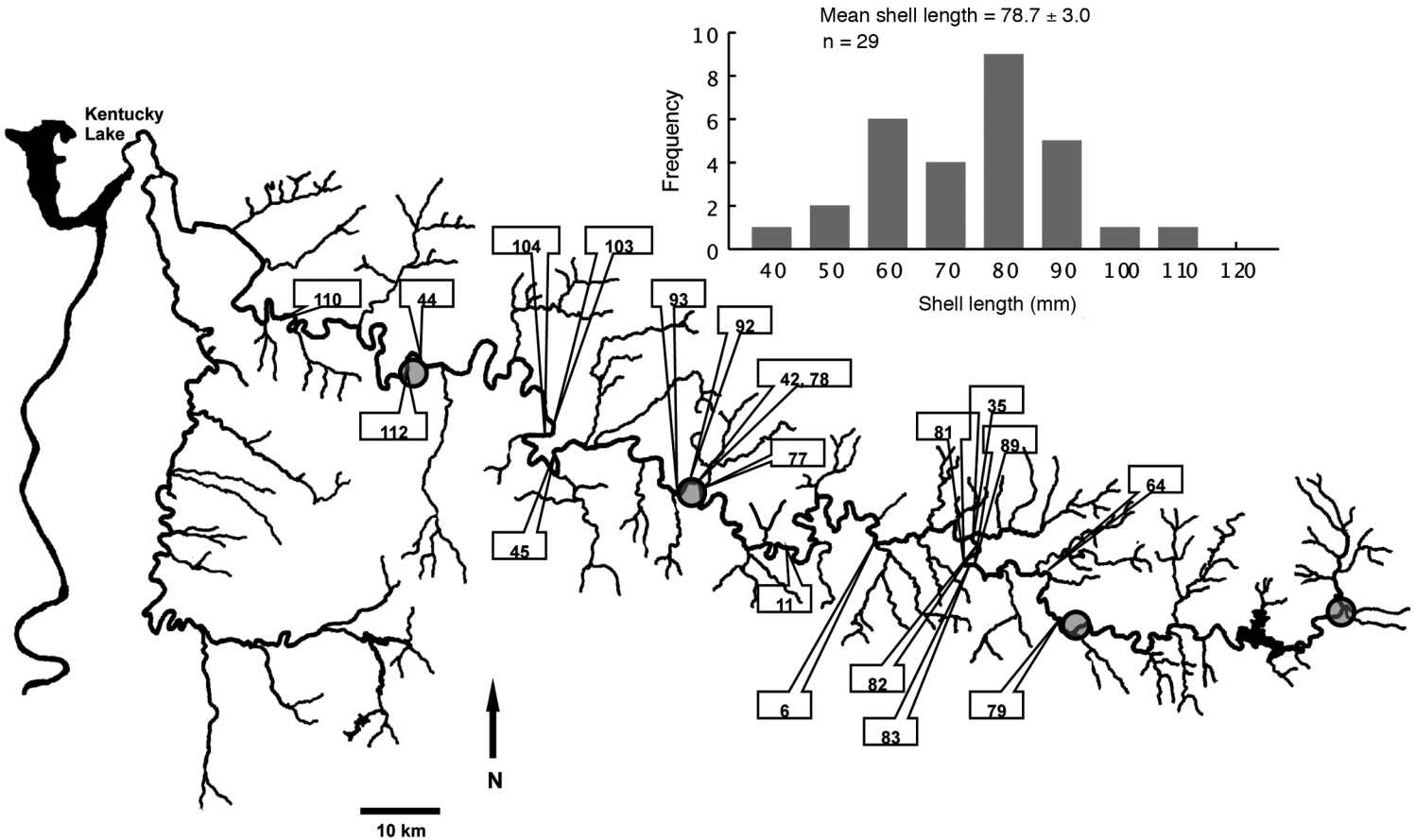


Figure 50— Current distribution of the Purple Lilliput, *Toxolasma lividus* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

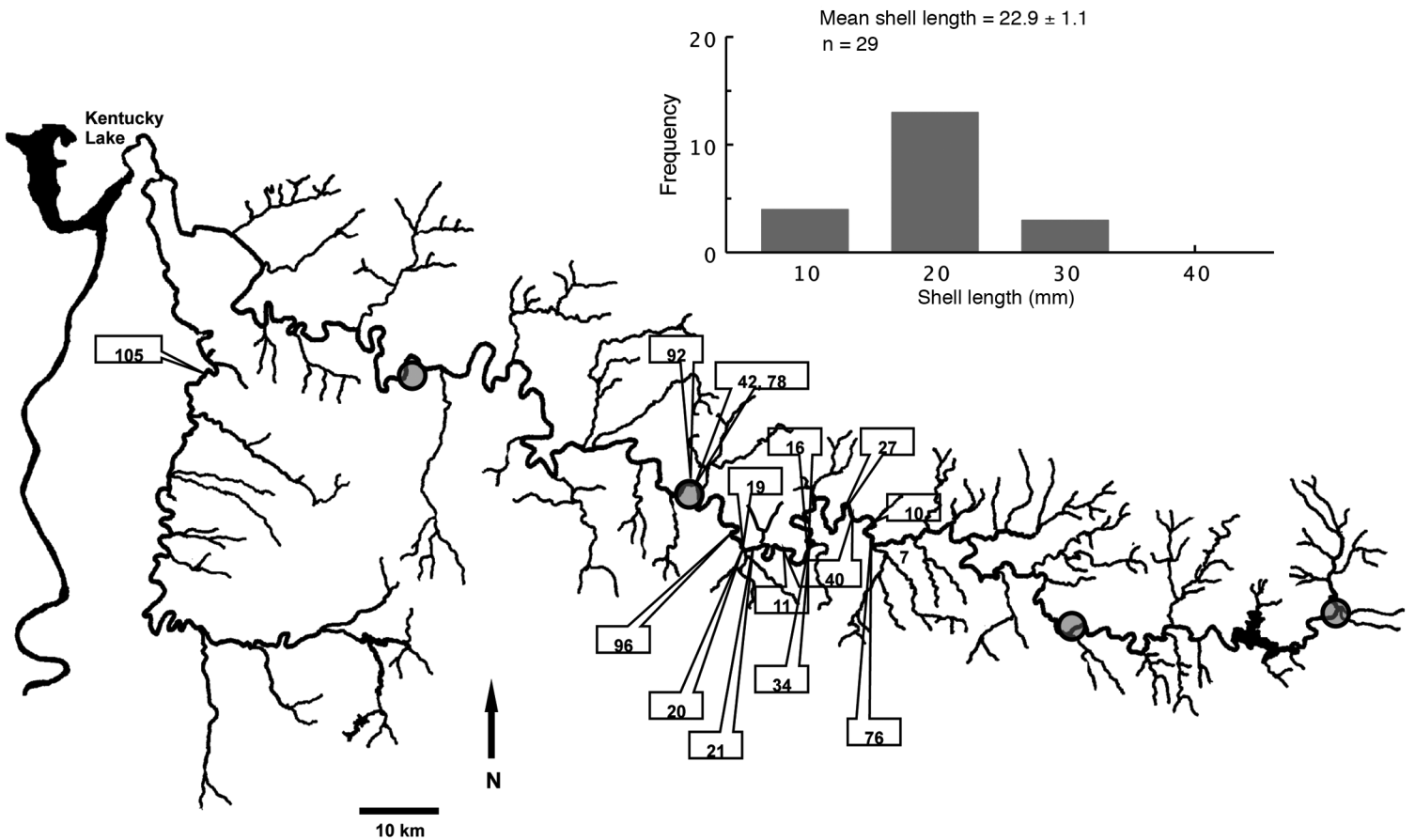
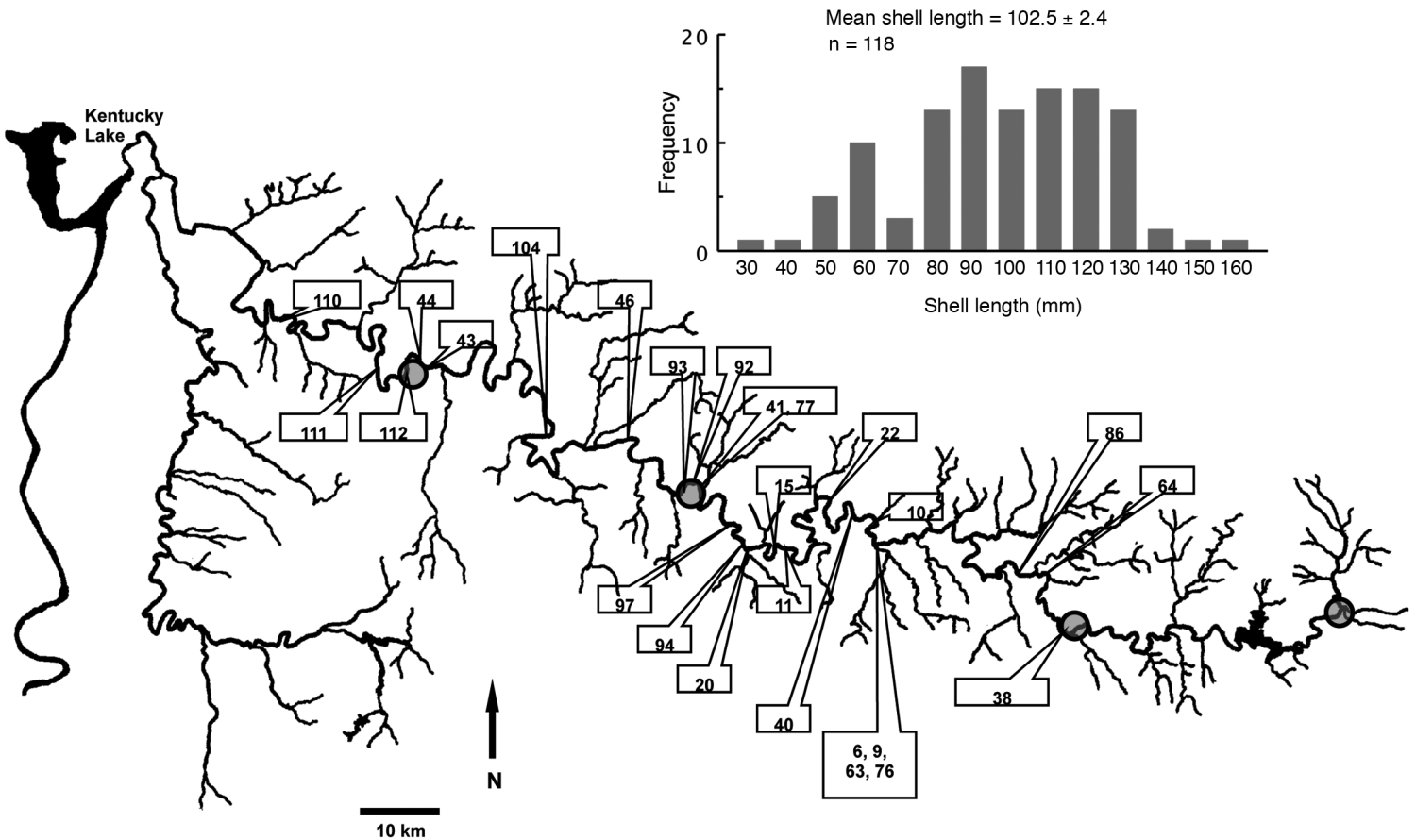


Figure 51— Current range distribution of the Pistolgrip, *Tritogonia verrucosa* (Rafinesque, 1820), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Pistolgrip was sampled at localities: 13, 14, 16, 17, 18, 21, 27, 30, 31, 33, 34, 39, 42, 45, 78, 95, 96, 103 that are not indicated on the map.



collapsing the monotypic genus *Tritogonia* into *Quadrula*, nor Williams, *et al*. 2008. Shell conchological characters and presence of a reproductive lure warrants the genus level distinction. Williams *et al*., (1993) considered it currently stable.

Truncilla donaciformis (I. Lea, 1828) Fawnsfoot, Fig. 52

This widely distributed species was reported in most previous surveys (Table 7). We found it uncommon and occasional in the river (Fig. 52). The Fawnsfoot is often found in pools and backwater mud and sand habitats and may be more generally distributed and common than reported here. Williams *et al*., (1993) considered it currently stable.

Truncilla truncata Rafinesque, 1820 Deertoe, Fig. 53

The Deertoe has a widespread distribution and was reported in all previous surveys (Table 7). We found it generally distributed and one of the most common species in the river (Fig. 53). The Duck River contains possibly the best Deertoe population remaining in the Tennessee River system. Williams *et al*., (1993) considered it currently stable.

Utterbackia imbecillis (Say, 1829) Paper Pondshell, Fig. 54

The Paper Pondshell is widely distributed and a recent invader to the Duck River fauna (e.g., 1960s OSUM records, Appendix 3). Our data and that of Schilling and Williams (2002) indicated that it is occasionally distributed (Fig. 54). However, it may be more generally distributed considering its preference for undersampled pools and backwater mud and sand habitats. Williams *et al*., (1993) considered it currently stable.

Villosa fabalis (I. Lea, 1831) Rayed Bean

The rayed bean, a wide-ranging but imperiled species, was recorded in most early surveys (Table 7). It was last reported in 1982 (2 live) downstream from Lillard Mill Dam (Ahlstedt 1991). However, historical records of the species in the Duck River were not uncommon (Appendix 3). This small mussel is extirpated from the entire Tennessee River system. It is a candidate for restoration in the river and a candidate for protection under the ESA.

Villosa iris (Lea, 1829) Rainbow, Fig. 55

A fairly wide-ranging species, the rainbow was generally overlooked in previous surveys or rarely recorded (Table 7). We found the rainbow uncommon and occasional in the river but apparently absent from the lower river (Schilling and Williams, 2002; Fig. 55). It represents a species complex that needs extensive study to elucidate valid taxonomic boundaries (D. Stansbery, pers. comm.). Williams *et al*., (1993) considered it currently stable.

Villosa taeniata (Conrad, 1834) Painted Creekshell, Fig. 56

This Cumberlandian endemic is reported from the Duck by most historical investigators (Table 7). Additionally, there are few historical records from tributaries (Appendix 3). The Painted Creekshell is generally distributed and common in the upper river but sporadic in the

Figure 52— Current distribution of the Fawnsfoot, *Truncilla donaciformis* (I. Lea, 1828), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

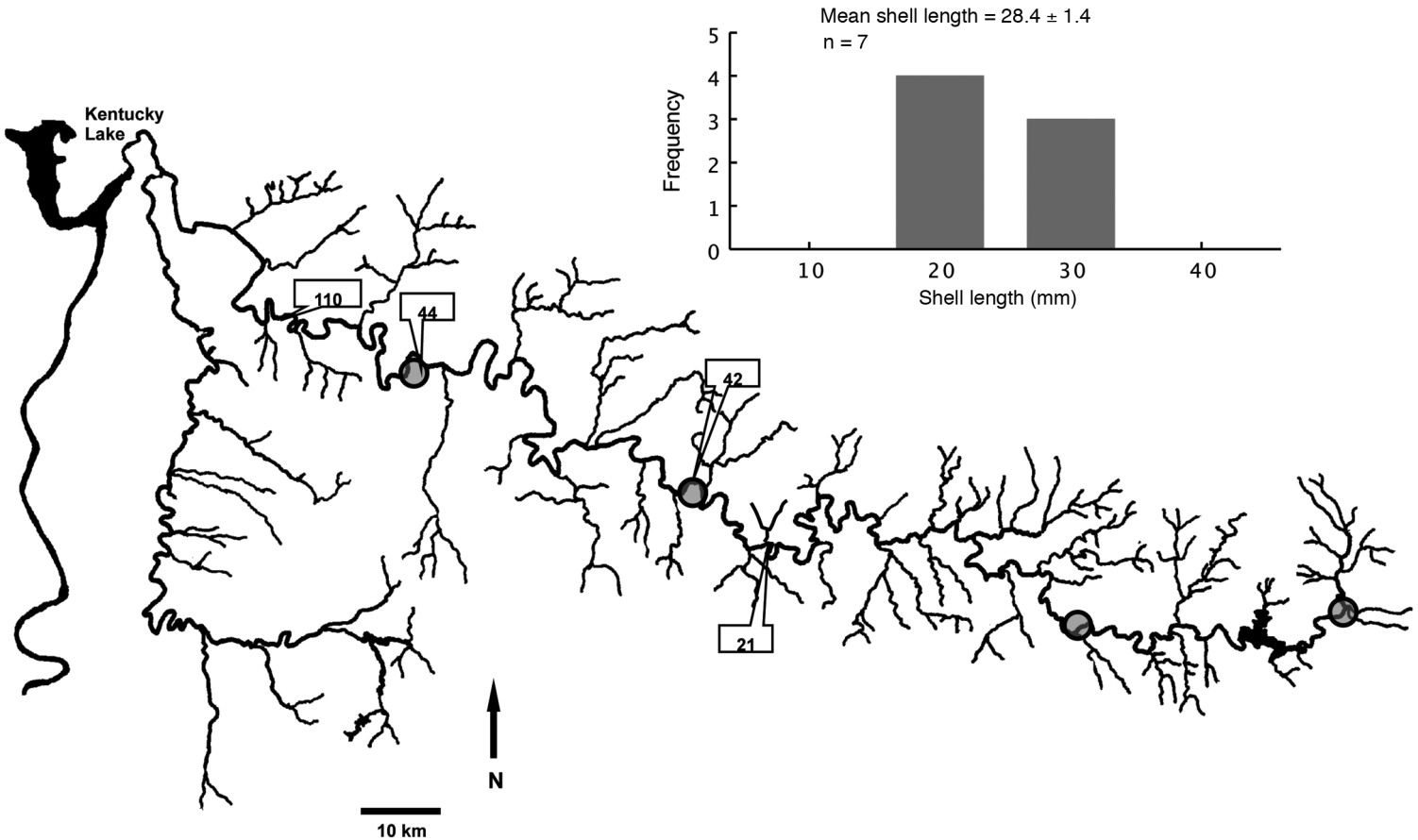


Figure 53— Current distribution of the Deertoe, *Truncilla truncata* Rafinesque, 1820, in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Deertoe was sampled at localities: 13, 16, 17, 18, 21, 27, 30, 32, 33, 39, 40, 42, 45, 78, 95, 96, 103, that are not indicated on the map.

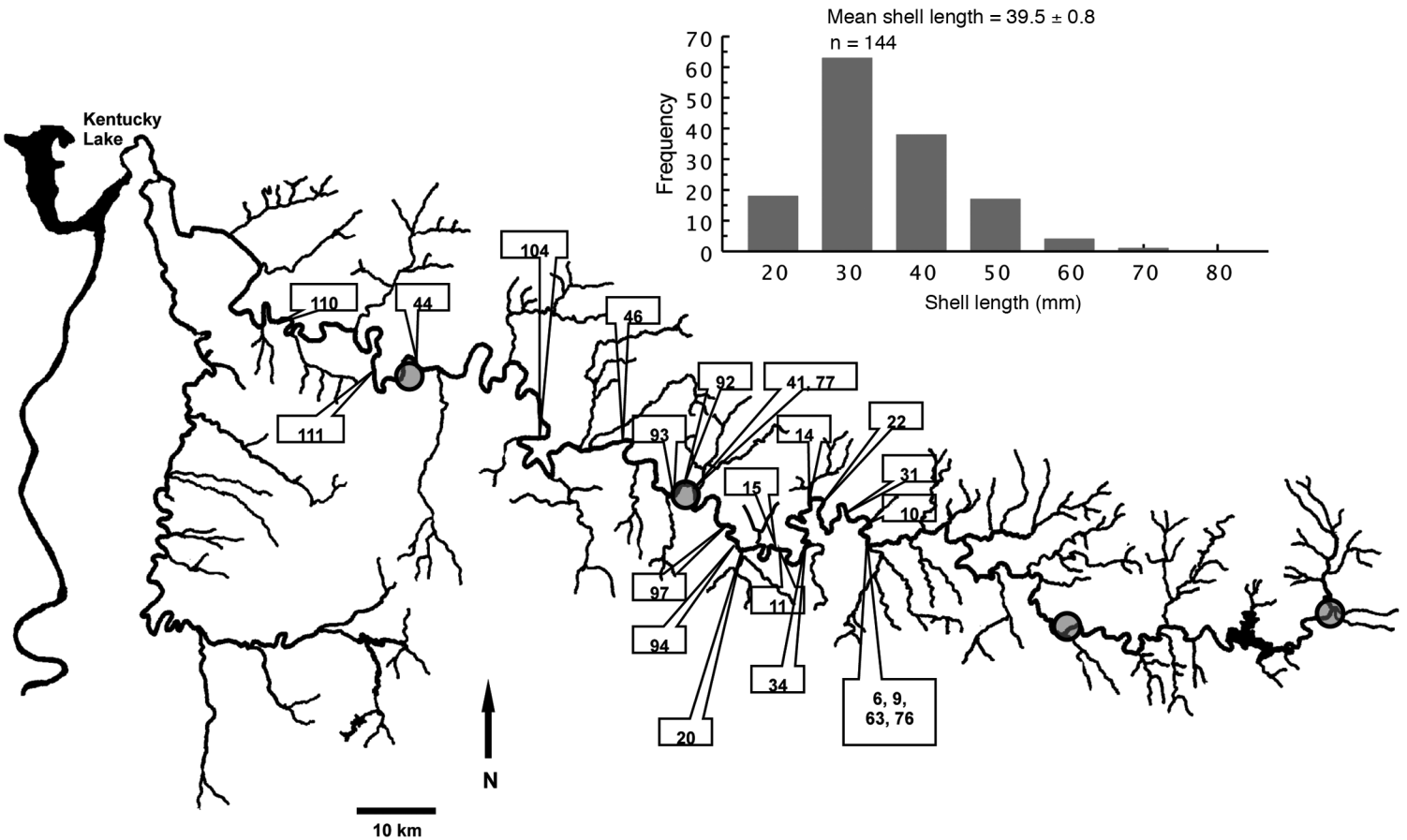


Figure 54— Current distribution of the Paper Pondshell, *Utterbackia imbecillis* (Say, 1829), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1.

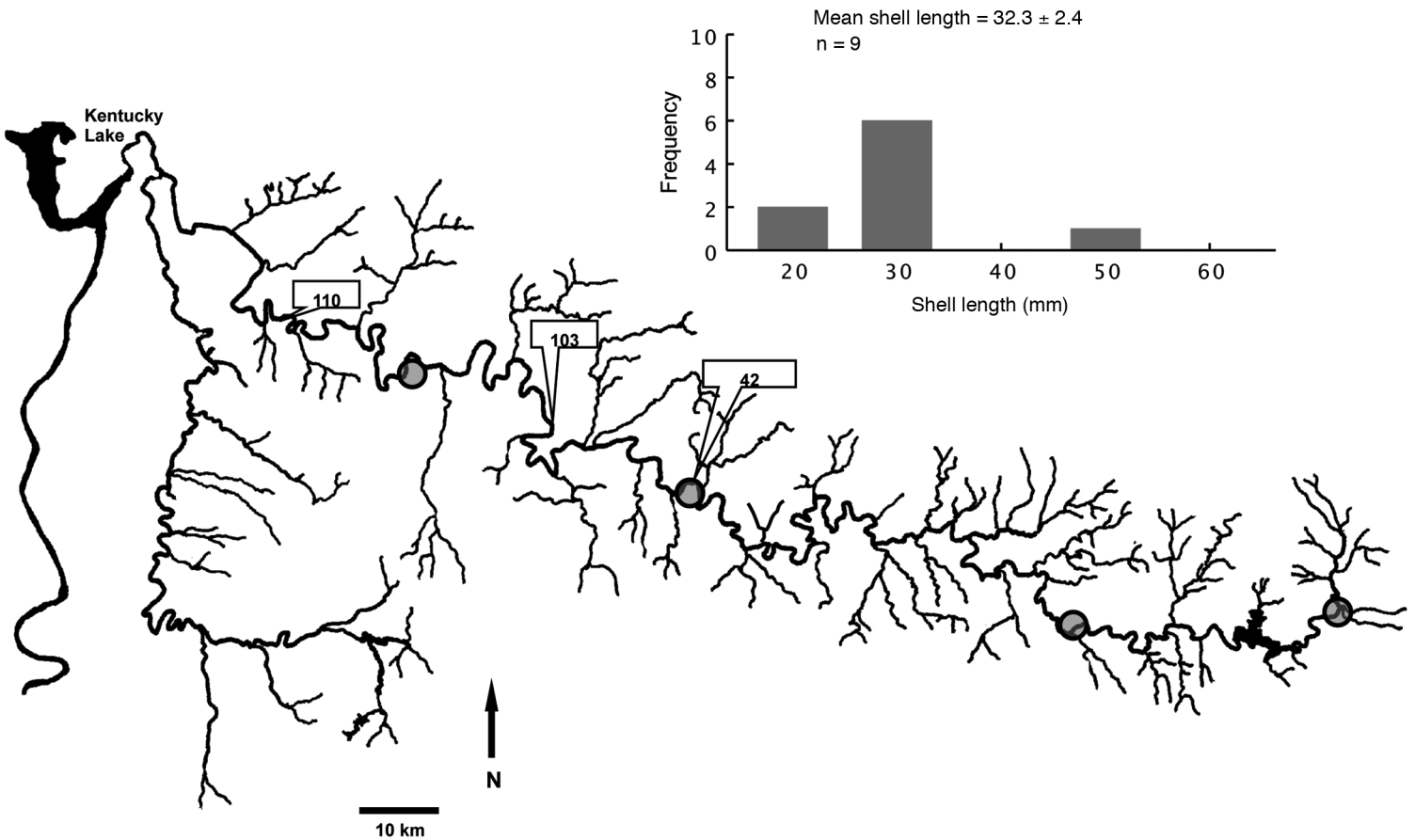
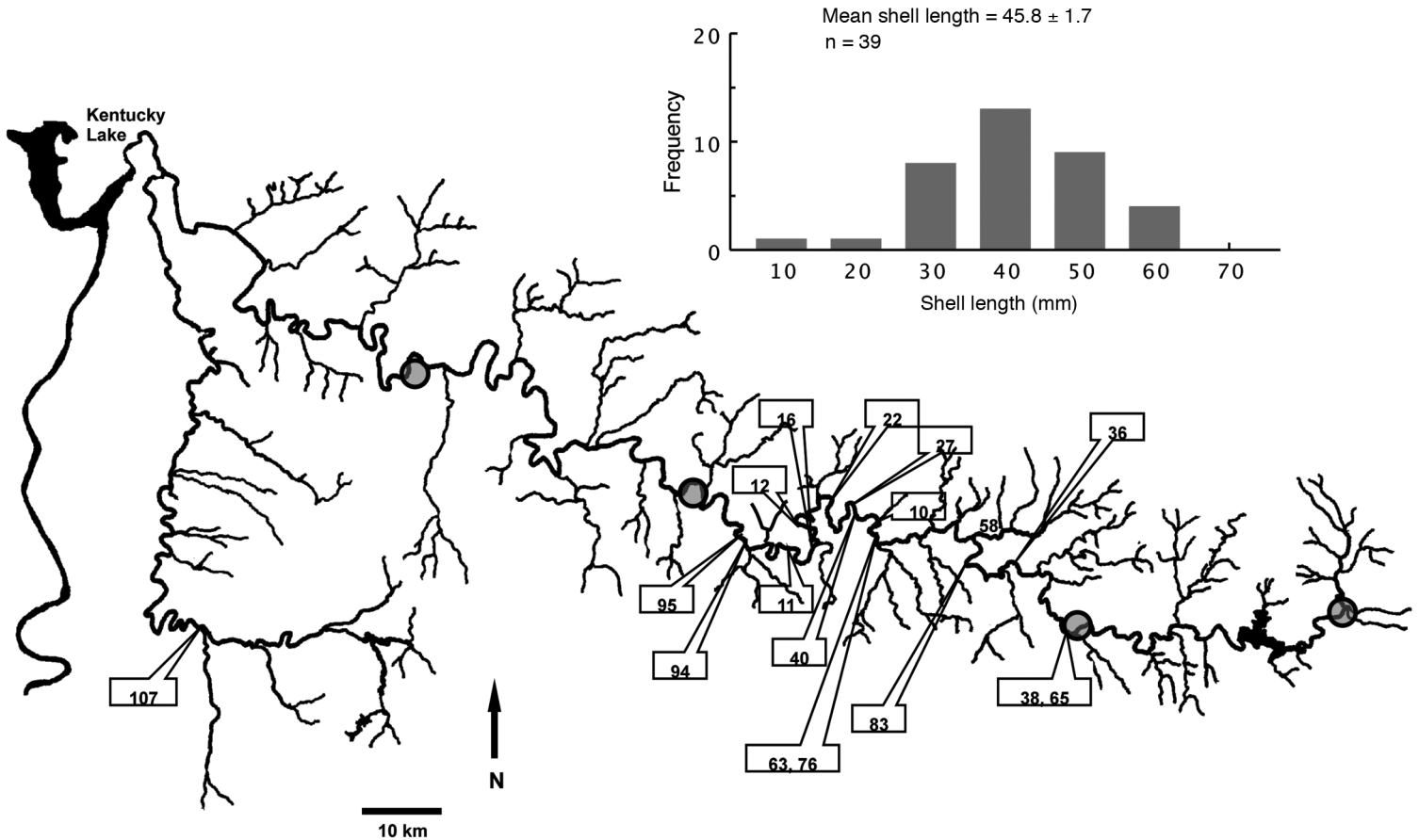


Figure 55— Current distribution of the Rainbow, *Villosa iris* (I. Lea, 1829), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Rainbow was sampled at localities: 13, 14, 21, 33, 82, 89, that are not indicated on the map.



lower river (Schilling and Williams, 2002; Fig. 56). It can be locally common and comprised over 4% of all species found in the river. Williams *et al*., (1993) considered it currently stable.

Villosa vanuxemensis (I. Lea, 1838) Mountain Creekshell, Fig. 57

Another Cumberlandian endemic, the Mountain Creekshell was first recorded by Ortmann (1924) and in subsequent surveys of the river (Table 7). This species is generally distributed but rarely common in the upper river but sporadic in the upper portion of the lower Duck below the old Columbia Dam (Fig. 57). The Mountain Creekshell was the most common species currently located in Duck River basin tributaries. Williams *et al*., (1993) consider it special concern.

Quantitative mussel sampling

Analyses examined changes in species richness and density inside quadrats at 3 different locations independently (total of six different ANOVA's). Data trends for both species richness and density clearly increased at all locations over time and most significantly (Fig. 58). The trends over time were less significant at Lillard Mill for density ($F = 6.78$, $p = 0.009$, $df = 51$) and species richness ($F = 8.48$, $p = 0.0001$, $df = 51$) than Venable Spring (species richness $F = 6.95$, $p = 0.001$, $df = 60$ and density = 7.46, $p = 0.002$, $df = 60$), or Hooper Island (species richness $F = 29.8$, $p = 0.0001$, $df = 54$ and density $F = 36.8$, $p = 0.0001$, $df = 54$). For each ANOVA results of Tukey's HSD *a-posteriori* are presented in Fig. 54. Quantitiative mussel sampling results are presented in Appendix 2.

Juvenile mussel distribution

Results of one-way ANOVA examining percent juvenile abundance showed significant differences across distances ($F = 3.91$, $p = 0.03$, $df = 27$). Results of Tukey's *a-posteriori* test indicated the channel margin had significantly higher percentage of juveniles than center channel (Fig. 58). By contrast, no difference was found in overall mussel density at different locations across the channel ($F = 2.4$, $p = 0.11$, $df = 27$; Fig. 59). Regression analyses were not significant for any relationship examined with the exception of juvenile abundance over depth ($F = 10.6$, $p = 0.001$, $df = 28$; Fig. 60).

DISCUSSION

River discharge evaluation

Changes in seasonal discharge patterns from Normandy Dam, although not significant, represent a considerable improvement to overall river management. At minimum the 13–24% improvement in spring and summer discharges increases habitat availability for mussel recruitment, as the juvenile habitat study suggests. Quite simply, additional water covers greater channel margin surface area during the season when mussel recruitment is highest. Also, general primary productivity tends to be increased along the channel margin, presumably improving chances of juvenile mussel survival. Although not part of this study, improvements in dissolved oxygen levels at Normandy Dam have likely improved mussel habitat substantially above Shelbyville.

Figure 56— Current distribution of the Painted Creekshell, *Villosa taeniata* (I. Lea, 1829), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Painted Creekshell was sampled at localities: 18, 24, 27, 30, 31, 35, 39, 73, 75, 81, 82, 86, 88, 89, 90, 91, that are not indicated on the map.

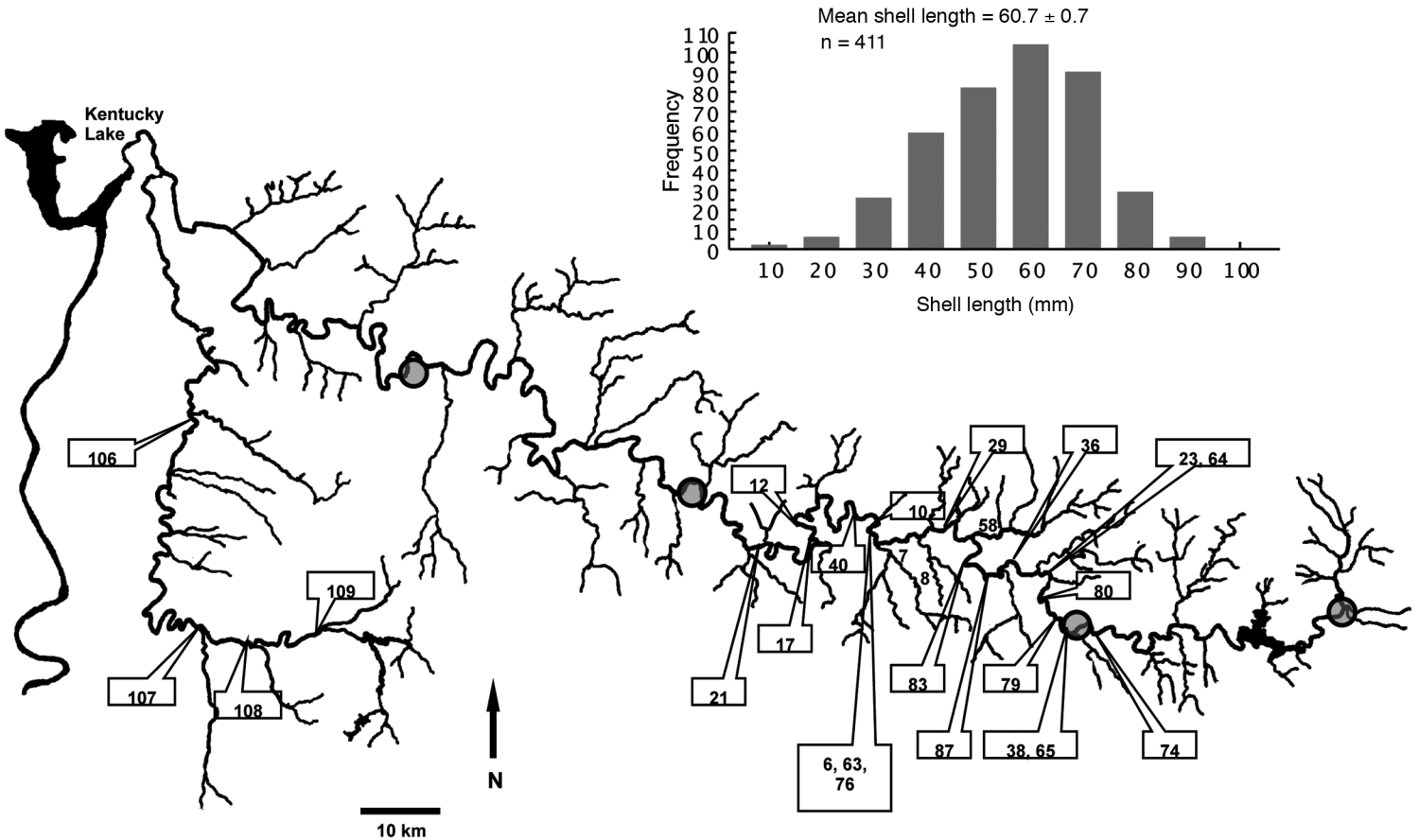
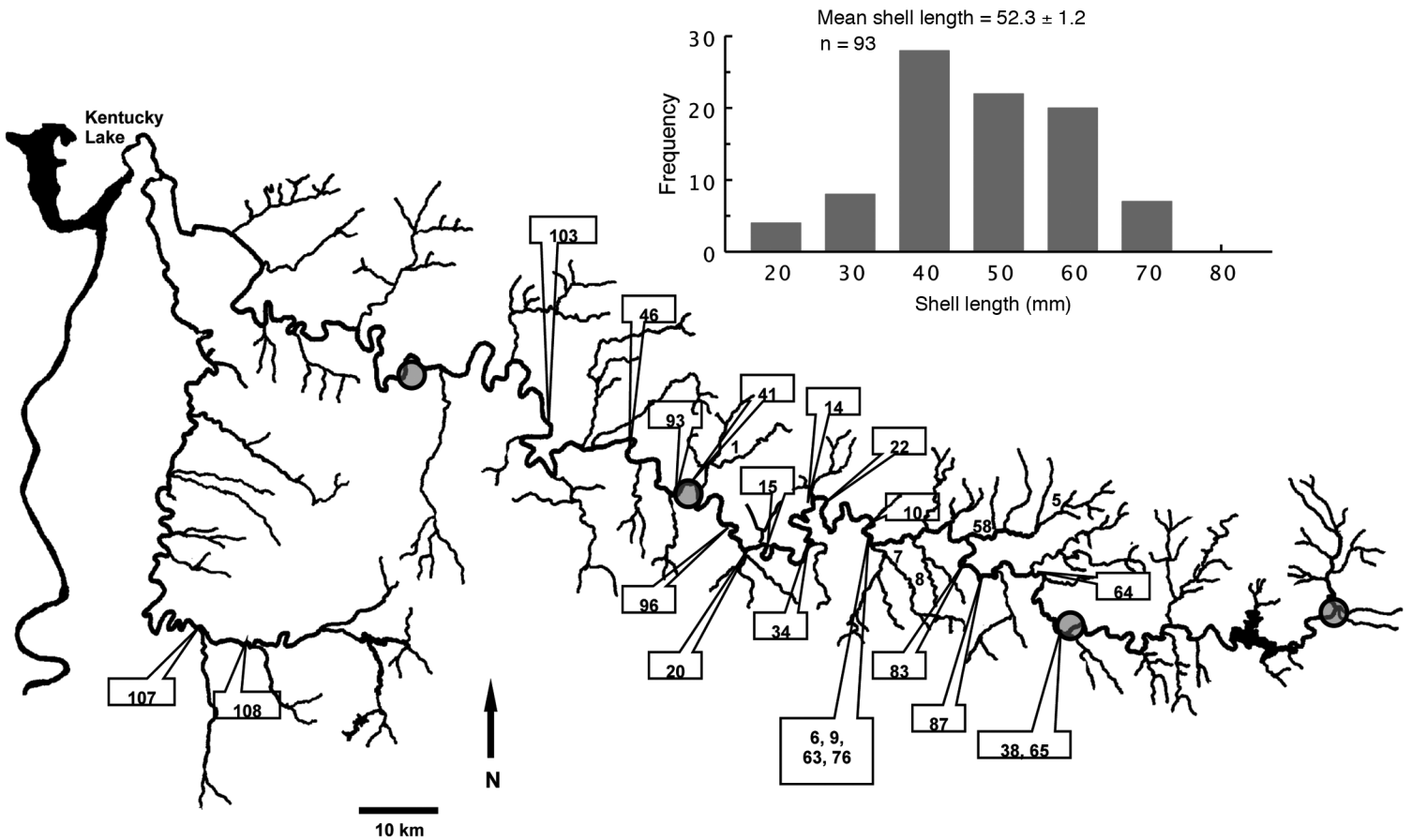


Figure 57— Current distribution of the Mountain Creekshell, *Villosa vanuxemensis* (I. Lea, 1838), in the Duck River basin. Specific information for each sampling locality is detailed in Table 1. The Mountain Creekshell was sampled at localities: 11, 12, 16, 18, 21, 24, 27, 30, 33, 35, 40, 42, 79, 81, 82, 91, 95, that are not indicated on the map.



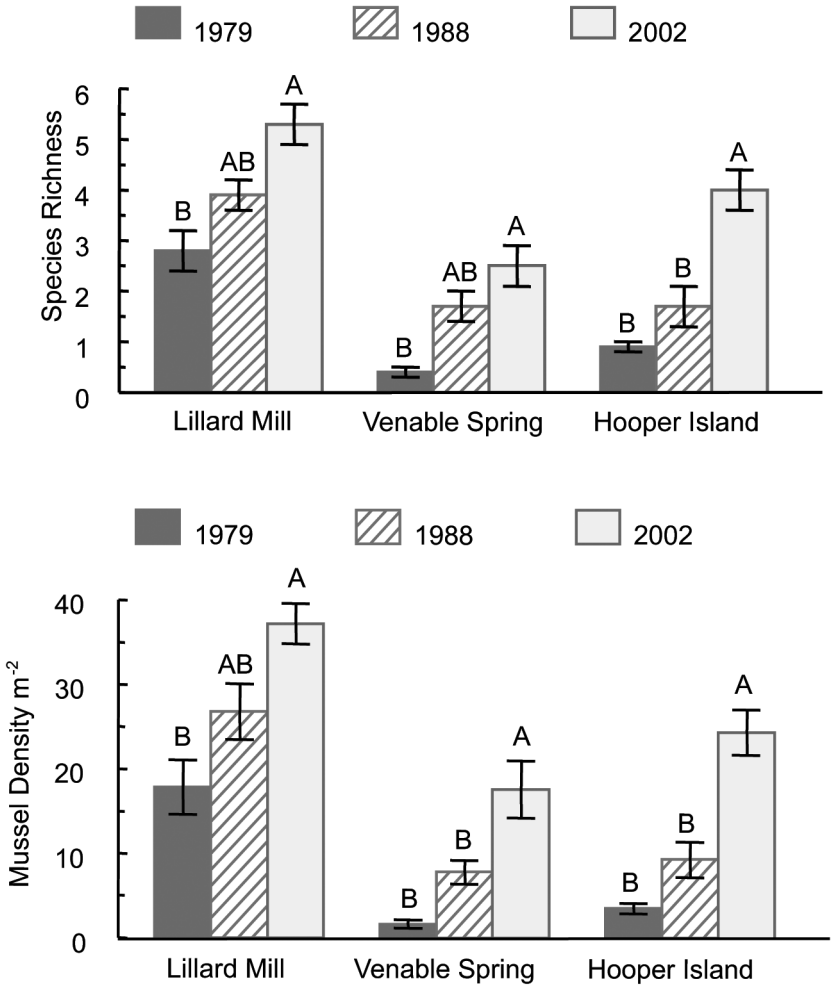


Figure 58— Comparative mean + s.e. of mussel species richness (top) and mussel density (bottom) per m2 sampled at 3 locations in the Duck River in 1977, 1988, and 2002. Letters atop standard error bars indicate statistically different means determined by Tukey's HSD *a-posteriori* test.

The improved discharges and dissolved oxygen levels now make possible the restoration of sensitive mussel species into the river above Shelbyville. Riverine habitat above Shelbyville appears promising, but further assessment of dissolved oxygen and temperature levels would be necessary before restoration efforts could begin.

The list of hydrologic impacts created by dam tail-waters on freshwater mussels has been well documented (Watters 2000). In general, negative impacts on mussels are greatest below hydroelectric facilities that adopt peaking-power discharge schedules. Channel scour, entrenchment, erosion of channel margins, cold water release, and daily fluctuating water levels are some of the major challenges faced by freshwater mussels in dam tail-waters. Fortunately Normandy Dam is not a hydroelectric production facility, and this has greatly preserved the physical integrity of the Duck River channel below Normandy Dam. Indeed, power produc-

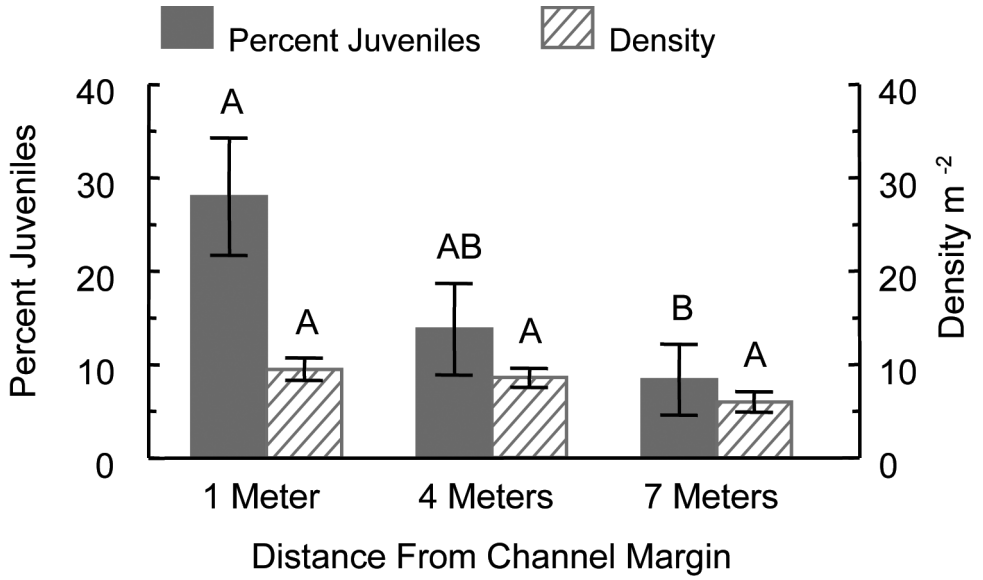


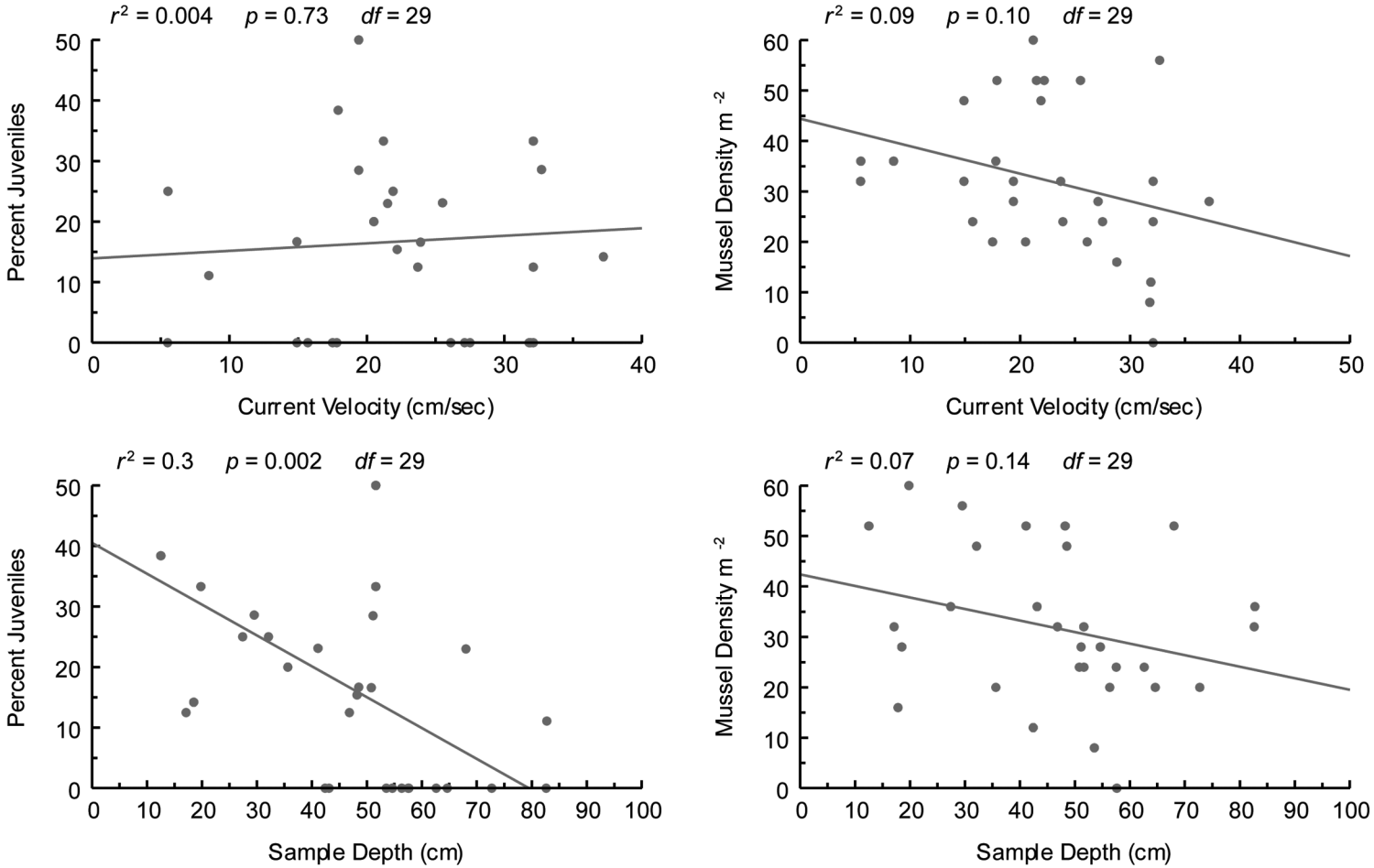
Figure 59— Comparative mean + s.e. of percent juveniles (left) and overall mussel density (right) at 3 locations across the river channel at the lower end of Hooper Island in the Duck River in 2003. Letters atop standard error bars indicate statistically different means determined by Tukey's HSD *a-posteriori* test.

tion at Tims Ford Dam on the Elk River below Tullahoma, Tennessee, just south of the Duck River basin; has apparently destabilized much of the river below the dam, and cold water affects extend over 80 miles of river below the generation turbine. These cold-water effects can render mussel species sterile, as annual water temperatures never fluctuate enough to initiate gametogenesis as recently documented for some mussel species (Heinricher and Layzer, 1990).

Improvements to freshwater mussel populations below a dam adopting minimum release schedules has also been documented on the Coosa River, below Jordon Dam, Elmore County, Alabama (Johnson, 2002). The discovery of the freshwater snail *Tulotoma magnifica* below Jordon Dam (Herschler *et al*., 1990) prompted Alabama Power Company, Alabama Department of Conservation and Natural Resources and the USFWS to negotiate a minimum release schedule (2000 cfs). This minimum release schedule was adopted in the Coosa River channel below Jordan Dam in 1992. Although discharge release at Wetumpka are at set levels (Q = 2,000 or 4,000 cfs), they are manipulated by seasons. Prior to the adoption of minimum flows, river discharges were erratic and were often reduced to only 200 cfs during the summer and fall. As a result of minimum flow restoration, resident mussel populations in the Coosa River below Jordan Dam are rebounding, as a high level of recruitment is obvious. Populations of T*ulatoma maginfica* have grown exponentially as a result of the minimum flow schedule (D. Devries, Auburn University, pers. comm.). Clearly in some situations, discharge improvements below dams can have positive impacts on riverine species resources, including freshwater mollusks.

Although not a direct component of this study, dissolved oxygen (DO) levels also were monitored in the Normandy Dam tail-waters sporadically by TVA pre-and post-initiation of RRI. A major component of RRI was the mitigation of low oxygen levels present in reservoir tail-waters primarily from May–November. It is not uncommon for DO levels in reservoir tail-waters to drop precipitously during the most productive periods of the year (May-November). This DO "sag" reportedly extended down river to Shelbyville. Regular grab samples taken by

Figure 60. Results of regression analysis of percent juveniles and mussel density against current velocity (top) and sample depth (bottom) taken from 0.25 m2 quadrats placed 1, 4, and 7 meters from channel margin at Hooper Island, 2003. Analyses results are presented at the top of each graph.



TVA prior to the initiation of RRI indicated a mean DO of 2.1 mg/l during this period (TVA, monitoring data). To mitigate the chronically low DO levels, TVA installed nearly two miles of soaker hose inside the fore-bay of Normandy Dam in 1990. Hoses were connected to large high pressure regenerative blowers that pushed atmospheric air into the fore-bay. Reservoir water was now aerated prior to release between May and November. As a component of regular monitoring, dissolved oxygen grab samples collected by TVA between August and October of 2001 and 2004 produced a mean DO of 7.8 mg/l (TVA, monitoring data). Although not directly evaluated in this study, DO improvements must have had a profound impact on the Duck River mussel community, most likely by improving the density and distribution of their fish hosts.

Qualitative mussel sampling

Qualitative samples indicated greater mussel abundance and species richness than previous surveys completed in 1977 and 1988. Although survey efforts were substantially improved for this survey (greater sampling effort per station), mean species catch-per-unit for this study were still improved from 1988 records. In fact, more intense sampling efforts from this study likely depressed species richness CPUE artificially (diminishing returns from continued sampling, Harley *et al*., 2001). Additionally several recent studies comparing timed searches with quantitative surveys have indicated greater species richness is recovered for timed surveys (Strayer *et al*., 1997, Vaughn *et al*., 1997). At most sites examined below Lillard Mill, one person could easily collect 12+ species within 5–10 minutes. If CPUE efforts had been more similar to the 1988 levels, undoubtedly species richness would have been much higher than reported here. Additionally, total species richness received for this study (54 species – Table 7) is the highest of any system in the Tennessee River basin. Current mussel species richness for the Clinch River is approximately 41 species (Ahlstedt, unpublished data). The Duck River contains 55% of the mussel species now remaining in Tennessee. Historically, Tennessee had 131 species (Parmalee and Bogan, 1998; Ahlstedt and Johnson, amended), but 33 spp. are now believed extinct/extirpated comprising a 25.2% loss of mussel species richness from the state (Johnson, unpublished data). This percent loss of mussel species is 2nd only to Georgia (33.6%) and only slightly ahead of Alabama (23%) and Kentucky (18.3% extinct / extirpated) (Cicerello and Schuster, 2004, Mirarchi *et al.,* 2004, Johnson, unpublished data). By all accounts the Duck River has the greatest mussel species richness of any tributary system throughout the United States.

Depressed species richness below Normandy Dam is similar to patterns from other studies (Watters, 2002, Vaughn and Taylor, 1999). In general, species richness is always greatly depressed just below dams and especially below hydro-production facilities, even in large river systems (Garner and McGregor, 2002). Although Normandy Dam operations were undoubtedly responsible for some species losses from the upper Duck (see Museum of Fluviatile Mollusk Records for Coffee and Bedford counties in Appendix 3), the majority of the 21 species lost from the system were eliminated before dam construction was initiated (Isom and Yokely, 1968). Municipal point source pollution from Manchester to Columbia was likely responsible for most species losses from the Duck River. This problem was especially pronounced at Shelbyville where faulty sewage treatment facilities were apparently responsible for large chlorine releases in the river, and Columbia where discharges from chemical and phosphate mines were unregulated prior to the Clean Water Act. The point source problems at Shelbyville were apparently mitigated prior to the 1988 survey. Clearly some improvements in mussel species richness witnessed were begun following the elimination of these major point sources.

Duck River tributaries

Ortmann (1924) sampled for mussels in the Buffalo River at one locality: Riverside close to, and below railroad station, Lewis County, September 7, 1922. He reported 16 species live and noted the river "only of creek-size, full of riffles and more quietly flowing water; water clear, naiades [mussels] abundant everywhere, on gravelly, sandy, and muddy bottom." In 1931, van der Schalie (1973) and Goodrich made collections at four localities in the Buffalo: Topsy Bridge; above Linden; Beardstown; and 5 miles north of Gobelsville. They reported 33 mussels and 5 snail species and stated that both the Duck and Buffalo rivers as having some of the finest shoals in the world and that mollusks comprised the most significant elements in the benthic fauna of both rivers. Isom and Yokley (1968) in 1965 re-sampled Ortmann's Riverside site in the Buffalo River and didn't find a single shell (Ortmann reported 16 species). They did find 17 species in the river 1.5 miles above Tennessee State Route 13, between Waynesboro and Hohenwald, Wayne County and noted that the most revealing aspect of sampling mussels in the Buffalo River was the sparsely scattered fauna and its overall poor condition. The mussel fauna appeared terminal, individuals were severely eroded, and no evidence of recent reproduction or recruitment in any of the species. They further noted that the river exists in an essentially pristine condition as far as can be ascertained and it receives no industrial or municipal wastes, and relatively little agricultural erosion at the present time. They speculated the mussel fauna was affected by impoundment of the lower Buffalo River by a dam on the Tennessee River that disrupted the fish-host mussel life cycle (Isom and Yokley, 1968).

During the present inventory of mollusk species in the Duck River drainage, we made collections in the Buffalo River comparing recent findings to historical records at five sites previously-sampled (Ortmann, 1924, van der Schalie, 1973, Isom and Yokley, 1968). A compilation of mussel records between the three surveys includes one new species (Medionidus conradicus) record. This brings the total number of mussels reported from the Buffalo River to 41. We found mussels to be extremely rare in the river. Only 20 live individuals of 8 species in addition to a relict was found and all 9 are reported historically from the river. The snail fauna has remained relatively intact in the Buffalo River. In addition, based on fish Index of Biotic Integrity (IBI) health index scores, the fish fauna is considered in excellent condition (C. Saylor, TVA, pers. comm.).

The destruction of the mussel fauna in the Buffalo River may indicate some type of chemical pollution of chronic nature that affects the survival of juvenile mussels when they drop off host fish. The substrate is now highly destabilized as evidence of point bar formations and silt covering the substrate.

Ortmann (1924) sampled mussels in one smaller tributary stream in the Duck River drainage: Garrison (Fork) Creek, Wartrace, Bedford County, on September 2, 1922. He found seven mussel species and described the stream conditions of the creek"…as small, everywhere fordable, with great variety of conditions of current, bottom, etc. Shells chiefly at one place, in a riffle in very shallow water (a few inches deep), in gravel, not plentiful, but well visible in clear water." In 1965, Isom and Yokley (1968) re-sampled the same location as Ortmann and found one mussel (*Villosa vanuxemensis*). They described the site as containing mostly bedrock downstream from a dam. The dam may have been constructed subsequent to Ortmann's sampling.

In 1990, TVA sampled mussels in Big Rock Creek, East Rock Creek, and Fountain Creek in response to the finding of fresh dead individuals of the endangered Pale Lilliput, *Toxolasma cylindrellus*, in Big Rock Creek in 1989 (D. Manning, pers. comm., Ahlstedt and Saylor, 1990).

This represented a new distribution record for a Duck River tributary and the species has not been reported from the main river since the late 1960s (locality now inundated by Normandy Reservoir). Four sites sampled in Big Rock Creek, a direct tributary to the Duck upstream from Lillard Mill Dam, resulted in 15 mussel species of which 9 were relicts. Especially common were relict shells of Three-ridge, *Amblema plicata*, where hundreds of dead shells along with other mussels were observed in the lower creek. At the two lower sites where dead mussels were observed the stream-banks are severely eroded and the stream substrate was covered with cattle manure. However, six species were considered to be recruiting in the creek as evidenced by the presence of juveniles.

East Rock Creek is a tributary to Big Rock Creek and only three sites were sampled because of limited access, deepwater, and water clarity (turbid). Mussels are rare in East Rock Creek and included seven species of which only two (*Villosa iris* and *V. vanuxemensis*) were fresh dead and the other five relicts.

Fountain Creek is a direct tributary to the Duck River upstream from the old Columbia Dam and was sampled near its confluence with the Duck River. Stream conditions were noted as excellent for sampling mussels because of water clarity and substrate. One *Lampsilis cardium* was found fresh dead in addition to one relict *Potamilus alatus*. Virtually little is known of the historical occurrence of mussels in many of the smaller tributaries of the Duck River. It may be assumed that flows were more permanent in the drainage from a historical perspective than what is observed today. Tributary records for 15 mussel species are relegated to collections made in 17 tributary streams sampled in the 1970s including one record each in 1924, 1962, and 1964. All are reported in museums collections at The Ohio State University Museum of Biological Diversity (OSUM) (Appendix 3).

Recent sampling in 21 smaller tributary streams of the Duck River resulted in 9 live or fresh dead mussel species from 6 tributary streams (Appendix 1). Mussels were non-existent or noted only as old relicts in 15 streams. Sites chosen for sampling represent many of the same streams reported in previous studies and museum collections. The occurrence of relict shell found in some tributary streams indicates a limited fauna consisting mostly of small, headwater species but in larger tributaries mussels were more diverse (*i.e.*, Big Rock Creek). Given the rich mussel diversity of the Duck River system it can be assumed that the tributary fauna was more widespread and diverse historically before extensive human modifications to the landscape occurred.

Quantitative mussel sampling

Mussel densities from quadrat samples were significantly higher than reported from previous quantitative efforts. While densities at Lillard Mill were marginally higher than 1988 estimates, 27 % increase in density are higher than has been reported over 15 years of quantitative monitoring in the Clinch River (Ahlstedt and Tuberville, 1997). Quantitative data sets for mussels that span over decades or more, are very rare and efforts by this author represent the majority of these existing data sets (Ahlstedt and Tuberville, 1997). For the Clinch and Powell rivers these long-term data sets show contrasting results. Powell River quadrat samples have uniformly declined in species richness and abundance since 1979 (Ahlstedt and Tuberville, 1997, Ahlstedt, unpublished data). Clinch River quadrat samples have showed steady declines in the upper-river (Virginia) since 1979, but have increased in the lower Clinch River (Tennessee) over the same time frame (Ahlstedt, unpublished data). However, mussel density data from the lower

Clinch River have fluctuated less than 15% over the 25 years quantitative monitoring efforts have taken place. Although information about mussel population dynamics is very scarce, the positive trends (> 15% for all sites) in mussel density and species richness are indications of a real long-term recovery, and not a simple spike in mussel population dynamics for Duck River mussels.

Mussel recovery is also indicated by increased range distributions without benefit of translocations or augmentations of propagated juveniles. While some translocation efforts were undertaken in 1988 with unlisted species in the river between Shelbyville and Lillard Mill (Layzer and Gordon, 1993), these efforts did not involve any federally listed species and are upriver from the endangered species recovery area (see species accounts). Specifically, range increases for 3 federally listed species have all expanded dramatically since 1988 (range increases > 20 miles for both *Lemiox rimosus* and *Epioblasma* sp. cf. *capsaeformis* and 9 miles for *Quadrula intermedia*). Uniform improvements in species richness, mussel density and CPUE capture rates also reflect real recovery regarding the mussel populations of the Duck River.

SUMMARY

Recovery of mussel resources in the Duck River as reported here is unprecedented. We are aware of no other river system that has shown this dramatic improvement in mussel resources. Although specific mechanisms were not directly addressed as part of this survey, improvements in point source emissions and the implementation of RRI by TVA at Normandy Dam are likely the most critical elements toward mussel recovery. Secondarily, removal of large tracts of farmlands purchased by TVA for the Columbia Dam project, dominate sources of groundwater and the relatively high hardness levels emanating from limestone bedrock in the basin, and general settling of channel stability from earlier destabilization are important factors facilitating this recovery. However, increased discharges at spring and summer flows add more water to the channel during critical recruitment periods. As the juvenile distribution study suggests, river margins tend to be important habitat for mussel recruitment, and higher discharges simply create more physical space of shallow more productive habitat that presumably accommodates mussel recruitment. Clearly the specific mechanisms behind this recovery need more investigation, but likely causes and effects are listed below. We strongly recommend no changes to release schedules from Normandy Dam be contemplated without further study of this complex issue.

Perceived causes of mussel declines in the Duck River

- Mill dams that impounded portions of the river, and fragmented migratory host fish(es) and mussel populations since the early 1800s
- Early logging of the watershed likely contributed to destabilized tributaries and main stem river
- Phosphate and iron ore mining and industrial wastes and other point source emissions
- Construction and operation of TVA's Normandy Dam blocked, changed flow regimes, and altered water temperatures
- Excess chlorine emission in wastewater discharges from Shelbyville wastewater treatment plant
- Non-point source runoff of sediment and agricultural chemicals into the river, gravel mining, and destruction of the riparian zone corridor

Factors Contributing to Mussel Recovery in the Duck River

- Improvements made in point source elimination along the river corridor
- Improvements made in wastewater de-chlorination process at Shelbyville sewage treatment plant
- TVA's Reservoir Release Improvement (RRI) program was initiated in 1991 to increase minimum flows and aeration including the installation of compressed air (1994-1995) into two miles of perforated hoses that lay on the forebay of Normandy Reservoir
- Halting construction of Columbia Dam resulting in farmland being taken out of production and consequently, those lands are now managed by the Tennessee Wildlife Resources Agency
- Awareness of the unique Duck River ecosystem has increased thanks to the TNC and numerous partners
- The Duck River was designated a state scenic river in 2002

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Appendix 1. Results of qualitative freshwater mussel sampling (TNC 1 – 112) by species in the Duck River basin 2000–2002.

Species	TNC-1	TNC-2	TNC-3	TNC-4	TNC-5	TNC-6	TNC-7	TNC-8	TNC-9	TNC-10
Actinonaias ligamentina	-	-	-	-	-	-	-	-	-	-
Actinonaias pectorosa	-	-	-	-	-	R	-	-	-	-
Amblema plicata	-	-	-	-	R	L	R	R	5	12
Arcidens confragosus	-	-	-	-	-	-	-	-	-	R
Cyclonaias tuberculata	-	-	-	-	-	L	-	-	8	31
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-
Elliptio dilatata	-	-	-	-	-	L	-	-	11	106
Epioblasma sp. cf. *capsaeformis*	-	-	-	-	-	L	-	-	21	16
Epioblasma triquetra	-	-	-	-	-	-	-	-	-	-
Fusconaia barnesiana	-	-	-	-	R	L	1	1	3	3
Fusconaia ebena	-	-	-	-	R	-	-	-	-	-
Lampsilis cardium	-	-	-	-	-	L	-	-	1	5
Lampsilis fasciola	-	-	-	-	-	L	1	-	7	16
Lampsilis teres	-	-	-	-	-	-	-	-	-	1
Lasmigona complanata	-	-	-	-	-	L	-	-	1	-
Lasmigona costata	-	-	-	-	R	L	-	-	4	75
Lasmigona sp. cf. *holstonia*	-	-	-	-	-	-	-	-	-	-
Lemiox rimosus	-	-	-	-	-	L	-	-	9	13
Leptodea fragilis	-	-	-	-	-	L	-	-	1	6
Lexingtonia dolabelloides	-	-	-	-	-	L	R	R	7	8
Ligumia recta	-	-	-	-	-	-	-	-	-	-
Medionidus conradicus	-	-	-	-	-	-	2	-	-	-
Megalonaias nervosa	-	-	-	-	-	L	-	-	3	13
Obliquaria reflexa	-	-	-	-	-	L	-	-	6	11
Obovaria subrotunda	-	-	-	-	-	-	-	-	2	3
Pleurobema oviforme	-	-	-	-	-	L	-	-	1	-
Pleurobema rubrum	-	-	-	-	-	L	-	-	1	4
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	-	-	-	-	L	-	-	2	2
Ptychobranchus fasciolaris	-	-	-	-	-	L	-	-	-	-
Pyganodon grandis	-	-	-	-	R	L	-	-	1	R
Quadrula apiculata	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	-	-	-	-	-	L	R	R	14	21
Quadrula intermedia	-	-	-	-	-	-	-	-	-	2
Quadrula pustulosa	-	-	-	-	-	L	-	-	9	15
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-
Strophitus undulatus	-	-	-	-	-	L	-	-	-	1
Toxolasma lividus	-	-	-	-	R	-	1	R	R	1
Tritogonia verrucosa	-	-	-	-	-	L	-	-	3	7
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-
Truncilla truncata	-	-	-	-	-	-	-	-	1	3
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-
Villosa iris	-	-	-	-	R	L	-	-	-	1
Villosa taeniata	-	-	-	-	R	L	4	15	-	1
Villosa vanuxemensis	3	-	-	-	3	L	11	3	4	1
SAMPLE TOTAL	**3**	**0**	**0**	**0**	**3**	**0**	**20**	**19**	**125**	**378**

Appendix 1. Continued.

Species	TNC-11	TNC-12	TNC-13	TNC-14	TNC-15	TNC-16	TNC-17	TNC-18	TNC-19	TNC-20
Actinonaias ligamentina	-	-	-	-	-	-	-	-	-	-
Actinonaias pectorosa	2	-	-	-	-	1	-	-	-	1
Amblema plicata	5	1	3	9	2	7	14	3	R	19
Arcidens confragosus	-	-	-	2	-	-	1	-	-	1
Cyclonaias tuberculata	42	6	15	19	29	33	56	11	R	61
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-
Elliptio dilatata	58	17	19	60	57	77	62	24	R	29
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-
Epioblasma sp. cf. *capsaeformis*	1	-	-	-	-	-	1	3	-	-
Epioblasma triquetra	-	-	-	-	R	-	R	R	-	1
Fusconaia barnesiana	9	2	6	6	5	21	12	1	R	2
Fusconaia ebena	-	-	-	-	-	1	2	-	-	-
Lampsilis cardium	11	8	1	5	13	5	4	4	1	9
Lampsilis fasciola	57	29	3	17	18	12	24	10	1	8
Lampsilis teres	-	-	-	-	-	-	-	-	-	-
Lasmigona complanata	-	-	-	-	-	-	-	-	-	-
Lasmigona costata	24	15	4	20	16	38	29	15	R	38
Lasmigona sp. cf. *holstonia*	-	-	-	-	-	-	-	-	-	-
Lemiox rimosus	21	6	6	20	18	18	25	-	-	5
Leptodea fragilis	2	3	-	1	3	1	5	4	1	3
Lexingtonia dolabelloides	12	1	6	14	4	7	19	4	R	4
Ligumia recta	-	-	-	-	-	-	-	-	-	-
Medionidus conradicus	42	55	4	15	33	92	23	6	R	5
Megalonaias nervosa	3	-	-	1	2	4	25	3	R	13
Obliquaria reflexa	1	-	2	-	3	1	3	2	-	3
Obovaria subrotunda	2	-	-	1	3	4	5	1	-	R
Pleurobema oviforme	-	-	-	-	-	-	-	-	-	-
Pleurobema rubrum	5	1	-	-	8	2	2	1	-	3
Pleurobema sintoxia	-	-	-	-	-	-	-	1	-	-
Potamilus alatus	1	-	2	2	1	1	2	2	-	6
Ptychobranchus fasciolaris	-	-	-	1	-	1	6	-	R	1
Pyganodon grandis	1	-	-	-	-	-	-	-	-	-
Quadrula apiculata	-	-	-	-	-	-	-	-	-	1
Quadrula cylindrica	10	4	1	7	6	6	8	1	1	5
Quadrula intermedia	-	2	-	-	-	-	2	-	-	-
Quadrula pustulosa	10	2	5	2	13	8	14	2	R	23
Quadrula quadrula	-	-	-	-	-	-	-	-	1	2
Strophitus undulatus	1	-	-	-	-	-	-	-	-	-
Toxolasma lividus	3	-	-	R	R	1	-	-	1	2
Tritogonia verrucosa	6	-	3	5	2	1	16	1	R	16
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-
Truncilla truncate	2	-	4	3	8	2	8	1	R	7
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-
Villosa iris	2	1	1	3	-	6	-	-	-	-
Villosa taeniata	-	1	-	-	R	-	1	1	-	-
Villosa vanuxemensis	2	4	-	1	2	4	-	1	-	2
SAMPLE TOTAL	**335**	**158**	**85**	**214**	**246**	**355**	**369**	**102**	**6**	**270**

Appendix 1. Continued.

Species	TNC-21	TNC-22	TNC-23	TNC-24	TNC-25	TNC-26	TNC-27	TNC-28	TNC-29	TNC-30
Actinonaias ligamentina	-	-	-	-	-	-	-	-	-	-
Actinonaias pectorosa	3	-	-	-	-	-	-	-	3	-
Amblema plicata	14	9	-	R	-	-	1	-	R	3
Arcidens confragosus	-	-	-	-	-	-	-	-	-	-
Cyclonaias tuberculata	68	19	-	-	-	-	27	-	12	45
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-
Elliptio dilatata	35	31	1	-	-	-	94	-	23	48
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-
Epioblasma sp. cf. *capsaeformis*	-	-	-	-	-	-	7	-	-	19
Epioblasma triquetra	-	-	-	-	-	-	-	-	-	-
Fusconaia barnesiana	1	1	5	-	-	R	1	-	6	1
Fusconaia ebena	-	-	-	-	-	-	-	-	-	-
Lampsilis cardium	10	4	3	1	-	-	6	-	R	16
Lampsilis fasciola	24	12	7	3	-	-	10	-	7	15
Lampsilis teres	-	-	-	-	-	-	-	-	-	-
Lasmigona complanata	-	-	-	-	-	-	-	-	-	-
Lasmigona costata	26	12	1	-	-	-	59	-	7	37
Lasmigona sp. cf. *holstonia*	-	-	-	-	-	-	-	-	-	-
Lemiox rimosus	21	1	-	-	-	-	6	-	-	9
Leptodea fragilis	2	-	-	-	-	-	3	-	R	6
Lexingtonia dolabelloides	13	3	-	-	-	-	20	-	5	5
Ligumia recta	-	-	-	-	-	-	-	-	-	-
Medionidus conradicus	16	7	-	-	-	-	4	-	1	-
Megalonaias nervosa	11	3	R	-	-	-	46	-	1	38
Obliquaria reflexa	1	-	-	-	-	-	5	-	-	1
Obovaria subrotunda	1	-	R	R	-	-	5	-	-	2
Pleurobema oviforme	-	-	-	-	-	-	-	-	-	-
Pleurobema rubrum	2	-	-	-	-	-	1	-	-	2
Pleurobema sintoxia	R	-	-	-	-	-	-	-	-	-
Potamilus alatus	6	1	1	-	-	-	2	-	R	7
Ptychobranchus fasciolaris	2	-	-	-	-	-	-	-	-	-
Pyganodon grandis	-	-	-	-	-	-	-	-	-	1
Quadrula apiculata	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	83	1	-	-	-	-	12	-	-	28
Quadrula intermedia	-	-	-	-	-	-	1	-	-	2
Quadrula pustulosa	22	6	-	-	-	-	14	-	2	11
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-
Strophitus undulatus	-	-	-	-	-	-	-	-	-	-
Toxolasma lividus	1	-	-	-	-	-	1	-	-	-
Tritogonia verrucosa	9	1	R	R	-	-	3	-	R	6
Truncilla donaciformis	1	-	-	-	-	-	-	-	-	-
Truncilla truncate	1	1	-	-	-	-	2	-	-	3
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-
Villosa iris	1	2	-	-	-	-	1	-	-	-
Villosa taeniata	2	-	3	11	-	-	5	-	15	3
Villosa vanuxemensis	6	5	-	1	-	-	1	-	R	2
SAMPLE TOTAL	**382**	**119**	**21**	**16**	**0**	**0**	**337**	**0**	**82**	**310**

Appendix 1. Continued.

Species	TNC-31	TNC-32	TNC-33	TNC-34	TNC-35	TNC-36	TNC-37	TNC-38	TNC-39	TNC-40
Actinonaias ligamentina	-	-	-	-	-	-	-	-	-	-
Actinonaias pectorosa	1	-	-	-	-	-	-	1	1	-
Amblema plicata	2	3	8	3	R	R	-	-	13	31
Arcidens confragosus	-	2	-	1	-	-	-	-	-	-
Cyclonaias tuberculata	38	42	58	84	1	-	-	-	16	189
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-
Elliptio dilatata	109	88	148	146	3	R	-	-	19	91
Epioblasma sp. cf. *capsaeformis*	3	4	-	-	-	-	-	-	20	48
Epioblasma triquetra	R	R	-	-	R	-	-	-	-	-
Fusconaia barnesiana	3	3	20	2	1	R	-	-	3	-
Fusconaia ebena	-	-	-	-	-	-	-	-	-	-
Lampsilis cardium	13	2	15	24	1	R	-	-	2	14
Lampsilis fasciola	15	11	23	42	11	2	-	1	5	40
Lampsilis teres	-	-	-	-	-	-	-	-	-	-
Lasmigona complanata	-	-	-	44	-	-	-	-	-	-
Lasmigona costata	113	-	74	-	7	1	-	-	18	-
Lasmigona sp. cf. *holstonia*	-	-	-	-	-	-	-	-	-	-
Lemiox rimosus	3	9	39	23	R	-	-	-	23	8
Leptodea fragilis	5	5	1	2	1	-	-	-	1	4
Lexingtonia dolabelloides	5	4	26	13	1	-	-	-	1	5
Ligumia recta	-	-	-	-	-	-	-	-	-	-
Medionidus conradicus	-	1	23	15	-	-	-	62	-	-
Megalonaias nervosa	56	29	3	32	-	-	-	-	8	58
Obliquaria reflexa	-	1	7	1	-	-	-	-	6	13
Obovaria subrotunda	3	1	R	R	1	-	-	-	3	5
Pleurobema oviforme	-	-	-	-	-	-	-	-	-	-
Pleurobema rubrum	-	1	6	2	-	-	-	-	2	3
Pleurobema sintoxia	-	-	1	-	-	-	-	-	-	-
Potamilus alatus	1	2	1	1	R	2	-	-	1	3
Ptychobranchus fasciolaris	-	1	-	-	-	-	-	-	-	-
Pyganodon grandis	R	-	-	-	-	-	-	-	2	-
Quadrula apiculata	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	49	13	20	20	R	-	-	-	2	30
Quadrula intermedia	1	1	8	2	-	-	-	-	-	1
Quadrula pustulosa	7	7	18	15	R	-	-	-	7	29
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-
Strophitus undulatus	-	-	-	-	2	-	-	-	-	R
Toxolasma lividus	-	-	R	1	-	-	-	-	-	1
Tritogonia verrucosa	2	-	5	8	-	R	-	1	5	33
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-
Truncilla truncata	1	1	4	9	-	-	-	-	8	9
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-
Villosa iris	-	-	2	-	-	2	-	3	-	1
Villosa taeniata	2	-	-	-	21	4	-	38	1	3
Villosa vanuxemensis	R	R	2	6	6	-	-	2	-	1
SAMPLE TOTAL	**432**	**231**	**512**	**496**	**56**	**11**	**0**	**108**	**167**	**620**

Appendix 1. Continued.

Species	TNC-41	TNC-42	TNC-43	TNC-44	TNC-45	TNC-46	TNC-47	TNC-48	TNC-49	TNC-50
Actinonaias ligamentina	-	-	R	-	1	-	-	-	R	-
Actinonaias pectorosa	-	-	R	1	-	-	-	-	-	-
Amblema plicata	26	162	-	3	-	-	-	-	-	-
Arcidens confragosus	-	3	-	-	2	2	-	-	-	-
Cyclonaias tuberculata	32	135	R	48	21	3	-	-	-	-
Ellipsaria lineolata	-	1	-	1	1	-	-	-	-	-
Elliptio crassidens	-	-	R	1	-	1	-	-	-	-
Elliptio dilatata	-	2	-	-	-	-	-	-	-	-
Epioblasma sp. cf. *capsaeformis*	-	-	-	-	-	-	-	-	-	-
Epioblasma triquetra	-	-	-	-	-	R	-	-	-	-
Fusconaia barnesiana	3	4	-	-	-	-	-	-	-	-
Fusconaia ebena	-	1	-	37	10	2	-	-	-	-
Lampsilis cardium	1	1	R	8	11	7	-	-	R	-
Lampsilis fasciola	4	5	-	3	7	15	-	-	-	-
Lampsilis teres	-	2	1	-	2	6	-	-	-	-
Lasmigona complanata	-	2	-	2	-	1	-	-	-	-
Lasmigona costata	6	5	-	1	1	1	-	-	-	-
Lasmigona sp. cf. *holstonis*	-	-	-	-	-	-	-	-	-	-
Lemiox rimosus	-	-	-	-	-	-	-	-	-	-
Leptodea fragilis	9	5	3	-	3	7	-	-	-	-
Lexingtonia dolabelloides	1	14	R	-	-	-	-	-	-	-
Ligumia recta	-	-	-	2	1	2	-	-	-	-
Medionidus conradicus	-	-	-	-	-	-	-	-	R	-
Megalonaias nervosa	14	8	R	6	-	2	-	-	-	-
Obliquaria reflexa	25	30	1	32	-	15	-	-	-	-
Obovaria subrotunda	-	-	-	-	-	R	-	-	-	-
Pleurobema oviforme	-	-	-	-	-	-	-	-	-	-
Pleurobema rubrum	-	-	-	-	-	R	-	-	-	-
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	5	2	6	11	10	-	-	-	-
Ptychobranchus fasciolaris	29	10	-	-	-	1	-	-	-	-
Pyganodon grandis	1	1	-	-	-	1	-	R	-	R
Quadrula apiculata	-	2	-	-	-	-	-	-	-	-
Quadrula cylindrica	2	-	-	-	-	R	-	-	-	-
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-
Quadrula pustulosa	5	69	1	103	16	36	-	-	-	-
Quadrula quadrula	1	13	-	-	-	1	-	-	-	-
Strophitus undulatus	-	1	-	1	2	R	-	-	-	-
Toxolasma lividus	-	9	-	-	-	-	-	-	-	-
Tritogonia verrucosa	19	41	1	17	8	3	-	-	-	-
Truncilla donaciformis	R	5	-	1	-	-	-	-	-	-
Truncilla truncata	24	22	-	37	7	6	-	-	-	-
Utterbackia imbecillis	-	1	-	-	-	-	-	-	-	-
Villosa iris	-	-	-	-	-	-	-	-	-	-
Villosa taeniata	-	-	-	-	-	-	-	-	-	-
Villosa vanuxemensis	2	8	-	-	-	2	R	R	-	-
SAMPLE TOTAL	**204**	**567**	**9**	**310**	**104**	**124**	**0**	**0**	**0**	**0**

Appendix 1. Continued.

Species	TNC-51	TNC-52	TNC-53	TNC-54	TNC-55	TNC-56	TNC-57	TNC-58	TNC-59	TNC-60
Actinonaias ligamentina	-	-	-	-	-	-	-	-	-	-
Actinonaias pectorosa	-	-	-	-	-	-	-	-	-	-
Amblema plicata	R	-	-	-	-	R	R	R	-	-
Arcidens confragosus	-	-	-	-	-	-	-	-	-	-
Cyclonaias tuberculata	-	-	-	-	-	-	-	-	-	-
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-
Elliptio dilatata	1	-	-	-	-	-	-	-	-	-
Epioblasma sp. cf. *capsaeformis*	-	-	-	-	-	-	-	-	-	-
Epioblasma triquetra	-	-	-	-	-	-	-	-	-	-
Fusconaia barnesiana	R	-	-	-	R	R	-	R	-	-
Fusconaia ebena	-	-	-	-	-	-	-	-	-	-
Lampsilis cardium	-	-	-	-	-	-	-	R	-	-
Lampsilis fasciola	-	-	-	-	-	-	-	-	-	-
Lampsilis teres	-	-	-	-	-	-	-	-	-	-
Lasmigona complanata	-	-	-	-	-	-	-	-	-	-
Lasmigona costata	-	-	-	-	-	-	-	R	-	-
Lasmigona sp. cf. *holstonia*	-	-	-	-	-	-	1	-	-	-
Lemiox rimosus	-	-	-	-	-	-	-	-	-	-
Leptodea fragilis	-	-	-	-	-	-	-	-	-	-
Lexingtonia dolabelloides	-	-	-	-	-	-	-	R	-	-
Ligumia recta	-	-	-	-	-	-	-	-	-	-
Medionidus conradicus	1	-	-	-	R	-	-	-	-	-
Megalonaias nervosa	-	-	-	-	-	-	-	-	-	-
Obliquaria reflexa	-	-	-	-	-	-	-	-	-	-
Obovaria subrotunda	-	-	-	-	-	-	-	-	-	-
Pleurobema oviforme	-	-	-	-	-	-	-	-	-	-
Pleurobema rubrum	-	-	-	-	-	-	-	-	-	-
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	-	-	-	-	-	-	-	-	-
Ptychobranchus fasciolaris	-	-	-	-	-	R	-	-	-	-
Pyganodon grandis	-	-	-	-	-	R	R	-	-	-
Quadrula apiculata	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	-	-	-	-	-	-	-	-	-	-
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-
Quadrula pustulosa	-	-	-	-	-	-	-	-	-	-
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-
Strophitus undulatus	-	-	-	-	R	-	-	-	-	-
Toxolasma lividus	-	-	-	-	R	-	R	R	-	-
Tritogonia verrucosa	-	-	-	-	-	-	-	-	-	-
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-
Truncilla truncata	-	-	-	-	-	-	-	-	-	-
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-
Villosa iris	R	-	-	R	R	R	-	3	R	-
Villosa taeniata	1	-	-	-	-	-	-	3	R	-
Villosa vanuxemensis	-	-	-	1	R	R	R	3	R	-
SAMPLE TOTAL	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**9**	**0**	**0**

Appendix 1. Continued.

Species	TNC-61	TNC-62	TNC-63	TNC-64	TNC-65	TNC-66	TNC-67	TNC-68	TNC-69	TNC-70
Actinonaias ligamentina	R	-	-	-	-	-	R	-	-	-
Actinonaias pectorosa	-	-	-	-	-	-	-	-	-	-
Amblema plicata	-	-	33	1	1	-	-	-	-	-
Arcidens confragosus	-	-	-	-	-	-	-	-	-	-
Cyclonaias tuberculata	-	-	36	1	1	-	-	-	-	-
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-
Elliptio dilatata	-	-	42	-	-	-	-	-	-	-
Epioblasma sp. cf. *capsaeformis*	-	-	48	-	-	-	-	-	-	-
Epioblasma triquetra	-	-	-	-	-	-	-	-	-	-
Fusconaia barnesiana	-	-	6	2	-	-	-	-	R	-
Fusconaia ebena	-	-	-	-	-	-	-	-	-	-
Lampsilis cardium	R	-	3	-	-	-	-	-	-	-
Lampsilis fasciola	-	-	5	9	6	-	-	-	-	-
Lampsilis teres	-	-	-	-	-	-	-	-	-	-
Lasmigona complanata	-	-	-	-	-	-	-	-	-	R
Lasmigona costata	-	-	9	6	-	-	-	-	-	R
Lasmigona sp. cf. *holstonia*	-	-	-	-	-	-	-	-	-	-
Lemiox rimosus	-	-	23	-	-	-	-	-	-	-
Leptodea fragilis	-	-	14	-	-	-	-	-	-	-
Lexingtonia dolabelloides	-	-	14	-	-	-	-	-	-	-
Ligumia recta	-	-	-	-	-	-	-	-	-	-
Medionidus conradicus	R	-	-	-	59	-	-	-	-	-
Megalonaias nervosa	-	-	1	-	-	-	-	-	-	-
Obliquaria reflexa	-	-	1	-	-	-	-	-	-	-
Obovaria subrotunda	-	-	-	1	-	-	-	-	-	-
Pleurobema oviforme	-	-	-	-	-	-	-	-	-	-
Pleurobema rubrum	-	-	-	-	-	-	-	-	-	-
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	-	2	R	-	-	-	-	-	-
Ptychobranchus fasciolaris	-	-	3	-	-	-	-	-	-	-
Pyganodon grandis	-	R	4	-	1	-	-	-	-	-
Quadrula apiculata	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrical	-	-	7	2	-	-	-	-	-	-
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-
Quadrula pustulosa	-	-	2	-	-	-	-	-	-	-
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-
Strophitus undulatus	-	-	-	2	-	-	-	-	-	-
Toxolasma lividus	-	-	-	-	-	-	-	-	-	-
Tritogonia verrucosa	-	-	11	1	-	-	-	-	-	-
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-
Truncilla truncata	-	-	16	-	-	-	-	-	-	-
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-
Villosa iris	-	-	7	-	1	-	-	-	-	-
Villosa taeniata	-	-	30	19	53	-	-	-	-	R
Villosa vanuxemensis	-	-	14	3	2	-	R	-	R	-
SAMPLE TOTAL	**0**	**0**	**331**	**47**	**124**	**0**	**0**	**0**	**0**	**0**

Appendix 1. Continued.

Species	TNC-71	TNC-72	TNC-73	TNC-74	TNC-75	TNC-76	TNC-77	TNC-78	TNC-79	TNC-80
Actinonaias ligamentina	-	-	-	-	-	-	-	-	-	-
Actinonaias pectorosa	-	R	-	-	R	-	-	-	-	R
Amblema plicata	-	2	-	R	1	8	L	L	5	R
Arcidens confragosus	-	-	-	-	-	-	L	L	-	-
Cyclonaias tuberculata	-	R	1	R	4	12	L	L	2	R
Ellipsaria lineolata	-	-	-	-	-	-	-	L	-	-
Elliptio crassidens	-	-	-	-	-	-	-	R	-	-
Elliptio dilatata	-	R	-	-	-	16	L	-	-	-
Epioblasma sp. cf. *capsaeformis*	-	-	-	-	-	11	-	-	-	-
Epioblasma triquetra	-	-	-	-	-	-	-	-	R	-
Fusconaia barnesiana	-	-	-	R	-	4	-	L	2	-
Fusconaia ebena	-	-	-	-	-	-	-	L	-	-
Lampsilis cardium	R	R	-	-	R	3	L	L	1	-
Lampsilis fasciola	-	-	-	1	-	4	L	L	13	1
Lampsilis teres	-	-	-	-	-	-	L	L	-	-
Lasmigona complanata	-	-	-	-	-	-	-	L	-	-
Lasmigona costata	-	-	-	R	R	7	L	L	4	2
Lasmigona sp. cf. *holstonia*	-	-	-	-	-	-	-	-	-	-
Lemiox rimosus	-	-	-	-	-	15	-	R	-	-
Leptodea fragilis	-	-	-	-	-	5	L	L	1	-
Lexingtonia dolabelloides	-	R	-	-	R	8	L	L	R	-
Ligumia recta	-	-	-	-	-	-	L	-	-	-
Medionidus conradicus	-	-	-	-	-	-	-	-	-	-
Megalonaias nervosa	-	-	-	-	-	1	L	L	-	-
Obliquaria reflexa	-	-	-	-	-	5	L	L	-	-
Obovaria subrotunda	-	-	-	-	-	1	-	L	-	R
Pleurobema oviforme	-	-	-	-	-	-	-	-	-	-
Pleurobema rubrum	-	-	-	-	-	2	-	-	-	-
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	-	-	-	-	4	L	L	-	-
Ptychobranchus fasciolaris	-	-	-	-	-	1	L	L	-	-
Pyganodon grandis	-	-	-	-	-	1	-	L	-	-
Quadrula apiculata	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	-	R	-	-	R	8	L	L	R	-
Quadrula intermedia	-	-	-	-	-	1	-	-	-	-
Quadrula pustulosa	-	-	-	-	-	7	L	L	-	-
Quadrula quadrula	-	-	-	-	-	-	L	L	-	-
Strophitus undulatus	-	-	-	-	-	-	L	L	1	-
Toxolasma lividus	-	-	-	-	-	1	-	L	-	-
Tritogonia verrucosa	-	-	-	-	-	11	L	L	R	R
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-
Truncilla truncata	-	-	-	-	-	10	L	L	-	-
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-
Villosa iris	-	-	-	-	-	2	-	-	-	-
Villosa taeniata	-	-	1	9	1	6	-	-	36	3
Villosa vanuxemensis	-	R	-	R	-	4	-	R	3	-
SAMPLE TOTAL	**0**	**2**	**2**	**10**	**6**	**158**	**0**	**0**	**68**	**6**

Appendix 1. Continued.

Species	TNC-81	TNC-82	TNC-83	TNC-84	TNC-85	TNC-86	TNC-87	TNC-88	TNC-89	TNC-90
Actinonaias ligamentina	-	-	-	-	-	-	-	-	-	-
Actinonaias pectorosa	2	1	2	-	-	-	R	-	1	1
Amblema plicata	R	-	R	-	-	R	R	-	R	R
Arcidens confragosus	-	-	-	-	-	-	-	-	-	-
Cyclonaias tuberculata	11	1	3	-	-	4	4	-	5	3
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-
Elliptio dilatata	45	11	4	-	-	1	3	R	11	R
Epioblasma sp. cf. *capsaeformis*	-	-	-	-	-	-	-	-	-	-
Epioblasma triquetra	-	-	R	-	-	-	-	-	-	-
Fusconaia barnesiana	6	3	2	-	-	R	11	-	1	1
Fusconaia ebena	-	-	-	-	-	-	-	-	-	-
Lampsilis cardium	3	-	2	-	-	1	3	-	R	1
Lampsilis fasciola	38	20	3	-	-	5	9	2	6	R
Lampsilis teres	-	-	-	-	-	-	-	-	-	-
Lasmigona complanata	-	-	-	-	-	-	-	-	-	-
Lasmigona costata	-	5	2	-	-	2	3	-	11	-
Lasmigona sp. cf. *holstonia*	-	-	-	-	-	-	-	-	-	-
Lemiox rimosus	-	-	-	-	-	-	-	-	-	-
Leptodea fragilis	-	-	-	-	-	-	-	-	-	-
Lexingtonia dolabelloides	16	1	1	-	-	1	7	-	5	-
Ligumia recta	-	-	-	-	-	-	-	-	-	-
Medionidus conradicus	-	1	-	-	-	-	-	-	-	-
Megalonaias nervosa	-	-	-	-	-	-	-	-	-	-
Obliquaria reflexa	-	-	-	-	-	-	-	-	-	-
Obovaria subrotunda	1	-	2	-	-	-	R	-	3	R
Pleurobema oviforme	-	-	-	-	-	-	-	-	-	-
Pleurobema rubrum	-	-	-	-	-	-	-	-	-	-
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	-	-	-	-	-	1	-	-	R
Ptychobranchus fasciolaris	-	-	-	-	-	-	-	-	-	-
Pyganodon grandis	-	-	-	-	-	-	-	-	-	-
Quadrula apiculata	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	1	-	-	-	-	-	-	-	R	-
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-
Quadrula pustulosa	-	-	1	-	-	-	-	R	-	-
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-
Strophitus undulatus	4	2	1	-	-	-	-	-	1	-
Toxolasma lividus	R	-	-	-	-	-	-	-	-	-
Tritogonia verrucosa	-	R	-	-	-	1	R	-	-	R
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-
Truncilla truncata	-	-	-	-	-	-	-	-	-	-
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-
Villosa iris	-	9	2	-	-	-	-	-	3	-
Villosa taeniata	35	48	8	-	-	7	12	2	18	5
Villosa vanuxemensis	3	3	3	-	-	R	2	-	-	-
SAMPLE TOTAL	**165**	**105**	**36**	**0**	**0**	**22**	**55**	**4**	**65**	**11**

Appendix 1. Continued.

Species	TNC-91	TNC-92	TNC-93	TNC-94	TNC-95	TNC-96	TNC-97	TNC-98	TNC-99	TNC-100
Actinonaias ligamentina	-	-	-	-	-	-	-	-	-	-
Actinonaias pectorosa	-	R	1	1	-	-	1	-	-	-
Amblema plicata	R	6	3	-	2	5	-	-	-	-
Arcidens confragosus	-	5	4	-	1	-	-	-	-	-
Cyclonaias tuberculata	1	-	17	13	25	116	3	-	-	-
Ellipsaria lineolata	-	-	2	-	-	-	-	-	-	-
Elliptio crassidens	-	-	1	-	-	-	-	-	-	-
Elliptio dilatata	1	1	-	18	17	63	R	-	-	-
Epioblasma sp. cf. *capsaeformis*	-	-	-	-	R	-	-	-	-	-
Epioblasma triquetra	-	-	-	-	R	-	-	-	-	-
Fusconaia barnesiana	-	4	5	4	3	1	-	-	-	-
Fusconaia ebena	-	-	4	-	-	-	-	-	-	-
Lampsilis cardium	-	5	3	5	6	18	2	-	-	-
Lampsilis fasciola	6	9	7	8	12	7	3	-	-	-
Lampsilis teres	-	3	11	-	-	-	-	-	-	-
Lasmigona complanata	-	2	6	-	-	-	-	-	-	-
Lasmigona costata	3	6	21	3	18	37	2	-	1	-
Lasmigona sp. cf. *holstonia*	-	-	-	-	-	-	-	-	-	-
Lemiox rimosus	-	-	-	3	-	-	-	-	-	-
Leptodea fragilis	-	7	9	-	3	4	R	-	-	-
Lexingtonia dolabelloides	-	11	5	17	16	10	R	-	-	-
Ligumia recta	-	-	2	-	-	-	-	-	-	-
Medionidus conradicus	-	1	-	2	1	1	2	-	-	-
Megalonaias nervosa	-	5	48	-	4	43	-	-	-	-
Obliquaria reflexa	-	10	8	2	1	1	-	-	-	-
Obovaria subrotunda	R	R	R	-	-	-	-	-	-	-
Pleurobema oviforme	-	-	-	-	-	-	-	-	-	-
Pleurobema rubrum	-	R	R	-	3	7	R	-	-	-
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	7	27	2	3	-	2	-	-	-
Ptychobranchus fasciolaris	-	1	10	-	1	-	-	-	-	-
Pyganodon grandis	1	-	1	-	-	-	-	-	-	-
Quadrula apiculata	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	-	1	-	3	26	6	-	-	-	-
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-
Quadrula pustulosa	-	8	27	7	15	26	R	-	-	-
Quadrula quadrula	R	R	5	-	-	-	-	-	-	-
Strophitus undulatus	-	2	6	-	-	-	-	-	-	-
Toxolasma lividus	-	1	-	-	R	1	-	-	-	-
Tritogonia verrucosa	-	9	33	1	9	10	1	-	-	-
Truncilla donaciformis	-	R	-	-	-	-	-	-	-	-
Truncilla truncata	-	16	13	1	1	1	1	-	-	-
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-
Villosa iris	-	-	-	2	1	-	-	-	-	-
Villosa taeniata	12	-	-	-	-	-	-	-	-	-
Villosa vanuxemensis	1	1	3	-	1	2	-	-	-	-
SAMPLE TOTAL	**25**	**121**	**282**	**92**	**169**	**359**	**17**	**0**	**1**	**0**

Appendix 1. Continued.

Species	TNC-101	TNC-102	TNC-103	TNC-104	TNC-105	TNC-106	TNC-107	TNC-108	TNC-109	TNC-110
Actinonaias ligamentina	-	-	-	-	-	-	-	-	-	2
Actinonaias pectorosa	-	-	-	-	-	-	1	-	1	-
Amblema plicata	-	-	1	-	-	4	-	-	-	2
Arcidens confragosus	-	-	2	1	-	-	-	-	-	-
Cyclonaias tuberculata	-	-	4	21	-	-	-	-	-	105
Ellipsaria lineolata	-	-	-	2	-	-	-	-	-	4
Elliptio crassidens	-	-	-	-	-	R	-	-	-	1
Elliptio dilatata	-	-	-	-	-	-	-	-	-	-
Epioblasma sp. cf. *capsaeformis*	-	-	-	-	-	-	-	-	-	-
Epioblasma triquetra	-	-	-	-	-	-	-	-	-	-
Fusconaia barnesiana	-	-	-	-	-	-	-	2	R	-
Fusconaia ebena	-	-	R	2	-	-	-	-	-	2
Lampsilis cardium	-	-	2	13	-	-	-	-	-	7
Lampsilis fasciola	-	-	1	4	-	-	-	-	-	-
Lampsilis teres	-	-	4	-	-	-	-	-	-	-
Lasmigona complanata	-	-	-	1	-	-	-	-	-	-
Lasmigona costata	-	-	1	3	-	-	-	-	-	2
Lasmigona sp. cf. *holstonia*	-	-	-	-	-	-	-	-	-	-
Lemiox rimosus	-	-	-	-	-	-	-	-	-	-
Leptodea fragilis	-	-	8	1	-	-	-	-	-	3
Lexingtonia dolabelloides	-	-	-	-	-	-	-	-	-	-
Ligumia recta	-	-	R	-	-	-	-	-	-	1
Medionidus conradicus	-	-	-	-	-	-	-	-	-	-
Megalonaias nervosa	-	-	1	-	-	-	-	-	-	2
Obliquaria reflexa	-	-	2	12	-	-	-	-	-	1
Obovaria subrotunda	-	-	-	-	-	-	-	-	-	-
Pleurobema oviforme	-	-	-	-	-	-	-	-	-	-
Pleurobema rubrum	-	-	-	-	-	-	-	-	-	-
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	-	10	10	-	-	-	-	-	10
Ptychobranchus fasciolaris	-	-	-	-	-	-	-	-	-	-
Pyganodon grandis	-	-	-	-	-	-	-	1	-	-
Quadrula apiculata	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	-	-	R	-	-	-	-	-	-	5
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-
Quadrula pustulosa	-	-	3	24	-	-	-	-	-	33
Quadrula quadrula	-	-	-	-	-	-	-	-	-	1
Strophitus undulatus	-	-	1	1	-	-	-	-	-	1
Toxolasma lividus	-	-	-	-	1	-	-	-	-	-
Tritogonia verrucosa	-	-	-	9	-	-	-	-	-	41
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	1
Truncilla truncata	-	-	2	2	-	-	-	-	-	7
Utterbackia imbecillis	-	-	6	-	-	-	-	-	-	3
Villosa iris	-	-	-	-	-	-	4	-	-	-
Villosa taeniata	-	-	-	-	-	1	1	1	1	-
Villosa vanuxemensis	-	-	1	-	-	R	1	1	-	-
SAMPLE TOTAL	**0**	**0**	**49**	**106**	**1**	**5**	**7**	**5**	**2**	**234**

Appendix 1. Continued.

Species	TNC-111	TNC-112	Total Number for Study	Percent Composition
Actinonaias ligamentina	-	-	**3**	**0.03**
Actinonaias pectorosa	-	-	**26**	**0.25**
Amblema plicata	-	-	**432**	**4.10**
Arcidens confragosus	-	-	**27**	**0.26**
Cyclonaias tuberculata	2	2	**1546**	**14.68**
Ellipsaria lineolata	1	-	**12**	**0.11**
Elliptio crassidens	-	-	**5**	**0.05**
Elliptio dilatata	-	-	**1436**	**13.63**
Epioblasma sp. cf. *capsaeformis*	-	-	**202**	**1.92**
Epioblasma triquetra	-	-	**1**	**0.01**
Fusconaia barnesiana	-	-	**183**	**1.74**
Fusconaia ebena	-	-	**61**	**0.58**
Lampsilis cardium	9	-	**293**	**2.78**
Lampsilis fasciola	1	1	**646**	**6.13**
Lampsilis teres	-	-	**30**	**0.28**
Lasmigona complanata	-	-	**59**	**0.56**
Lasmigona costata	-	3	**798**	**7.58**
Lasmigona sp. cf. *holstonia*	-	-	**1**	**0.01**
Lemiox rimosus	-	-	**324**	**3.08**
Leptodea fragilis	3	9	**154**	**1.46**
Lexingtonia dolabelloides	-	-	**314**	**2.98**
Ligumia recta	R	-	**8**	**0.08**
Medionidus conradicus	-	-	**474**	**4.50**
Megalonaias nervosa	-	-	**487**	**4.62**
Obliquaria reflexa	1	R	**214**	**2.03**
Obovaria subrotunda	-	-	**50**	**0.48**
Pleurobema oviforme	-	-	**1**	**0.01**
Pleurobema rubrum	-	-	**58**	**0.56**
Pleurobema sintoxia	-	-	**2**	**0.02**
Potamilus alatus	5	18	**184**	**1.75**
Ptychobranchus fasciolaris	-	-	**68**	**0.65**
Pyganodon grandis	-	1	**18**	**0.17**
Quadrula apiculata	-	-	**3**	**0.03**
Quadrula cylindrica	-	-	**403**	**3.83**
Quadrula intermedia	-	-	**23**	**0.22**
Quadrula pustulosa	2	-	**626**	**5.94**
Quadrula quadrula	-	-	**24**	**0.23**
Strophitus undulatus	-	2	**32**	**0.30**
Toxolasma lividus	-	-	**26**	**0.25**
Tritogonia verrucosa	3	10	**372**	**3.53**
Truncilla donaciformis	-	-	**8**	**0.08**
Truncilla truncata	3	-	**247**	**2.35**
Utterbackia imbecillis	-	-	**10**	**0.09**
Villosa iris	-	-	**60**	**0.57**
Villosa taeniata	-	-	**444**	**4.22**
Villosa vanuxemensis	-	-	**137**	**1.30**
TOTAL	**30**	**46**	**10,532**	**100.00**

Appendix 2. Results of quantitative mussel sampling by quadrate (n = 20) and species from the Duck River in 2000 through 2002. Densities are presented as raw data from 0.25 m^2 quadrats from 4 different localities (LM = Lillard Mill, HI = Hooper Island, TB = Tarpley Bluff, VS = Venable Spring).

Species	LM-1	LM-2	LM-3	LM-4	LM-5	LM-6	LM-7	LM-8	LM-9	LM-10	LM-11	LM-12	LM-13	LM-14	LM-15	LM-16	LM-17	LM-18	LM-19	LM-20	Total
Amblema plicata	-	-	1	-	-	2	1	-	1	-	-	-	1	-	-	-	1	-	2	1	**10**
Arcidens confragosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Cyclonaias tuberculata	4	-	2	3	-	1	-	4	-	3	1	2	-	3	3	3	2	1	6	-	**38**
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Elliptio dilatata	1	4	-	2	2	3	3	3	1	2	-	-	1	-	-	-	2	1	-	4	**29**
Epioblasma sp. cf. *capsaeformis*	1	2	-	1	-	-	-	-	1	-	-	-	1	-	-	3	-	1	-	1	**11**
Epioblasma triquetra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Fusconaia barnesiana	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	**3**
Fusconaia ebena	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Lampsilis cardium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	**1**
Lampsilis fasciola	1	-	-	-	-	-	1	1	2	-	-	-	-	-	-	1	-	1	1	-	**8**
Lampsilis teres	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	**-**
Lasmigona complanata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Lasmigona costata	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1	**3**
Lemiox rimosus	2	1	-	4	2	2	1	-	1	-	1	1	-	-	5	3	-	3	4	-	**30**
Leptodea fragilis	-	-	-	-	-	1	-	-	1	-	-	-	1	-	-	-	-	-	-	-	**3**
Lexingtonia dolabelloides	1	-	2	-	2	-	-	-	-	2	-	-	-	-	1	1	-	1	-	-	**10**
Ligumia recta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Medionidus conradicus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Megalonaias nervosa	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	**2**
Obliquaria reflexa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Obovaria subrotunda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Pleurobema rubrum	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Potamilus alatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Ptychobranchus fasciolaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Pyganodon grandis	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	**-**
Quadrula cylindrical	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Quadrula pustulosa	1	-	-	1	-	-	-	-	-	2	2	-	1	1	1	1	-	1	-	2	**13**
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Strophitus undulatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Toxolasma lividus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Tritogonia verrucosa	1	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-	-	1	-	-	**6**
Truncilla truncate	-	-	2	-	-	-	-	-	-	-	2	2	1	-	-	-	3	-	-	-	**10**
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Villosa iris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Villosa taeniata	-	-	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	-	-	1	**5**
Villosa vanuxemensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
SAMPLE TOTAL	**12**	**7**	**8**	**12**	**6**	**9**	**6**	**10**	**9**	**10**	**10**	**6**	**6**	**4**	**11**	**12**	**8**	**11**	**14**	**12**	**183**

Appendix 2. Continued.

Species	HI-1	HI-2	HI-3	HI-4	HI-5	HI-6	HI-7	HI-8	HI-9	HI-10	HI-11	HI-12	HI-13	HI-14	HI-15	HI-16	HI-17	HI-18	HI-19	HI-20	Total
Amblema plicata	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	**2**
Arcidens confragosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Cyclonaias tuberculata	-	1	-	1	2	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	**6**
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Elliptio dilatata	1	4	1	-	3	5	1	-	1	2	1	-	6	2	4	2	1	3	1	3	**41**
Epioblasma sp. cf. *capsaeformis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Epioblasma triquetra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Fusconaia barnesiana	-	-	-	1	-	1	4	-	1	1	1	1	1	-	-	-	-	-	1	-	**12**
Fusconaia ebena	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Lampsilis cardium	-		-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**
Lampsilis fasciola	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**
Lampsilis teres	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Lasmigona complanata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Lasmigona costata	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	**3**
Lemiox rimosus	-	2	-	-	-	1	-	2	1	-	1	1	2	-	1	1	-	-	-	-	**12**
Leptodea fragilis	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	**1**
Lexingtonia dolabelloides	1	-	-	1	-	-	-	-	-	1	1	-	-	1	-	-	-	-	-	-	**5**
Ligumia recta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Medionidus conradicus	1	-	2	1	-	-	1	-	-	-	3	-	1	-	-	4	-	-	-	1	**14**
Megalonaias nervosa	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**
Obliquaria reflexa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Obovaria subrotunda	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	**2**
Pleurobema rubrum	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	**2**
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Potamilus alatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Ptychobranchus fasciolaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Pyganodon grandis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Quadrula cylindrica	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	**2**
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	**3**
Quadrula pustulosa	-	1	-	1	-	2	1	-	-	3	1	-	-	-	1	-	-	-	-	-	**10**
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Strophitus undulatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Toxolasma lividus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Tritogonia verrucosa	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	**2**
Truncilla truncata	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	**2**
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Villosa iris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Villosa taeniata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Villosa vanuxemensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
SAMPLE TOTAL	**4**	**9**	**3**	**6**	**5**	**12**	**7**	**3**	**6**	**9**	**9**	**3**	**13**	**3**	**7**	**7**	**3**	**3**	**5**	**5**	**122**

Appendix 2. Continued.

Species	TB-1	TB-2	TB-3	TB-4	TB-5	TB-6	TB-7	TB-8	TB-9	TB-10	TB-11	TB-12	TB-13	TB-14	TB-15	TB-16	TB-17	TB-18	TB-19	TB-20	Total
Amblema plicata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arcidens confragosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclonaias tuberculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Elliptio dilatata	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	**1**
Epioblasma sp. cf. *capsaeformis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Epioblasma triquetra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fusconaia barnesiana	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**
Fusconaia ebena	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lampsilis cardium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lampsilis fasciola	-	-	1	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	**3**
Lampsilis teres	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lasmigona complanata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lasmigona costata	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**3**
Lemiox rimosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leptodea fragilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lexingtonia dolabelloides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ligumia recta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medionidus conradicus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Megalonaias nervosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Obliquaria reflexa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Obovaria subrotunda	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1**
Pleurobema rubrum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ptychobranchus fasciolaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyganodon grandis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quadrula pustulosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strophitus undulatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toxolasma lividus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tritogonia verrucosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Truncilla truncata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Villosa iris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Villosa taeniata	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	**2**
Villosa vanuxemensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SAMPLE TOTAL	1	1	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	**11**

Appendix 2. Continued.

Species	VS-1	VS-2	VS-3	VS-4	VS-5	VS-6	VS-7	VS-8	VS-9	VS 10	VS-11	VS-12	VS-13	VS-14	VS-15	VS-16	VS-17	VS-18	VS-19	VS-20
Amblema plicata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arcidens confragosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyclonaias tuberculata	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Elliptio dilatata	-	3	3	-	-	-	-	3	-	-	-	5	3	-	-	-	-	-	4	-
Epioblasma sp. cf. *capsaeformis*	-	-	-	1	1	-	1	1	1	-	1	-	1	1	1	-	4	-	2	-
Epioblasma triquetra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fusconaia barnesiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fusconaia ebena	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lampsilis cardium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Lampsilis fasciola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Lampsilis teres	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lasmigona complanata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lasmigona costata	-	-	-	-	-	-	1	-	-	-	-	-	1	1	-	-	1	-	-	-
Lemiox rimosus	-	-	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Leptodea fragilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lexingtonia dolabelloides	-	-	-	-	-	-	1	1	-	-	-	-	2	2	-	-	1	-	-	-
Ligumia recta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medionidus conradicus	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Megalonaias nervosa	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Obliquaria reflexa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Obovaria subrotunda	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Pleurobema rubrum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ptychobranchus fasciolaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyganodon grandis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	-	-	-	-	-	-	-	-	3	5	-	-	-	-	-	-	8	-	-	1
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quadrula pustulosa	-	-	-	-	-	-	-	1	-	-	-	-	2	3	-	-	-	-	-	-
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Strophitus undulatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toxolasma lividus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tritogonia verrucosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Truncilla truncata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Villosa iris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Villosa taeniata	1	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	3	-	-	-
Villosa vanuxemensis	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SAMPLE TOTAL	3	1	4	2	2	2	4	1	5	5	1	5	10	0	1	0	20	0	0	2

Appendix 2. Continued.

Species	VS-21	VS-22	VS-23	VS-24	VS-25	VS-26	VS-27	VS-28	VS-29	VS-30	Total
Amblema plicata	-	-	-	-	-	-	-	-	-	-	-
Arcidens confragosus	-	-	-	-	-	-	-	-	-	-	-
Cyclonaias tuberculata	-	-	-	-	-	-	2	1	-	-	**5**
Ellipsaria lineolata	-	-	-	-	-	-	-	-	-	-	-
Elliptio crassidens	-	-	-	-	-	-	-	-	-	-	-
Elliptio dilatata	5	-	-	1	6	-	2	5	1	-	**41**
Epioblasma sp. cf. *capsaeformis*	-	-	-	2	-	-	-	-	-	-	**17**
Epioblasma triquetra	-	-	-	-	-	-	-	-	-	-	-
Fusconaia barnesiana	-	-	-	-	-	-	-	-	-	-	-
Fusconaia ebena	-	-	-	-	-	-	-	-	-	-	-
Lampsilis cardium	-	-	-	-	-	-	-	1	-	-	**2**
Lampsilis fasciola	-	-	-	3	1	1	1	1	4	-	**12**
Lampsilis teres	-	-	-	-	-	-	-	-	-	-	-
Lasmigona complanata	-	-	-	-	-	-	-	-	-	-	**4-**
Lasmigona costata	1	-	-	1	-	-	-	1	-	-	**7**
Lemiox rimosus	1	-	-	-	-	-	1	1	1	-	**7-**
Leptodea fragilis	-	-	-	-	-	-	-	-	-	-	-
Lexingtonia dolabelloides	-	-	-	-	1	-	-	-	2	-	**10**
Ligumia recta	-	-	-	-	-	-	-	-	-	-	-
Medionidus conradicus	-	-	-	-	-	-	-	-	-	-	**1**
Megalonaias nervosa	-	-	-	-	-	-	-	-	-	-	**1**
Obliquaria reflexa	-	-	-	-	-	-	-	-	-	-	-
Obovaria subrotunda	1	-	-	-	-	-	-	-	-	-	**4**
Pleurobema rubrum	-	-	-	-	-	-	-	-	-	-	-
Pleurobema sintoxia	-	-	-	-	-	-	-	-	-	-	-
Potamilus alatus	-	-	-	-	-	-	-	-	-	-	-
Ptychobranchus fasciolaris	-	-	-	-	-	-	-	-	-	-	-
Pyganodon grandis	-	-	-	-	-	-	-	-	-	-	-
Quadrula cylindrica	2	1	1	6	-	-	1	-	-	-	**27**
Quadrula intermedia	-	-	-	-	-	-	-	-	-	-	-
Quadrula pustulosa	-	-	-	-	-	-	-	-	-	-	-
Quadrula quadrula	-	-	-	-	-	-	-	-	-	-	-
Strophitus undulatus	-	-	-	-	-	-	-	-	-	-	-
Toxolasma lividus	-	-	-	-	-	-	-	-	-	-	-
Tritogonia verrucosa	-	-	-	-	1	-	-	-	-	-	**2**
Truncilla truncata	-	-	-	-	-	-	-	-	-	-	-
Truncilla donaciformis	-	-	-	-	-	-	-	-	-	-	-
Utterbackia imbecillis	-	-	-	-	-	-	-	-	-	-	-
Villosa iris	-	-	-	-	-	-	-	-	-	-	-
Villosa taeniata	-	-	-	-	-	-	-	-	-	-	**6**
Villosa vanuxemensis	-	-	-	-	-	-	-	-	-	-	**1**
SAMPLE TOTAL	10	1	1	13	9	1	7	10	8	0	**147**

Appendix 3. Database of historical freshwater mussel collections taken from the Duck River Basin. Historical distribution records have been assembled from the National Academy of Sciences (ANSP) in Philadelphia, PA; Florida State Museum of Natural History (FLMNH) in Gainesville, FL; Frank H. McClung Museum (FMM), University of Tennessee, Knoxville, TN; Museum of Comparative Zoology (MCZ), Harvard University, Cambridge, MA; Museum of Fluviatile Mollusks (MFM) in Cleveland, TN; North Carolina Museum of Natural History (NCMNH), Raleigh, NC; The Ohio State University Museum (OSUM) in Columbus, OH; the University of Michigan Natural History Museum (UMMZ) in Ann Arbor, MI; and the Smithsonian Institution (USNM) in Washington, D.C.

Species	Museum #	Location	Collector	Date
Actinonaias ligamentina	ANSP 126120	Duck River, TN	C.M. Wheatley	
	FMM 1775	Duck River, Centerville, Hickman Co., TN		December 13, 1973
	MCZ 272795	Duck River, 1.5 mi E of Ben, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34177	Duck River, Rt 50, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 34196	Duck River, Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 15623	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 16226	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34117	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34166	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 86325	Duck River, Columbia, Maury Co., TN		
	USNM 540146	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
Actinonaias pectorosa	ANSP 20554	Duck River, TN	C.M. Wheatley	
	ANSP 126148	Duck River, TN	C.M. Wheatley	
	FMM 1784	Duck River, at DRM 160, Maury Co., TN		June 12, 1980
	FMM 1785	Duck River, Lillard Mill, Marshall Co., TN		April 12, 1985
	MCZ 5747	Duck River, Columbia, Maury Co., TN	R.E. Call	1890's
	MFM 6910	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 19816	Duck River, Three Forks Bridge, 7 km, NW of Normandy, Bedford Co., TN	H.D. Athearn	June 22, 1969
	OSUM 34239	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
	OSUM 34251	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34279	Buffalo River, at Natchez Trace, Lewis Co., TN	D.H. Stansbery, C.B. Stein, E.P. Keferl, K.A. Heffelfinger	July 12, 1968
	OSUM 15062	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 19689	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
	OSUM 33118	Duck River, DRM 243.0, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33178	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 12063	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12230	Duck River, about 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 15136	Duck River, above Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 19971	Duck River, DRM 179.0, Milltown, Marshall Co., TN	J.O. Phifer	
	OSUM 33912	Duck River, Wilhoite Mill, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33970	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 34879	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Fredrick, Jr.	October 28, 1973
	OSUM 33984	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	July 7, 1965
	OSUM 34030	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34063	Duck River, DRM 156.5, at Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965

Appendix 3. Continued.

	OSUM 34146	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 38107	Duck River, TN		
	OSUM 269605	Duck River, TN	R.E. Call	1890's
	OSUM 269604	Duck River, TN	R.E. Call	1890's
	UMMZ 58322	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 52715	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 52748	Duck River, Columbia, Maury Co., TN		
	UMMZ 89124	Duck River, TN		
	UMMZ 86432	Duck River, TN		
	USNM 152046	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	1890's
	USNM 477039	Duck River, TN	P. Marsh	1884
Alasmidonta marginata	FMM 1904	Duck River, Henry Horton State Park, Marshall Co., TN	P.W. Parmalee	October 24, 1973
	MFM 6917	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	
	MFM 4344	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	
	OSUM 34235	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
	OSUM 34246	Buffalo River, above TN Rt 13/ TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 12227	Duck River, about 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 15140	Duck River, above Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 52490	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	UMMZ 58323	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 52717	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 52749	Duck River, Columbia, Maury Co., TN		
Alasmidonta viridis	FMM 1873	Duck River, Coffee Co., TN		April 1, 1973
	MFM 11058	Duck River, 0.5 mi below Normandy Dam, Bedford Co., TN	H.D. Athearn	November 11, 1963
	MFM 21671	Duck River, Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
	MFM 19784	Duck River, Bone Cave Ford, 3.7 km W of Manchester, Coffee Co., TN	H.D. Athearn	June 22, 1969
	OSUM 34274	Buffalo River, Natchez Trace, Lewis Co., TN	D.H. Stansbery, C.B. Stein, E.P. Keferl, K.A. Heffelfinger	July 12, 1968
	OSUM 19680	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W. J. Clench	October 2, 1967
	OSUM 33101	Duck River, US Rt 41A/TN Rt 17, Normandy, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33110	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 16199	Duck River, Coffee Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 41544	East Rock Creek, at bridge and R.R., Marshall Co., TN	C.B. Stein	September 28, 1976
	UMMZ 62178	Duck River, Shelbyville, Bedford Co., TN	A.E. Ortmann	September 1, 1922
Amblema plicata	ANSP 163037	Duck River, Hardison Mill, 12 mi W of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	April 16, 1905
	ANSP 361074	Duck River, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt	August 14, 1976
	ANSP 363111	Duck River, below old Columbia Dam, Maury Co., TN	S.A. Ahlstedt	January 17, 1986
	ANSP 157146	Duck River, Wilhoite, Marshall Co., TN	H. van der Schalie	1931
	ANSP 127414	Duck River, TN	C.M. Wheatley	

Appendix 3. Continued.

FMM 1995	Duck River, Henry Horton State Park, Marshall Co., TN	P.W. Parmalee	October 24, 1973
FMM 1996	Duck River, 6 mile NNE of Buffalo, Humphreys Co., TN		December 13, 1973
FMM 1998	Duck River, Route 431, East of Columbia, Maury Co., TN		July 25, 1974
FMM 3490	Duck River, DRM 133, old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 9, 1999
FMM 3537	Duck River, Tennessee Hwy 50 at 0.3 mile of SE junction Hwy 50 and I-40, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 13, 2000
MCZ 83984	Duck River, Columbia, Maury Co., TN	C. Goodrich	
MCZ 83986	Duck River, Wilhoite, Marshall Co., TN	C. Pilsbury	
MCZ 6213	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	
MCZ 98549	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
MCZ 274848	Duck River, US Rt 41A bridge, 6 mi ESE of Shelbyville, Bedford Co., TN	D.H. Stansbery, W. J. Clench	October 2, 1967
MCZ 272802	Duck River, 10 mi ESE of Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
MCZ 210945	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
MCZ 272785	Duck River, 1.5 mi E of Ben, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
MCZ 236218	Duck River, Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
MFM 4332	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
MFM 15424	Duck River, Henry Horton State Park, 3 mi S of Chapel Hill, Marshall Co., TN	H.D. Athearn	September 6, 1964
MFM 6905	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
MFM 19798	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn	June 22, 1969
NCMNH 5691	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn, M.A. Athearn	June 26, 1969
OSUM 19679	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
OSUM 21607	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
OSUM 33113	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 33172	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 34191	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
OSUM 43403	Duck River, DRM 32.2, Barren Hollow Rd., Hickman Co., TN	C.B. Stein, W.N. Kasson	August 16, 1978
OSUM 47808	Duck River, DRM 32.2, Barren Hollow Rd., Hickman Co., TN	C.B. Stein	July 1, 1980
OSUM 12055	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
OSUM 12215	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
OSUM 14836	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
OSUM 15127	Duck River, above US Rt 31A, Wilhoite Mill, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
OSUM 33329	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
OSUM 33906	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
OSUM 33945	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 4, 1965
OSUM 33966	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
OSUM 34873	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
OSUM 38358	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
OSUM 39574	Duck River, below US Rt 431, Hardison Mill, Marshall Co., TN	K.E. Wright	August 29, 1976
OSUM 15609	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
OSUM 33981	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
OSUM 34024	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
OSUM 34057	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
OSUM 34111	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
OSUM 34137	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
OSUM 34164	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
OSUM 40721	Duck River, DRM 113.9, above TN Rt 50, Williamsport, Maury Co., TN	C.B. Stein	September 22, 1976

Appendix 3. Continued.

	OSUM 41545	East Rock Creek, at bridge and R.R., Marshall Co., TN	C.B. Stein	September 28, 1976
	UMMZ 128866	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	UMMZ 58324	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 52750	Duck River, Columbia, Maury Co., TN		
	UMMZ 52716	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 30121	Duck River, Only, Hickman Co., TN		
Anodonta sp.	OSUM 15617	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
Arcidens confragosus	FMM 3453	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
	FMM 3549	Duck River, shoal area just above base of bluff at 4 mile upstream of New Highway 13 bridge, 2 air miles NW of Bucksnort, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	FMM 3529	Duck River, Lovette Island, NNE of Coble, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 15, 2000
Cumberlandia monodonta	FMM 3547	Duck River, 1 mile above mouth of Hurricane Creek at Whirl Bar Island, 7 air miles North of Buffalo, Humphreys Co. TN	E.M. Schilling	June 30, 2000
	UMMZ 30067	Duck River, Only, Hickman Co., TN		
Cyclonaias tuberculata	ANSP 366832	Duck River, DRM 172.5, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 363113	Duck River, DRM 132-131, below old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 127699	Duck River, TN	C.M. Wheatley	
	ANSP 341433	Duck River, Only, Hickman Co., TN		
	ANSP 391127	Duck River, DRM 172.4, below Hardison Mill Dam, Maury/Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 16, 1986
	FMM 2252	Duck River, Henry Horton State Park, Marshall Co., TN	P.W. Parmalee	October 24, 1973
	FMM 2253	Duck River, Route 431, East of Columbia, Maury Co., TN		July 25, 1974
	FMM 3473	Duck River, DRM 133, old Columbia Dam, Maury Co., TN		September 9, 1999
	FMM 3526	Duck River, Lovette Island, NNE of Coble, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 15, 2000
	FMM 3534	Duck River, 3 miles upstream of New Hwy 13 bridge, 5.3 air miles ENE of Buffalo, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	FMM 3551	Duck River, 1 mile below Old Hwy 13 bridge, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	FMM 3837	Duck River, North edge of Centerville, Hickman Co., TN	G.R. Dinkins, J. Stapleton	September 16, 2004
	MCZ 272801	Duck River, 10 mi ESE of Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	MCZ 98541	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Maury Co., TN	W.J. Clench, H. van der Schalie	1933
	MCZ 6268	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	1890's
	MCZ 272782	Duck River, Rt 50 bridge, at Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	MCZ 210956	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MCZ 235908	Duck River, Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 6899	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 19799	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn	June 22, 1969
	NCMNH 5690	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn, M.A. Athearn	June 22, 1969

Appendix 3. Continued.

	NCMNH 6744	Duck River, 1.5 air mile E of US 31A and NE of Henry Horton State Park, 9.5 air mile NNE of Lewisburg, Marshall Co., TN	W.C. Starnes, L.B. Starnes, J.A. Louton	April 1, 1978
	OSUM 34231	Buffalo River, TN Rt 13, Perry Co., TN	D.H. Stansbery, W.J. Clench	October 13, 1972
	OSUM 34237	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
	OSUM 34249	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 33115	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33174	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	P. Yokley, B.G. Isom	September 8, 1965
	OSUM 57945	Duck River, Bedford Co., TN	W.H. Sedgwick	prior to 1973
	OSUM 34192	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 40728	Duck River, TN Rt 100, Centerville, Hickman Co., TN	C.B. Stein	September 24, 1976
	OSUM 12058	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12220	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14842	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15131	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 19970	Duck River, DRM 179, Milltown, Marshall Co., TN	J.O. Phifer	
	OSUM 33330	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33908	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33946	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33968	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 34875	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 38360	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 39575	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	K.E. Wright	August 29, 1976
	OSUM 15615	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 33982	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 34025	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34058	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34112	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34139	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 64192	Duck River, 12 miles NW of Lewisburg, Hardison Mill, Marshall Co., TN		
	UMMZ 98582	Duck River, Maury Co., TN		
	UMMZ 128860	Duck River, Williamsport, Maury Co., TN		
	UMMZ 98683	Duck River, TN		
	UMMZ 52777	Duck River, Centerville, Hickman Co., TN		
	UMMZ 58329	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 22680	Duck River, TN		
	UMMZ 52753	Duck River, Columbia, Maury Co., TN		
	UMMZ 52720	Duck River, Wilhoite, Marshall Co., TN		
	USNM 512363	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
	USNM 528769	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
	USNM 528774	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
Ellipsaria lineolata	ANSP 377159	Duck River, 2-4 mi N of I40, Rt 13, Humphrey Co., TN	D. Tanner	July 16, 1970
	ANSP 126410	Duck River, TN	C.M. Wheatley	
	FMM 3535	Duck River, 3 miles upstream of New Hwy 13 bridge,	E.M. Schilling, J.D. Williams	October 14, 2000

Appendix 3. Continued.

		5.3 air miles ENE of Buffalo, Humphreys Co., TN		
	FMM 3536	Duck River, Tennessee Hwy 50, 0.3 miles SE of Junction Hwy 50 and I-40, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	FMM 3530	Duck River, at Lovette Island, NNE of Coble, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 15, 2000
	MFM 301	Duck River, Shelbyville, Bedford Co., TN	J.R. Miller	
	OSUM 34228	Duck River, DRM 32.2, Barren Hollow Rd., Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 13, 1972
Elliptio crassidens	ANSP 126813	Duck River, TN	C.M. Wheatley	
	FMM 3532	Duck River, at 3 miles upstream of New Hwy 13 bridge, 5.3 air miles ENE of Buffalo, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	FMM 3553	Duck River, at 1 mile below Old Hwy 13 bridge, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	MFM 21681	Duck River, Dement Bridge, 1.3 km NNE Roseville, Bedford Co., TN		July 19, 1970
	OSUM 34238	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
	OSUM 34250	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34175	Duck River, TN Rt 50, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 34194	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34143	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 96577	Duck River, TN		
Elliptio dilatata	FMM2535	Duck River, Cheek Bend, Maury Co., TN	W.E. Klippel	May 3, 1986
	FMM 3472	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
	FMM 3473	Duck River, DRM 133, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 9, 1999
	MCZ 272793	Duck River, 10 mi ESE of Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	MCZ 98544	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
	MCZ 210916	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MCZ 83996	Duck River, Columbia, Maury Co., TN	C. Goodrich	
	MFM 19815	Duck River, Three Forks Bridges, 7 km NW of Normandy, Bedford Co., TN	H.D. Athearn	June 22, 1969
	MFM 6897	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 4331	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	NCMNH 6145	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
	NCMNH 6160	Duck River, DRM 133, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
	OSUM 33177	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 12060	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12224	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14846	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15133	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 33332	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33911	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33949	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965

Appendix 3. Continued.

	OSUM 33969	Duck River, at US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 34878	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 38363	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 39578	Duck River, at US Rt 431, Hardison Mill, Marshall Co., TN	K.E. Wright	August 29, 1976
	OSUM 16234	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 33983	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 34029	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34061	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34144	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 64701	Duck River, 12 miles NW of Lewisburg, Hardison Mill, Marshall Co., TN		
	UMMZ 95025	Duck River, TN		
	UMMZ 128867	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	UMMZ 52725	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 52756	Duck River, Columbia, Maury Co., TN		
	USNM 508585	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
Epioblasma ahlstedti	FLMNH 64241	Duck River, Wilhoite, Marshall Co., TN		
	FLMNH 64242	Duck River, 12 mi NW of Lewisburg, Hardison Mill, Marshall Co., TN		
	FLMNH 269058	Duck River, Columbia, Maury Co., TN	B. Walker	
	FLMNH 269045	Duck River, Columbia, Maury Co., TN	A.A. Hinkley	
	FLMNH 269049	Duck River, TN	C. Marsh	
	FLMNH 226003	Duck River, TN	W.F. Webb	
	FMM 3462	Duck River, DRM 179, Lillard Mill Dam, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 8, 1999
	FMM 3461	Duck River, 173.7 at Big Spring Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 8, 1999
	FMM 3463	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3473	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	August 23, 1997
	FMM 3625	Duck River, DRM 177.2, Creek Island, Marshall Co., TN	S.A. Ahlstedt	July 28, 2000
	FMM 3621	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt	July 28, 2000
	MFM 6898	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 1925	Duck River, Columbia, Maury Co., TN	R.E. Call	
	MFM 4334	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	NCMNH 6150	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
	NCMNH 28067	Duck River, DRM 179.1, Lillard Mill, lower island, Milltown, Marshall Co., TN	D. Hubbs, M. Bamlett	April 9, 1992
	NCMNH 28072	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	September 25, 1998
	NCMNH 28084	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	July 20, 1995
	NCMNH 28085	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	August 10, 1995
	NCMNH 28089	Duck River, DRM 173-179, Marshall Co., TN	L.J. Levine	August 23, 1997
	NCMNH 28083	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	July 24, 1997
	OSUM 67899	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	
	OSUM 12246	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14864	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15149	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964

Appendix 3. Continued.

	OSUM 33341	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33922	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33959	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 38375	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 52509	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct 1 - Nov 15, 1982
	OSUM 68523	Duck River, DRM 179, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	OSUM 14496	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 16229	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 16238	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34074	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 8628	Duck River, TN		
	OSUM 50107	Duck River, TN		prior to 1931
	OSUM 50108	Duck River, TN		prior to October 1928
	OSUM 57291	Duck River, TN	C. Moore	prior to 1882
	UMMZ 52754	Duck River, Columbia, Maury Co., TN		
	UMMZ 52722	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 4468	Duck River, TN		
	UMMZ 128870	Duck River, Williamsport, Maury Co., TN		
	UMMZ 90722	Duck River, Columbia, Maury Co., TN		
	UMMZ 52723	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 58331	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 90720	Duck River, Columbia, Maury Co., TN		
	UMMZ 90677	Duck River, TN		
	UMMZ 90719	Duck River, TN		
	UMMZ 52728	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 90723	Duck River, Shelbyville, Bedford Co., TN		
	USNM 510913	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
	USNM 521353	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
	USNM 512456	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
	USNM 477091	Duck River, Columbia, Maury Co., TN		
Epioblasma brevidens	ANSP 391121	Duck River, DRM 172.4, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt	January 16, 1986
	ANSP 125911	Duck River, TN	C.M. Wheatley	
	FLMNH 64230	Duck River, 12 mi NW of Lewisburg, Hardison Mill, Marshall Co., TN		
	MFM 4343	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1963
	MFM 6912	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	OSUM 67993	Duck River, Bedford Co., TN	W.H. Sedgwick	prior to 1973
	OSUM 12245	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 15148	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 33921	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34885	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 34043	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 64230	Duck River, 12 miles NW of Lewisburg, Hardison Mill, Marshall Co., TN		
	UMMZ 52721	Duck River, Wilhoite, Marshall Co., TN		

Appendix 3. Continued.

	UMMZ 58330	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
Epioblasma florentina florentina	OSUM 269061	Duck River, Maury Co., TN	A.A. Hinkley	February 27, 1905
Epioblasma florentina walkeri	FLMNH 269061	Duck River, Columbia, Maury Co., TN	A.A. Hinkley	1885
	OSUM 15150	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 29072	Duck River, DRM 151.6, Maury Co., TN	S.A. Ahlstedt, J.J. Jenkinson	April 26, 1988
	UMMZ 90735	Duck River, Columbia, Maury Co., TN		
	UMMZ 52722	Duck River, Wilhoite, Marshall Co., TN		
Epioblasma triquetra	FLMNH 269105	Duck River, Columbia, Maury Co., TN	G. Andrews, C.T. Simpson	~1870?
	FLMNH 64368	Duck River, 12 mi NW of Lewisburg, Hardison Mill, Marshall Co., TN		
	FMM 3407	Duck River, near Riverside, Coffee Co., TN		October 24, 1973
	FMM 3406	Duck River, Henry Horton State Park, Marshall Co., TN	P.W. Parmalee	October 24, 1973
	MCZ 6153	Duck River, Columbia, Maury Co., TN	R.E. Call	1890's
	MCZ 93770	Duck River, Wilhoite, Marshall Co., TN	C. Goodrich	April 15, 1905
	MCZ 98547	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
	MFM 4327	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MFM 6920	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 1841	Duck River, TN	A.G. Weatherby, A.F. Gray	
	OSUM 21615	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
	OSUM 33184	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 12070	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12244	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14863	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15147	Duck River, above US Rt 31A., Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 33920	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34042	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34156	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 58332	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 91306	Duck River, Columbia, Maury Co., TN		
	UMMZ 91342	Duck River, TN		
	UMMZ 22986	Duck River, TN		
	UMMZ 128859	Duck River, Williamsport, Maury Co., TN		
	UMMZ 52755	Duck River, Columbia, Maury Co., TN		
	UMMZ 247585	Duck River, Wilhoite, Marshall Co., TN		
	USNM 477012	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
	USNM 572362	Duck River, Columbia, Maury Co., TN		
Epioblasma turgidula	MFM 1312	Duck River, TN		
	MFM 19824	Duck River, Three Forks Bridge, 7 km NW of Normandy, Bedford Co., TN	H.D. Athearn	June 28, 1969
	MFM 21693	Duck River, Dement Bridge, 1.3 km NNE Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
	MFM 11060	Duck River, 0.5 mi below Normandy, Bedford Co., TN	H.D. Athearn	November 11, 1963
	OSUM 15070	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964

Appendix 3. Continued.

	OSUM 33109	Duck River, Normandy, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33128	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33840	Duck River, Normandy, Bedford Co., TN	D.H. Stansbery, M.A. Stansbery, K.G. Borror	September 14, 1972
	OSUM 34811	Duck River, Shelbyville, Bedford Co., TN	A.E. Ortmann	September 13, 1922
	OSUM 57327	Duck River, Bedford Co., TN	W.H. Sedgwick	
	OSUM 68518	Duck River, Shelbyville, Bedford Co., TN	A.E. Ortmann	September 1, 1922
	OSUM 33100	Duck River, Coffee Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	UMMZ 22974	Duck River, TN		
Fusconaia barnesiana	ANSP 366841	Duck River, DRM 172.5, Maury/Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 366829	Duck River, DRM 179, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 361093	Duck River, DRM 172, Hardison Mill, Maury Co., TN	S.A. Ahlstedt	August 6, 1976
	ANSP 361079	Duck River, DRM 179, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt	August 14, 1976
	ANSP 127283	Duck River, TN	C.M. Wheatley	
	FMM 1348	Duck River, DRM 267.6, Coffee Co., TN		April 15, 1973
	FMM 1349	Duck River, below Lillard Mill Dam, Marshall Co., TN		July 6, 1979
	FMM 1376	Duck River, Lillard Mill, Marshall Co., TN		April 12, 1985
	FMM 1377	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 25, 1974
	FMM 1378	Duck River, Coffee Co., TN		April 1, 1973
	FMM 3459	Duck River, Big Springs Island, DRM 173.7, Marshall Co., TN	S.A. Ahlstedt	September 8, 1999
	FMM 3467	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler	September 9, 1999
	FMM 3545	Duck River, mouth of Buffalo River at 0.5 mile downstream of Forks River, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	FMM 3579	Duck River, DRM 173.8, Big Spring Island, Marshall Co., TN	S.A. Ahlstedt	September 7, 2000
	FMM 3580	Duck River, DRM 133, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt	July 29, 2000
	FMM 3586	Duck River, DRM 177.1, mouth of Venable Spring, Marshall Co., TN	S.A. Ahlstedt	September 9, 1999
	MCZ 55475	Duck River, Fall Creek, 7 mi NE of Shelbyville, Bedford Co., TN	W.J. Clench	August 5, 1925
	MCZ 5897	Duck River, Columbia, Maury Co., TN	R.E. Call	1890's
	MCZ 89455	Duck River, Shelbyville, Bedford Co., TN	A.E. Ortmann	September 1, 1922
	MCZ 28774	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	1890's
	MCZ 16368	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	1890's
	MCZ 98589	Duck River, Hardison Mill, 12 mi NW of Lewisburg	W.J. Clench, H. van der Schalie	1933
	MCZ 274843	Duck River, US Rt 41A bridge, 6 mi ESE of Shelbyville, Bedford Co., TN	W.J. Clench, D.H. Stansbery	October 2, 1967
	MCZ 16368	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	
	MCZ 98589	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
	MFM 11059	Duck River, 0.5 mi below Normandy, Bedford Co., TN	H.D. Athearn	November 11, 1963
	MFM 21676	Duck River, Dement Bridge, 1.3 km NNE Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
	MFM 4340	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MFM 21677	Duck River, Dement Bridge, 1.3 km NNE Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
	MFM 4324	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MFM 21680	Duck River, Dement Bridge, 1.3 km NNE Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
	NCMNH 5703	Duck River from Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn, M.A. Athearn	July 19, 1970
	OSUM 30744	Big Rock Creek, RM 5.2, Berea Church, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990

Appendix 3. Continued.

	OSUM 30754	Big Rock Creek, RM 3.3, The Sheep Neck, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 19, 1990
	OSUM 30764	Big Rock Creek, RM 5.8, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 17, 1990
	OSUM 34276	Buffalo River, Natchez Trace, Lewis Co., TN	D.H. Stansbery, C.B. Stein, E.P. Keferl, K.A. Heffelfinger	July 12, 1968
	OSUM 15056	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 19678	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
	OSUM 33102	Duck River, US Rt 41A/TN Rt 16, Normandy, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33114	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33173	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	P. Yokley, B.G. Isom	September 8, 1965
	OSUM 33862	Duck River, DRM 243, Haley-Normandy, Dement Bridge, Bedford Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
	OSUM 33886	Duck River, DRM 235.6, TN Rt 16/US Rt 41A, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 14835	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15126	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 33907	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33967	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 34874	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 38359	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 50514	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	October 22, 1981
	OSUM 52496	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 16231	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34138	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 30739	East Rock Creek, RM 8.2, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 41546	East Rock Creek, at bridge and R.R., Marshall Co., TN	C.B. Stein	September 28, 1976
	OSUM 33873	Flat Creek, US Rt 231, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 40736	Rutherford Creek, Co. Rt 6256, Lanton, Maury Co., TN	C.B. Stein	September 27, 1976
	OSUM 26934	Buffalo River, 2.0 miles SSW of Lobelville, Perry Co., TN	F.G. Thompson	June 17, 1985
	UMMZ 52738	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 62250	Duck River, Garrison Creek, Wartrace, Bedford Co., TN	A.E. Ortmann	September 2, 1922
	UMMZ 62247	Duck River, Shelbyville, Bedford Co., TN	A.E. Ortmann	September 1, 1922
	UMMZ 52727	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 90789	Duck River, Shelbyville, Bedford Co., TN		
	USNM 84594	Duck River, Columbia, Marshall Co., TN	C.M. Wheatley	
	USNM 26178	Duck River, Shelbyville, Bedford Co., TN	A.G. Wetherby	
	USNM 150455	Duck River, TN	J.H. Ferriss	
	USNM 540154	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
Fusconaia ebena	FMM 3475	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3838	Duck River, North edge of Centerville, Hickman Co., TN	G.R. Dinkins, J. Stapleton	September 16, 2004
Fusconaia flava	FMM 3543	Duck River, mouth of Buffalo River at 0.5 mile downstream of Forks River, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	FMM 3550	Duck River, shoal area just above base of bluff at 4 mile upstream of New Highway 13 bridge,	E.M. Schilling, J.D. Williams	October 14, 2000

Appendix 3. Continued.

		2 air miles NW of Bucksnort, Humphreys Co., TN		
	FMM 3555	Duck River, 0.8 mile above mouth of Hurricane Creek and above Whirl Bar Island, Humphreys Co., TN	E.M. Schilling, J.D. Williams	June 3, 2000
Fusconaia subrotunda	FMM 1494	Duck River, Lillard Mill, Marshall Co., TN		April 12, 1985
Hemistena lata	FMM 2672	Duck River, DRM 175-176, Marshall Co., TN		July 6, 1979
	OSUM 16125	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	UMMZ 68834	Duck River, TN		
	UMMZ 107879	Duck River, Columbia, Maury Co., TN	B.H. Wright	
	USNM 477071	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
	USNM 150461	Duck River, Columbia, Maury Co., TN	J.H. Ferriss	
Lampsilis cardium	MFM 6909	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 19822	Duck River, Three Forks Bridge, 7 km NW of Normandy, Bedford Co., TN	H.D. Athearn	June 22, 1969
	MFM 4339	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	OSUM 30751	Big Rock Creek, RM 5.2, Berea Church, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 34243	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
	OSUM 34254	Buffalo River, above TN Rt 13 / TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 15068	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 19685	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
	OSUM 21614	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
	OSUM 33126	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33182	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 34180	Duck River, TN Rt 50, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 34203	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34210	Duck River, TN Rt 50, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 13, 1972
	OSUM 40887	Duck River, DRM 82.4, Tottys Bend Bridge, Hickman Co., TN	C. B. Stein	September 23, 1976
	OSUM 14861	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 33339	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33918	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33975	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 38373	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 34039	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34071	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34126	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34154	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34171	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 33879	Flat Creek, US Rt 231, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 40734	Rutherford Creek, S Rt 31, Maury Co., TN	C. B. Stein	September 27, 1976
	UMMZ 52759	Duck River, Columbia, Maury Co., TN		
	UMMZ 52787	Duck River, S of Waverly, Humphreys Co., TN		

Appendix 3. Continued.

	UMMZ 52730	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 86402	Duck River, TN		
Lampsilis fasciola	ANSP 391126	Duck River, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt	January 16, 1986
	ANSP 366836	Duck River, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 366824	Duck River, below Lillard Mill Dam, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	FMM 359	Duck River, Cheek Bend, Maury Co., TN	W.E. Klippel	May 3, 1986
	FMM 365	Duck River, Lillard Mill, Marshall Co., TN		April 12, 1985
	FMM 366	Duck River, Coffee Co., TN		April 1, 1973
	FMM 3452	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler	September 9, 1999
	FMM 3476	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler	September 9, 1999
	FMM 3540	Duck River, TN Hwy 50, 0.3 mile SE of Junction Hwy 50 and I-40, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 13, 2000
	FMM 3575	Duck River, DRM 177.1, mouth of Venable Spring, Marshall Co., TN	S.A. Ahlstedt	September 7, 2000
	FMM 3576	Duck River, DRM 173.8, Big Spring Island, Marshall Co., TN	S.A. Ahlstedt	
	MCZ 98550	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
	MCZ 235877	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MCZ 272787	Duck River, 10 mi ESE of Columbia, ESE of Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	MCZ 274850	Duck River, US Rt 41A bridge, 6 mi ESE of Shelbyville, Bedford Co., TN	D.H. Stansbery W.J. Clench	October 2, 1967
	MCZ 16448	Duck River, Shelbyville, TN	R.E. Call	
	MCZ 272803	Duck River, 11.8 mi ESE of Centerville, 15 mi NW of Columbia, Hickman Co., TN	D.H. Stansbery W.J. Clench	October 14, 1972
	MFM 19789	Duck River, just below Bone Cave Ford, 3.7 km W of Manchester, Coffee Co., TN	H.D. Athearn	June 22, 1969
	MFM 6900	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MFM 4333	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MFM 21691	Duck River, Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
	NCMNH 5673	Duck River from Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn, M.A. Athearn	July 19, 1970
	NCMNH 6154	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
	OSUM 30752	Big Rock Creek, RM 5.2, Berea Church, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 30762	Big Rock Creek, RM 3.3, The Sheep Neck, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 19, 1990
	OSUM 30770	Big Rock Creek, RM 5.8, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 17, 1990
	OSUM 34233	Buffalo River, TN Rt 13, Perry Co., TN	D.H. Stansbery, W.J. Clench	October 13, 1972
	OSUM 34244	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
	OSUM 34256	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34282	Buffalo River, Natchez Trace, Lewis Co., TN	D.H. Stansbery, C.B. Stein, E.P. Keferl, K.A. Heffelfinger	July 12, 1968
	OSUM 15069	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 19686	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
	OSUM 21613	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
	OSUM 33108	Duck River, Normandy, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33127	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33183	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33883	Duck River, DRM 239.6, Three Forks Bridge, Bedford Co., TN	D.H. Stansbery, M.A. Stansbery, K.G. Borror	September 14, 1972
	OSUM 33891	Duck River, DRM 235.6, TN Rt 16/US Rt 41A, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 33099	Duck River, Coffee Co., TN	B.G. Isom, P. Yokley	September 8, 1965

Appendix 3. Continued.

	OSUM 12069	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12243	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14862	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15146	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 19972	Duck River, DRM 179, Milltown, Marshall Co., TN	J.O. Phifer	
	OSUM 33340	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33919	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33958	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33976	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 34884	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 38374	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 15631	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34041	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34073	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34127	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34155	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34172	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 52764	Duck River, Columbia, Maury Co., TN		
	UMMZ 52728	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 58334	Duck River, Hardison Mill, 12 mi NW Lewisburg, Marshall Co., TN		
	UMMZ 84230	Duck River, TN		
	UMMZ 90481	Duck River, TN		
	USNM 512436	Duck River, Columbia, TN	B. Shimek	1891
Lampsilis ovata	FMM 1219	Duck River, DRM 147.2, Maury Co., TN		July 23, 1983
	FMM 1220	Duck River, DRM 177.2, Lillard Mill, Marshall Co., TN	B.L. Manzano	July 6, 1979
	FMM 3451	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	
	FMM 3528	Duck River, Lovette Island, NNE of Coble, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 15, 2000
	FMM 3541	Duck River, TN Hwy 50, 0.3 mile SE of Junction Hwy 50 and I-40, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 13, 2000
	FMM 3548	Duck River, shoal area just above base of bluff at 4 mile upstream of New Hwy 13 bridge, 2 air miles NW of Bucksnort, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	FMM 3577	Duck River, DRM 173-179, Marshall Co., TN	L.J. Levine	August 23, 1997
	MFM 21692	Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
	NCMNH 6162	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
	OSUM 34255	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	P. Yokley, B.G. Isom	August 31, 1965
	OSUM 12068	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12242	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 15145	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 34883	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 15630	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34040	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34072	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	UMMZ 58335	Duck River, Hardison Mill, 12 mi NW Lewisburg, Marshall Co., TN		

Appendix 3. Continued.

	UMMZ 52758	Duck River, Columbia, Maury Co., TN		
	UMMZ 52729	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 86362	Duck River, Maury Co., TN		
Lampsilis teres	FMM 3477	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3578	Duck River, DRM 133.5, Maury Co., TN	D. Hubbs	July 13, 2000
	MFM 6918	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	OSUM 34202	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 12241	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C. B. Stein	July 19, 1964
	OSUM 14860	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 33957	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 38372	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 15629	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34038	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34070	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34125	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34153	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34170	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 40724	Duck River, Monsanto Bridge, Maury Co., TN	C.B. Stein	September 22, 1976
	UMMZ 52787	Duck River, S of Waverly, Humphreys Co., TN		
	UMMZ 52757	Duck River, Columbia, Maury Co., TN		
	UMMZ 52779	Duck River, Centerville, Hickman Co., TN		
Lasmigona complanata	FMM 456	Duck River, mouth of Hurricane Creek, Humphreys Co., TN		October 1, 1988
	MCZ 89466	Duck River, 4 mi E of Columbia, Maury Co., TN	A.E. Ortmann	September 5, 1922
	MFM 9662	Duck River, Centerville, Hickman Co., TN		May 25, 1962
	OSUM 34185	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34207	Duck River, TN Rt 50, Centerville, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 13, 1972
	OSUM 52491	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct 1 - Nov 15, 1982
	OSUM 34104	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34130	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34158	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	UMMZ 128862	Duck River, Williamsport, Maury Co., TN		
	UMMZ 52788	Duck River, S of Waverly, Humphreys Co., TN		
	UMMZ 52760	Duck River, Columbia, Maury Co., TN		
	USNM 540332	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
	ANSP 157143	Duck River, Wilhoite, Marshall Co., TN	H. van der Schalie	1931
	ANSP 366837	Duck River, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	FMM 409	Duck River, Henry Horton State Park, Marshall Co., TN		July 11, 1970
	FMM 410	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 5, 1974
	FMM 3531	Duck River, Lovette Island, NNE of Coble, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 15, 2000
	MCZ 98551	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H.van der Schalie	1933
	MCZ 274849	Duck River, US Rt 41A bridge, 6 mi ESE of Shelbyville, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967

Appendix 3. Continued.

MCZ 6382	Duck River, Shelbyville, TN	R.E. Call	
MCZ 93769	Duck River, Wilhoite, Marshall Co., TN	C. Goodrich	
MCZ 52604	Duck River, Shelbyville, TN	W.J. Clench, P.S. Remington	August 5, 1924
MFM 4335	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
MFM 9665	Duck River, Centerville, Hickman Co., TN	H.D. Athearn	May 25, 1962
MFM 6919	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
MFM 21674	Duck River, Dement Bridge, 1.3 km NE of Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
MFM 19796	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn	June 22, 1969
NCMNH 5693	Duck River from Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn, M.A. Athearn	July 19, 1970
NCMNH 5744	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn, M.A. Athearn	June 22, 1969
OSUM 34236	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
OSUM 34247	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
OSUM 34275	Buffalo River, Natchez Trace, Lewis Co., TN	D.H. Stansbery, C.B. Stein, E.P. Keferl, K.A. Heffelfinger	July 12, 1968
OSUM 15059	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
OSUM 19681	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
OSUM 33111	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 33170	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 33861	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
OSUM 33885	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
OSUM 34186	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
OSUM 12061	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
OSUM 12225	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
OSUM 14847	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
OSUM 15134	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
OSUM 33902	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
OSUM 33941	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
OSUM 33961	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
OSUM 34869	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
OSUM 38353	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
OSUM 33978	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
OSUM 34018	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
OSUM 34052	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
OSUM 34105	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
OSUM 34131	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
OSUM 34159	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
OSUM 33872	Flat Creek, US Rt 231, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
OSUM 298438	Duck River, gravel bar 3 miles below Milltown, Lillard Mill, Marshall Co., TN	H.G. McCullagh	May 23, 2000
UMMZ 58336	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
UMMZ 52731	Duck River, Wilhoite, Marshall Co., TN		
UMMZ 52761	Duck River, Columbia, Maury Co., TN		
USNM 540329	Duck River, Columbia, TN	B. Shimek	1891
USNM 524308	Duck River, Columbia, TN	B. Shimek	1891

Appendix 3. Continued.

Lasmigona sp. cf. *holstonia*	MCZ 274844	Duck River, US Rt 41A bridge, 6 mi ESE of Shelbyville, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
Lemiox rimosus	ANSP 366821	Duck River, DRM 179, Lillard Mill Dam, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 361075	Duck River, DRM 179, Lillard Mill Dam, Marshall Co., TN	S.A. Ahlstedt	August 14, 1976
	ANSP 356703	Duck River, DRM 179, Lillard Mill Dam, Marshall Co., TN	S.A. Ahlstedt	November 15, 1982
	ANSP 391163	Duck River, DRM 179, Lillard Mill Dam, Marshall Co., TN	S.A. Ahlstedt	October 7, 1983
	ANSP 125992	Duck River, TN	C.M. Wheatley	
	ANSP 361100	Duck River, DRM 160.1, Sowell Bend, Maury Co., TN	S.A. Ahlstedt	August 6, 1976
	ANSP 391125	Duck River, DRM 172.4, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt	January 16, 1986
	ANSP 382160	Duck River, DRM 179, 14.2 mi E of Columbia, Lillard Mill, Maury Co., TN	L.E. Goldman and D.J. Du?	August 10, 1989
	FMM 497	Duck River, below Lillard Mill Dam, Marshall Co., TN	S.A. Ahlstedt	November 10, 1982
	FMM 498	Duck River, DRM 155.5 Cedar Creek, Maury Co., TN		June 20, 1981
	FMM 570	Duck River, Lillard Mill, Marshall Co., TN		
	FMM 3466	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
	FMM 3489	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3563	Duck River, DRM 179.2, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt	July 27, 2000
	FMM 3564	Duck River, 173.8, Big Spring Island, Marshall Co., TN	S.A. Ahlstedt	July 9, 2000
	FMM 3565	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	August 10, 1995
	FMM 3622	Duck River, DRM 177.2, Creek Island, Marshall Co., TN	S.A. Ahlstedt	July 28, 2000
	MCZ 282840	Duck River, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt	May 12, 1983
	MCZ 298170	Duck River, Lillard Mill, Marshall Co., TN	D. Manning	March 29, 1989
	MCZ 236167	Duck River, Lillard Mill, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 6913	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 16459	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	D. Manning	March 29, 1989
	NCMNH 6147	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
	NCMNH 28071	Duck River, DRM 179.1, Lillard Mill - lower island, Milltown, Marshall Co., TN	D. Hubbs, M. Bamlett	April 9, 1992
	NCMNH 28073	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	September 25, 1998
	NCMNH 28076	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	August 10, 1995
	NCMNH 28077	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	October 13, 1997
	NCMNH 28078	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	August 19, 1995
	NCMNH 28079	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	August 23, 1997
	NCMNH 28080	Duck River, DRM 173-179, Marshall Co., TN	L.J. Levine	August 23, 1997
	OSUM 12236	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14855	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 33337	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33955	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 38369	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 50348	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	August 14, 1977
	OSUM 50354	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	October 31, 1978
	OSUM 52505	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct 1 - Nov 15, 1982
	OSUM 68092	Duck River, DRM 179, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	OSUM 14494	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965

Appendix 3. Continued.

	OSUM 34036	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34069	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	USNM 84052	Duck River, TN	Shaeffer	
	USNM 451950	Duck River, TN		
Leptodea fragilis	FMM 518	Duck River, 1 DRM south of Pottsville, Marshall Co., TN	P.W. Parmalee	October 24, 1973
	FMM 3488	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3552	Duck River, 1 DRM below Old Hwy 13 bridge, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	MCZ 272786	Duck River, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	1965
	MCZ 236217	Duck River, Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MCZ 93774	Duck River, S of Waverly, Humphreys Co., TN	C. Goodrich	
	MCZ 98558	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
	MFM 6906	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	OSUM 34178	Duck River, TN Rt 50, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 34198	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 43405	Duck River, DRM 32.2, Barren Hollow Rd., Hickman Co., TN	C.B. Stein, W.N. Kasson	August 16, 1978
	OSUM 12064	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12233	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14852	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15137	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 33335	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33953	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33973	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 38367	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 15624	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34033	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34067	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34120	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34150	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34168	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 52762	Duck River, Columbia, Maury Co., TN		
	UMMZ 52778	Duck River, Centerville, Hickman Co., TN		
	UMMZ 52789	Duck River, S of Waverly, Humphreys Co., TN		
	UMMZ 58337	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 128854	Duck River, Williamsport, Maury Co., TN		
Leptodea leptodon	UMMZ 83019	Duck River, TN		
Lexingtonia dolabelloides	ANSP 361101	Duck River, DRM 160.1, Sowell Bend, Maury Co., TN	S.A. Ahlstedt	August 6, 1976
	ANSP 377154	Duck River, 0.5 mi below bridge, Henry Horton State Park, Marshall Co., TN	D. Tanner	July 11, 1970

Appendix 3. Continued.

ANSP 361092	Duck River, DRM 172, Hardison Mill, Maury Co., TN	S.A. Ahlstedt	August 6, 1976
ANSP 127295	Duck River, TN	C.M. Wheatley	
ANSP 163042	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Maury / Marshall Co., TN	W.J. Clench, H. van der Schalie	
ANSP 127296	Duck River, TN	C.M. Wheatley	
ANSP 167880	Duck River, Columbia, Maury Co., TN	A.E. Ortmann	1921-1922
ANSP 391136	Duck River, DRM 172.4, below Hardison Mill, Maury / Marshall Co., TN	S.A. Ahlstedt	January 16, 1986
ANSP 361081	Duck River, DRM 151.6, I-65 bridge, Maury Co., TN	S.A. Ahlstedt	October 31, 1978
FMM 553	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 25, 1974
FMM 554	Duck River, DRM 174, Marshall Co., TN		July 6, 1979
FMM 555	Duck River, Bedford Co., TN		August 8, 1975
FMM 3469	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
FMM 3483	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 9, 1999
FMM 3544	Duck River, mouth of Buffalo River at 0.5 mile downstream of Forks River, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
FMM 3569	Duck River, DRM 133.5, below Old Columbia Dam, Maury Co., TN	D. Hubbs	July 13, 2000
FMM 3570	Duck River, DRM 173.8, Big Spring Island, Marshall Co., TN	S.A. Ahlstedt	September 7, 2000
FMM 3571	Duck River, DRM 177.1, mouth of Venable Spring, Marshall Co., TN	S.A. Ahlstedt	September 7, 2000
MCZ 98599	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Maury / Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
MCZ 89481	Duck River, Columbia, Maury Co., TN	A.E. Ortmann	August 26, 1921
MCZ 5117	Duck River, TN	R.E. Call	1890's
MCZ 5076	Duck River, Columbia, Maury Co., TN		May 1915
MCZ 99942	Duck River, Columbia, Maury Co., TN	A.E. Ortmann	September 1, 1921
MCZ 210927	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
MCZ 16366	Duck River, Shelbyville, TN	R.E. Call	1890's
MCZ 30443	Duck River, TN		
MCZ 272798	Duck River, 10 mi ESE of Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
MCZ 83988	Duck River, Columbia, Maury Co., TN	C. Goodrich	
MCZ 98589	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Maury / Marshall Co., TN	W.J. Clench, H.van der Schalie	1933
MCZ 235911	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
MFM 255	Duck River, Shelbyville, Bedford Co., TN	J.R. Miller	
MFM 4324	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
MFM 21680	Duck River, Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
MFM 17553	Duck River, Wilhoite Mill, 6.3 mi N of Farmington, Marshall Co., TN	H.D. Athearn	October 15, 1953
MFM 11451	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
NCMNH 6144	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
NCMNH 6159	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
NCMNH 6722	Duck River, 1.5 air mile E of US 31A and NE of Henry Horton State Park, 9.5 air mile NNE of Lewisburg, Marshall Co., TN	W.C. Starnes, L.B. Starnes, J.A. Louton	April 1, 1978
NCMNH 27693	Duck River, DRM 179, Lillard Mill, Marshall Co., TN	L.J. Levine	
NCMNH 28068	Duck River, DRM 179.1, lower island - Lillard Mill, Milltown, Marshall Co., TN	D. Hubbs, M. Bamlett	April 9, 1992
OSUM 34277	Buffalo River, Natchez Trace, Lewis Co., TN	D.H. Stansbery, C.B. Stein, E.P. Keferl, K.A. Heffelfinger	July 12, 1968
OSUM 33116	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 33175	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965

Appendix 3. Continued.

	OSUM 33863	Duck River, DRM 243, Haley-Normandy, Dement Bridge, Bedford Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
	OSUM 34193	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 43404	Duck River, DRM 32.2, Barren Hollow Rd., Hickman Co., TN	C.B. Stein, W.N. Kasson	August 16, 1978
	OSUM 12059	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12221	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14843	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15132	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 33331	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33909	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33947	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34876	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 38361	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 39576	Duck River, below US Rt 431, Hardison Mill, Marshall Co., TN	K. E. Wright	August 29, 1976
	OSUM 52497	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 52884	Duck River, DRM 172.1, below US Rt 431, Hardison Mill, Marshall Co., TN	W.N. Kasson, R. Grace	July 28, 1981
	OSUM 14490	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 15616	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 16232	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34026	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34059	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34140	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34165	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 18163	Fall Creek, Bedford Co., TN	W.J. Clench, P.S. Remington	August 5, 1924
	OSUM 66115	Duck River, 12 miles NW of Lewisburg, Hardison Mill, Marshall Co., TN	W.J. Clench, H. van der Schalie	
	UMMZ 112804	Duck River, TN	H.A. Hinkley	
	UMMZ 62387	Duck River, Wilhoite, Marshall Co., TN	A.E. Ortmann	August 27, 1923
	UMMZ 58871	Duck River, TN		
	UMMZ 52738	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 52771	Duck River, Columbia, Maury Co., TN		
	UMMZ 81991	Duck River, TN	J.H. Ferriss	
	UMMZ 128858	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	UMMZ 81952	Duck River, Columbia, Maury Co., TN	A.E. Ortmann	August 26, 1921
	UMMZ 62124	Duck River, Columbia, Maury Co., TN	A.E. Ortmann	September 6, 1922
	UMMZ 52763	Duck River, Columbia, Maury Co., TN		
	UMMZ 58481	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 52769	Duck River, Columbia, Maury Co., TN		
	USNM 515058	Duck River, Columbia, TN	B. Shimek	1891
Ligumia recta	FMM 3523	Duck River, Lovette Island, NNE of Coble, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 15, 2000
	OSUM 34201	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
Ligumia subrostrata	ANSP 126188	Duck River		

Appendix 3. Continued.

Medionidus conradicus	FMM 662	Duck River, near Riverside, Coffee Co., TN	P.W. Parmalee	October 24, 1973
	FMM 667	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1973
	FMM 668	Duck River, Route 231, South of Shelbyville, Bedford Co., TN		July 24, 1974
	FMM3481	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	September 9, 1999
	MCZ 5180	Duck River, Columbia, Maury Co., TN	R.E. Call	1892
	MCZ 5179	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	1892
	MCZ 98546	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
	MFM 4325	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MFM 19819	Duck River, Three Forks Bridge, 7 km NW of Normandy, Bedford Co., TN	H.D. Athearn	June 22, 1969
	MFM 19809	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn	June 22, 1969
	MFM 11062	Duck River, 0.5 mi below Normandy, Bedford Co., TN	H.D. Athearn	November 11, 1963
	MFM 22752	Duck River, just below Crumpton Creek, 9 km NNE of Tullahoma, Coffee Co., TN	H.D. Athearn	July 25, 1971
	NCMNH 5631	Duck River from Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn, M.A. Athearn	July 19, 1970
	NCMNH 6854	Duck River, 1.5 air mile E of US 31A and NE of Henry Horton State Park, 9.5 air mile NNE of Lewisburg, Marshall Co., TN	W.C. Starnes, L.B. Starnes, J.A. Louton	April 1, 1978
	OSUM 30747	Big Rock Creek, RM 5.2, Berea Church, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 30757	Big Rock Creek, RM 3.3, The Sheep Neck, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 19, 1990
	OSUM 30766	Big Rock Creek, RM 5.8, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 17, 1990
	OSUM 40745	Big Rock Creek, Verona, Marshall Co., TN	C.B. Stein	September 28, 1976
	OSUM 34252	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34280	Buffalo River, Natchez Trace, Lewis Co., TN	D.H. Stansbery, C.B. Stein, E.P. Keferl, K.A. Heffelfinger	July 12, 1968
	OSUM 16217	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 21609	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
	OSUM 33105	Duck River, Normandy, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33122	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33867	Duck River, DRM 243, Haley-Normandy, Dement Bridge, Bedford Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
	OSUM 33889	Duck River, 235.6, TN Rt 16/US Rt 41A, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 33792	Duck River, Riley Creek, Coffee Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
	OSUM 12066	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12237	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 15139	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 16219	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34881	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, John Frederick, Jr.	October 28, 1973
	OSUM 14495	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 16230	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 16236	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34035	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 68193	Duck River, Columbia, Maury Co., TN	W.S. Strode	
	OSUM 41548	East Rock Creek, at bridge and R.R., Marshall Co., TN	C.B. Stein	September 28, 1976
	OSUM 33876	Flat Creek, US Rt 231, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972

Appendix 3. Continued.

	OSUM 66195	Duck River, 12 miles NW of Lewisburg, Marshall Co., TN		
	UMMZ 98455	Duck River, TN		
	UMMZ 58338	Duck River, Hardison Mill 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 52732	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 23022	Duck River, TN		
	UMMZ 4485	Duck River, TN		
	UMMZ 98414	Duck River, TN		
	UMMZ 62165	Duck River, Lillard Mill, Marshall Co., TN	A.E. Ortmann	August 25, 1923
	USNM 505910	Duck River, TN	P. Marsh	
	USNM 150458	Duck River, TN	J. H. Ferriss	
Megalonaias nervosa	FMM 688	Duck River, 1 mile south of Pottsville, Marshall Co., TN	P.W. Parmalee	October 4, 1973
	FMM 689	Duck River, Coal Branch Landing, Humphreys Co., TN		October 1, 1973
	FMM 690	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 5, 1974
	FMM 3450	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
	FMM 3533	Duck River, 3 miles upstream of new Hwy 13 bridge, 5.3 air miles ENE of Buffalo , Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	MCZ 272785	Duck River, 1.5 mi E of Ben, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	MFM 6906	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	OSUM 34187	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34226	Duck River, DRM 32.2, Barren Hollow Rd, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 13, 1972
	OSUM 47807	Duck River, DRM 32.2, Barren Hollow Rd, Hickman Co., TN	C.B. Stein	July 1, 1980
	OSUM 12214	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14837	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 33326	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33942	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33962	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 34870	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 38354	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 52492	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 14488	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 15610	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34019	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34053	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34106	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34132	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34160	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 128852	Duck River, Williamsport, Maury Co., TN		
	UMMZ 58339	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 52766	Duck River, Columbia, Maury Co., TN		
	UMMZ 52790	Duck River, S of Waverly, Humphreys Co., TN		
Obliquaria reflexa	ANSP 363112	Duck River, DRM 132-131, below old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 366838	Duck River, DRM 172.5, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 366822	Duck River, DRM 179, below Lillard Mill, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986

Appendix 3. Continued.

	ANSP 391123	Duck River, DRM 172.4, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 16, 1986
	ANSP 361094	Duck River, DRM 172.4, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	August 6, 1976
	ANSP 361073	Duck River, DRM 179, below Lillard Mill, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	August 14, 1976
	FMM 722	Duck River, DRM 174, Marshall Co., TN		July 6, 1974
	FMM 723	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 25, 1974
	FMM 731	Duck River, Hurricane Creek, Humphreys Co., TN		October 1, 1988
	FMM 3491	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3582	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt	July 29, 2000
	MFM 9669	Duck River, Centerville, Hickman Co., TN	H.D. Athearn	May 25, 1962
	MFM 14299	Duck River, 100 m below Lillard Mill Dam, Milltown, Marshall Co., TN	H.D. Athearn	September 9, 1956
	NCMNH 6164	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
	OSUM 34176	Duck River, TN Rt 50, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 34195	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 40885	Duck River, DRM 82.4, Tottys Bend Bridge, Hickman Co., TN	C.B. Stein	September 23, 1976
	OSUM 12228	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14848	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 38364	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 52501	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct 1 - Nov 15, 1982
	OSUM 15620	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34062	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1964
	OSUM 34116	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1964
	OSUM 34145	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1964
	UMMZ 52791	Duck River, S of Waverly, Humphreys Co., TN		
	UMMZ 98204	Duck River, TN		
	USNM 515054	Duck River, Columbia, Maury Co., TN		
Obovaria subrotunda	ANSP 1603045	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H.van der Schalie	
	ANSP 366818	Duck River, DRM 179, below Lillard Mill, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 314029	Duck River, Henry Horton State Park, Wilhoite Mills, 3 mi S of Chapel Hill, Marshall Co., TN	D.H. Stansbery	September 4-8, 1964
	ANSP 157142	Duck River, Wilhoite, Marshall Co., TN	H. van der Schalie	1931
	ANSP 157153	Buffalo River, 5 mi N of Lobelville, Perry Co., TN	H. van der Schalie	1931
	FMM 238	Duck River, river DRM 152.3, Maury Co., TN		July 5, 1979
	FMM 239	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		
	FMM 240	Duck River, river DRM 174, Marshall Co., TN		July 6, 1979
	FMM 241	Duck River, Henry Horton State Park, Marshall Co., TN		October 24, 1973
	FMM 242	Duck River, Maury Co., TN		October 9, 1980
	FMM 3456	Duck River	S.A. Ahlstedt, D. Hubbs, B. Butler	
	September 9, 1999			
	FMM 3471	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler	
	September 9, 1999			
	FMM 3583	Duck River, DRM 179.2, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt	July 2, 2000

Appendix 3. Continued.

FMM 3623	Duck River, DRM 177.2, Creek Island, Marshall Co., TN	S.A. Ahlstedt	July 28, 2000
FMM 3650	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	July 20, 1995
MCZ 236215	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
MCZ 98536	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
MCZ 210930	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
MFM 21683	Duck River, Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
MFM 4323	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
MFM 11843	Duck River, ford below Cortner Mill, Normandy, Bedford Co., TN	H.D. Athearn	September 7, 1964
MFM 15425	Duck River, Henry Horton State Park, 4.8 km S of Chapel Hill, Marshall Co., TN	H.D. Athearn	September 6, 1964
MFM 6922	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
MFM 19817	Duck River, Three Forks Bridge, 7 km NW of Normandy, Bedford Co., TN	H.D. Athearn	June 20, 1969
MFM 1323	Duck River, TN		
MFM 1836	Duck River, TN		
NCMNH 6146	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
NCMNH 6837	Duck River, 1.5 air mile E of US 31A and NE of Henry Horton State Park, 9.5 air mile NNE of Lewisburg, Marshall Co., TN	W.C. Starnes, L.B. Starnes, J.A. Louton	April 1, 1978
OSUM 30755	Big Rock Creek, RM 3.3, The Sheep Neck, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 19, 1990
OSUM 34240	Buffalo River, above TN Rt 13, Wayne Co., TN	P. Yokley, B.G. Isom	September 7, 1965
OSUM 15063	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
OSUM 19682	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
OSUM 21608	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
OSUM 33104	Duck River, Normandy, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 33119	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 33179	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	P. Yokley, B.G. Isom	September 8, 1965
OSUM 33865	Duck River, DRM 243, Haley-Normandy, Dement Bridge, Bedford Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
OSUM 33888	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
OSUM 33096	Duck River, Coffee Co., TN	P. Yokley, B.G. Isom	September 8, 1965
OSUM 12062	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
OSUM 12229	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
OSUM 14849	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
OSUM 15135	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
OSUM 33333	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
OSUM 33913	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
OSUM 33950	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
OSUM 33971	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
OSUM 34880	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
OSUM 38365	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
OSUM 39579	Duck River, below US Rt 431, Hardison Mill, Marshall Co., TN	K.E. Wright	August 29, 1976
OSUM 52502	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct 1 - Nov 15, 1982
OSUM 14492	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
OSUM 30526	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	D. Harned	August 28, 1981
OSUM 34031	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965

Appendix 3. Continued.

	OSUM 34064	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34147	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 66367	Duck River, 12 miles NW of Lewisburg, Hardison Mill, Marshall Co., TN		
	OSUM 66374	Buffalo River, 5 miles N of Lobelville, Perry Co., TN		
	OSUM 66365	Duck River, 12 miles NW of Lewisburg, Hardison Mill, Marshall Co., TN	W.J. Clench, H. van der Schalie	
	UMMZ 52736	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 52768	Duck River, Columbia, Maury Co., TN		
	UMMZ 106295	Duck River, TN		
	UMMZ 52767	Duck River, Columbia, Maury Co., TN		
	UMMZ 52735	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 58344	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 128871	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	UMMZ 62365	Duck River, Shelbyville, Bedford Co., TN	A.E. Ortmann	September 1-3, 1922
	UMMZ 246929	Duck River, Wilhoite, Marshall Co., TN	P.L. Marsh	
Pegias fabula	USNM 86229	Duck River, TN	W. Schaffer	
Plethobasus cyphyus	ANSP 127384	Duck River, TN	C.M. Wheatley	
Pleurobema clava	MCZ 5090	Duck River, Columbia, Maury Co., TN	R.E. Call	March 6, 1905
	USNM 150456	Duck River, TN	J.H. Ferriss	
Pleurobema cordatum	ANSP 391135	Duck River, DRM 172.4, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt	January 16, 1986
	FMM 3546	Duck River, mouth of Buffalo River at 0.5 mile downstream of Forks River, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	MCZ 98556	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
	MCZ 83988	Duck River, Columbia, Maury Co., TN	C. Goodrich	
	OSUM 14845	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	UMMZ 58345	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 50965	Duck River, Marshall Co., TN		
	USNM 540314	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
Pleurobema oviforme	ANSP 391132	Duck River, DRM 172.4, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt	January 16, 1986
	ANSP 127265	Duck River, TN	C.M. Wheatley	
	ANSP 377152	Duck River, 0.5 mi below bridge, Henry Horton State Park, Marshall Co., TN	D. Tanner	July 11, 1970
	ANSP 127240	Duck River, TN	C.M. Wheatley	
	FMM 990	Duck River, Maury Co., TN		July 9, 1978
	FMM 1004	Duck River, DRM 174, Marshall Co., TN		Jluy 6, 1979
	FMM 1005	Duck River, DRM 267.6, Coffee Co., TN	D.H. Stansberry	April 15, 1973
	MCZ 28776	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	1890's
	MCZ 100150	Duck River, Wilhoite, Marshall Co., TN	A.E. Ortmann	August 27, 1923
	MCZ 16371	Duck River, Columbia, Maury Co., TN	R.E. Call	
	MCZ 70949	Duck River, TN		
	MCZ 270175	Duck River, Columbia, Maury Co., TN	J.G. Anthony	

Appendix 3. Continued.

	MCZ 28775	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	
	MFM 19785	Duck River, Bone Cave Ford, 3.7 km W of Manchester, Coffee Co., TN	H.D. Athearn	June 22, 1969
	NCMNH 6153	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
	OSUM 16124	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 16198	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
	OSUM 34278	Buffalo River, Natchez Trace, Lewis Co., TN	D.H. Stansbery, C.B. Stein, E.P. Keferl, K.A. Heffelfinger	July 12, 1968
	OSUM 15058	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 33103	Duck River, Normandy, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33117	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33176	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33837	Duck River, Normandy, Bedford Co., TN	D.H. Stansbery, M.A. Stansbery, K.G. Borror	September 14, 1972
	OSUM 33864	Duck River, DRM 243, Haley-Normandy, Dement Bridge, Bedford Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 15, 1972
	OSUM 33887	Duck River, DRM 235.6, TN Rt 16/US Rt 41A, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 33095	Duck River, Coffee Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 12222	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14844	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 33441	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33910	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33948	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34877	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 38376	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 43736	Duck River, DRM 173.9, Big Spring Island, Marshall Co., TN	S.A. Ahlstedt	May 20, 1979
	OSUM 52498	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 14491	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 16233	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34027	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34141	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 33874	Flat Creek, US Rt 231, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 269947	Duck River, Columbia, Maury Co., TN	H.A. Hinkley	
	OSUM 269945	Duck River, Columbia, Maury Co., TN	H.A. Hinkley	
	UMMZ 52738	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 112814	Duck River, Shelbyville, Bedford Co., TN		
	UMMZ 112821	Duck at Shelbyville, Bedford Co., TN		
	UMMZ 128858	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	UMMZ 58481	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	USNM 84594	Duck River, TN	C.M. Wheatley	
	USNM 150460	Duck River, TN	J.H. Ferriss	
Pleurobema rubrum	FMM 1011	Duck River, DRM 174, Marshall Co., TN		July 6, 1979
	FMM 1012	Duck River, DRM 156.5-164.5, Maury Co., TN		June 12, 1980

Appendix 3. Continued.

	FMM 3470	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler	September 9, 1999
	FMM 3486	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3494	Duck River, DRM 177.3, Island below Caney Creek, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 8, 1999
	FMM 3585	Duck River, Lillard Mill, Marshall Co., TN	L.J. Levine	August 31, 1998
	MCZ 98556	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
	MCZ 69818	Duck River, TN	N.W. Lermond collection	
	MCZ 5911	Duck River, Columbia, Maury Co., TN	R.E. Call	March 6, 1905
	OSUM 66621	Duck River, 12 miles NW of Lewisburg, Hardison Mill, Marshall Co., TN		
	OSUM 66319	Duck River, TN		
	OSUM 269489	Duck River, Columbia, Maury Co., TN	H.A. Hinkley	
	UMMZ 52737	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 79671	Duck River, TN		
	UMMZ 58345	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 80976	Duck River, TN		
	UMMZ 58482	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 52770	Duck River, Columbia, Maury Co., TN		
Pleurobema sintoxia	ANSP 391120	Duck River, DRM 172.4, below Hardison Mill Dam, Maury/Marshall Co., TN	S.A. Ahlstedt	January 16, 1986
	MCZ 235911	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	NCMNH 6157	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
	USNM 540303	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
Pleurobema sp.	OSUM 12223	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 38362	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 39577	Duck River, 0.5 mi below US Rt 431, Hardison Mill, Marshall Co., TN	K.E. Wright	August 29, 1976
	OSUM 50365	Duck River, DRM 177.1, mouth of Creek Island, Marshall Co., TN	S.A. Ahlstedt	June 15, 1979
	OSUM 52499	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 52525	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	October 21, 1980
	OSUM 34028	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34060	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34113	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34114	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34142	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
Potamilus alatus	ANSP 377166	Duck River, 2-4 mi N of I40, Rt 13, Humphreys Co., TN	D. Tanner	July 11, 1970
	ANSP 366842	Duck River, DRM 172.5, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 361077	Duck River, DRM 179, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt	August 14, 1976
	ANSP 391128	Duck River, DRM 172.4, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt	January 16, 1986
	FMM 794	Duck River, DRM 174, Marshall Co., TN		July 6, 1979
	FMM 795	Duck River, Centerville, Hickman Co., TN		December 14, 1973

Appendix 3. Continued.

	FMM 825	Duck River, Cheek Bend, Maury Co., TN	W.E. Klippel	May 3, 1986
	FMM 3487	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	MCZ 272796	Duck River, Alexander Bend, 4 mi NW Columbia, Maury Co., TN	B.G. Isom, P. Yokley	1965
	MCZ 236212	Duck River, Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 9660	Duck River, Centerville, Hickman Co., TN	H.D. Athearn	May 25, 1962
	MFM 6902	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	OSUM 34241	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
	OSUM 34179	Duck River, TN Rt 50, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 34205	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 40886	Duck River, DRM 82.4, Tottys Bend Bridge, Hickman Co., TN	C.B. Stein	September 23, 1976
	OSUM 12065	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12234	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14853	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15138	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 33336	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33954	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33974	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 38368	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 15625	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34034	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34068	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34121	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34151	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34169	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 58346	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 52792	Duck River, S of Waverly, Humphreys Co., TN		
	UMMZ 52781	Duck River, Centerville, Hickman Co., TN		
	UMMZ 52774	Duck River, Columbia, Maury Co., TN		
	UMMZ 30066	Duck River, Only, Hickman Co., TN		
Potamilus ohiensis	FMM 3527	Duck River, Lovette Island, NNE of Coble, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 15, 2000
	MFM 9658	Duck River, Centerville, Hickman Co., TN	H.D. Athearn	May 25, 1962
	OSUM 34199	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
Ptychobranchus fasciolaris	ANSP 363109	Duck River, DRM 131-132, below old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	FMM 919	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 25, 1974
	FMM 3482	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	NCMNH 6178	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
	OSUM 52500	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 15619	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964

Appendix 3. Continued.

	OSUM 34115	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 52775	Duck River, Columbia, Maury Co., TN		
	UMMZ 128853	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
Ptychobranchus subtentum	ANSP 1263666	Duck River, TN	C.M. Wheatley	
	MFM 22751	Duck River, below Crumpton Creek, 9 km NNE of Tullahoma, Coffee Co., TN	H.D. Athearn	July 25, 1971
	OSUM 16235	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 50085	Duck River		prior to 1931
Pyganodon grandis	FMM 2156	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 25, 1974
	FMM 3454	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler	September 9, 1999
	FMM 3572	Duck River, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt	July 27, 2000
	MCZ 98589	Duck River, Hardison Mill, 12 mi NW of Lewisburg	W.J. Clench, H. van der Schalie	1933
	MFM 6896	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	OSUM 30763	Big Rock Creek, RM 5.8, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 17, 1990
	OSUM 40742	Big Rock Creek, Verona, Marshall Co., TN	C.B. Stein	September 28, 1976
	OSUM 34245	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 24457	Cane Creek, TN Rt 100, Hickman Co., TN	H.D. Athearn	May 25, 1962
	OSUM 15055	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 15061	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 21605	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
	OSUM 33169	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33901	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34868	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 34129	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 33871	Flat Creek, US Rt 231, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 40735	Rutherford Creek, Co. Rt 6256, Lanton, Maury Co., TN	C.B. Stein	September 27, 1976
	OSUM 40897	Sinking Creek, Bedford Co., TN	C.B. Stein	September 29, 1976
	OSUM 52906	Wartrace Creek, TN Rt 82, Bedford Co., TN	D.H. Stansbery, K.G. Borror, A.E. Spreitzer	November 4, 1978
	OSUM 40905	Weakly Creek, US Rt 41A, Bedford Co., TN	C.B. Stein	September 30, 1976
Quadrula cylindrica cylindrica	ANSP 361102	Duck River, DRM 160.1, Sowell Bend, Maury Co., TN	S.A. Ahlstedt	August 6, 1976
	ANSP 361080	Duck River, DRM 179, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt	May 6, 1980
	ANSP 341210	Duck River, TN	M. Hyett	
	FMM 1642	Duck River, DRM 174, Marshall Co., TN		July 6, 1979
	FMM 1643	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN July 25, 1974		
	FLMNH 68702	Duck River, 12 mi NW of Lewisburg, Hardison Mill, Marshall Co., TN	F.G. Thompson	
	MCZ 5232	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	March 6, 1905
	MCZ 5231	Duck River, Columbia, Maury Co., TN	R.E. Call	March 6, 1905
	MCZ 98542	Duck River, 12 mi NW of Lewisburg, Hardison Mill, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933

Appendix 3. Continued.

	MFM 6914	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 21675	Duck River, Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
	MFM 19797	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn	June 22, 1969
	NCMNH 6156	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
	NCMNH 6950	Duck River, 1.5 air mile E of US 31A and NE of Henry Horton State Park, 9.5 air mile NNE of Lewisburg, Marshall Co., TN	W.C. Starnes, L.B. Starnes, J.A. Louton	April 1, 1978
	OSUM 30743	Big Rock Creek, RM 5.2, Berea Church, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 30753	Big Rock Creek, RM 3.3, The Sheep Neck, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 19, 1990
	OSUM 15057	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 33112	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 68349	Duck River, Bedford Co., TN	W.H. Sedgwick	
	OSUM 12218	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14840	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15129	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 33904	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33964	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 38356	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 39572	Duck River, below US Rt 431, Hardison Mill, Marshall Co., TN	K.E. Wright	August 29, 1976
	OSUM 52494	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 15613	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 33979	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 34021	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34055	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34109	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34135	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 52739	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 52772	Duck River, Columbia, Maury Co., TN		
	UMMZ 75714	Duck River, Columbia, Maury, TN		
	UMMZ 58347	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 128861	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
Quadrula fragosa	OSUM 30638	Duck River, DRM 186.5, above US Rt 31A/TN Rt 11, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	August 22, 1990
	OSUM 30653	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	August 7, 1991
	UMMZ 75809	Duck River, Columbia, Maury Co., TN		
Quadrula intermedia	ANSP 127492	Duck River, TN	C.M. Wheatley	
	OSUM 12217	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14839	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 14489	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 34022	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	UMMZ 58348	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		

Appendix 3. Continued.

Quadrula metanevra	ANSP 377158	Duck River, 2-4 mi N of I-40, Rt 13, Humphreys Co., TN	D. Tanner	July 16, 1970
	ANSP 127475	Duck River, TN	C.M. Wheatley	
	ANSP 341192	Duck River, Only, Hickman Co., TN	M. Hyett	
	UMMZ 30125	Duck River, Only, Hickman Co., TN		
	UMMZ 128869	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
Quadrula pustulosa	ANSP 361082	Duck River, DRM 156.5, Leftwich, Maury Co., TN	S.A. Ahlstedt	August 14, 1976
	ANSP 363116	Duck River, DRM 132-131, below old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 366828	Duck River, DRM 179, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 391124	Duck River, DRM 172.4, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt	January 16, 1986
	ANSP 127545	Duck River, TN	C.M. Wheatley	
	ANSP 157152	Buffalo River, 5 mi N of Lobelville, Perry Co., TN	H. van der Schalie	1951
	ANSP 341192	Duck River, Only, Hickman Co., TN	M. Hyett	
	FMM 1588	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 25, 1974
	FMM 3485	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3524	Duck River, Lovette Island, NNE of Coble, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 15, 2000
	FMM 3539	Duck River, TN Hwy 50, 0.3 mile SE of junction Hwy 50 and I-40, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 13, 2000
	FMM 3581	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt	July 29, 2000
	FMM 3839	Duck River, North edge of Centerville, Hickman Co., TN	G.R. Dinkins, J. Stapleton	September 16, 2004
	MCZ 272800	Duck River, 10 mi ESE of Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	MCZ 210926	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MCZ 235910	Duck River, Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MCZ 98553	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
	MCZ 5844	Duck River, Columbia, Maury Co., TN	R.E. Call	
	MFM 4330	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	NCMNH 6149	Duck River, mile 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
	OSUM 34190	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34208	Duck River, TN Rt 50, Centerville, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 13, 1972
	OSUM 40884	Duck River, DRM 82.4, Tottys Bend Bridge, Hickman Co., TN	C.B. Stein	September 23, 1976
	OSUM 12056	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12216	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14838	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15128	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 33328	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33905	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33944	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33965	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 34872	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 38357	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 39573	Duck River, below US Rt 431, Hardison Mill, Marshall Co., TN	K.E. Wright	August 29, 1976
	OSUM 52495	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct 1 - Nov 15, 1982
	OSUM 52883	Duck River, DRM 172.1, below US Rt 431, Hardison Mill, Marshall Co., TN	W.N. Kasson, R. Grace	July 28, 1981
	OSUM 15611	Duck River, DRM 133.4, Columbia, Maury Co., TN	D. H. Stansbery	September 5, 1964

Appendix 3. Continued.

	OSUM 33980	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 34023	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34056	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34110	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34136	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34163	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 68847	Duck River, 12 miles NW of Lewisburg, Hardison Mill, Marshall Co., TN		
	UMMZ 30126	Duck River, Only, Hickman Co., TN		
	UMMZ 52793	Duck River, S of Waverly, Humphreys Co., TN		
	UMMZ 52773	Duck River, Columbia, Maury Co., TN		
	UMMZ 58349	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 77293	Duck River, TN		
	UMMZ 128857	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	USNM 514914	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
Quadrula quadrula	ANSP 341201	Duck River, Only, Hickman Co., TN	M. Hyett	
	ANSP 341202	Duck River, TN	M. Hyett	
	ANSP 363555	Duck River, TN	M. Hyett	
	FMM 1740	Duck River, Coal Branch Landing, Humphreys Co., TN		October 1, 1973
	FMM 1741	Duck River, Henry Horton State Park, Marshall Co., TN		July 24, 1974
	FMM 3484	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3542	Duck River, mouth of Buffalo River at 0.5 mile downstream of Forks River, Humphreys Co., TN	E.M. Schilling, J.D. Williams	October 14, 2000
	MFM 9664	Duck River, Centerville, Hickman Co., TN		May 25, 1962
	OSUM 34174	Duck River, TN Rt 50, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 34189	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34227	Duck River, DRM 32.2, Barren Hollow Rd., Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 13, 1972
	OSUM 40883	Duck River, DRM 82.4, Tottys Bend Bridge, Hickman Co., TN	C.B. Stein	September 23, 1976
	OSUM 15612	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	Septermber 5, 1964
	OSUM 34108	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	Septermber 1, 1965
	OSUM 34134	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	Septermber 1, 1966
	OSUM 34162	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	Septermber 1, 1967
	UMMZ 30130	Duck River, Only, Hickman Co., TN		
	UMMZ 52794	Duck River, S of Waverly, Humphreys Co., TN		
	UMMZ 58350	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 128856	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	UMMZ 75809	Duck River, Columbia, Maury Co., TN		
	UMMZ 52740	Duck River, Wilhoite, Marshall Co., TN		
Strophitus undulatus	ANSP 126629	Duck River, TN	C.M. Wheatley	
	MCZ 6451	Duck River, TN	R.E. Call	
	MCZ 98539	Duck River, Hardison Mill, 12 mi NW of Lewisburg	W.J. Clench, H. van der Schalie	1933
	MCZ 221402	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	March 6, 1905

Appendix 3. Continued.

	MCZ 16690	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	March 6, 1905
	OSUM 15060	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 16216	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	P. Yokley, B.G. Isom	September 8, 1965
	OSUM 21606	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
	OSUM 34184	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	UMMZ 74856	Duck River, Columbia, Maury Co., TN		
	UMMZ 74871	Duck River, TN		
	UMMZ 52776	Duck River, Columbia, Maury Co., TN		
	UMMZ 52741	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 58351	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 128865	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	UMMZ 74795	Duck River, TN		
	USNM 539919	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
Toxolasma cylindrellus	MFM 21686	Duck River, Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
	MFM 6911A	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 9, 1980
	OSUM 33121	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 40907	Weakly Creek, US Rt 41A, Bedford Co., TN	C.B. Stein	September 30, 1976
	UMMZ 52752	Duck River, Columbia, Maury Co., TN		
	USNM 85301	Duck River, TN	Edgar	
Toxolasma lividus	ANSP 391134	Duck River, DRM 172.4, Hardison Mill, Maury Co., TN	S.A. Ahlstedt	January 16, 1986
	ANSP 363115	Duck River, DRM 132-131, below old Columbia Dam, Maury Co., TN	S.A. Ahlstedt	January 17, 1986
	ANSP 366840	Duck River, DRM 172.5, below Hardison Mill, Maury/Marshall Co., TN	S.A. Ahlstedt	January 17, 1986
	ANSP 377150	Duck River, 0.5 mi below bridge, Henry Horton State Park, Marshall Co., TN	D. Tanner	July 11, 1970
	FMM 3493	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3585	Duck River, DRM 133.5, Maury Co., TN	D. Hubbs	July 13, 2000
	MFM 6911	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 9, 1980
	OSUM 30746	Big Rock Creek, RM 5.2, Berea Church, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 30756	Big Rock Creek, RM 3.3, The Sheep Neck, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 19, 1990
	OSUM 30765	Big Rock Creek, RM 5.8, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 17, 1990
	OSUM 40744	Big Rock Creek, Verona, Marshall Co., TN	C.B. Stein	September 28, 1976
	OSUM 34232	Buffalo River, TN Rt 13, Perry Co., TN	D.H. Stansbery, W.J. Clench	October 13, 1972
	OSUM 15064	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 33120	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33866	Duck River, DRM 243, Haley-Normandy, Dement Bridge, Bedford Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
	OSUM 12235	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14854	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 16220	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33991	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 52504	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982

Appendix 3. Continued.

	OSUM 15627	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 30740	East Rock Creek, DRM 8.2, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 41547	East Rock Creek, at bridge and R.R., Marshall Co., TN	C.B. Stein	September 28, 1976
	OSUM 33875	Flat Creek, at US Rt 231, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 40909	North Fork Creek, US Rt 41A, Bedford Co., TN	C.B. Stein	September 30, 1976
	OSUM 40914	Sugar Creek, TN Rt 64, Bedford Co., TN	C.B. Stein	October 2, 1976
	OSUM 40906	Weakly Creek, US Rt 41A, Bedford Co., TN	C.B. Stein	September 30, 1976
	OSUM 40895	Wilson Creek, Marshall Co., TN	C.B. Stein	September 28, 1976
	OSUM 40904	Wilson Creek, Bedford Co., TN	C.B. Stein	September 30, 1976
	UMMZ 52719	Duck River, Wilhoite, Marshall Co., TN		
Toxolasma parvus	FMM 3387	Duck River, DRM 20 at Hurricane Creek, Humphreys Co., TN	D.A. Etnier	July 13, 2000
	OSUM 34200	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 15626	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34122	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
Tritogonia verrucosa	ANSP 363110	Duck River, DRM 132-131, below old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 366819	Duck River, DRM 179, below Lillard Mill, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	FMM 2841	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 25, 1974
	FMM 2842	Duck River, Henry Horton State Park, Marshall Co., TN	P.W. Parmalee	October 24, 1973
	FMM 2843	Duck River, 6 mile NNE of Buffalo, Humphreys Co., TN		December 15, 1973
	FMM 3474	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3525	Duck River, Lovette Island, NNE of Coble, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 15, 2000
	FMM 3538	Duck River, TN Hwy 50, 4.5 mile SSE of junction I-40, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 13, 2000
	FMM 3554	Duck River, TN Hwy 50, 0.3 mile SE of junction Hwy 50 and I-40, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 13, 2000
	MCZ 83992	Duck River, Wilhoite, Marshall Co., TN	C. Goodrich	
	MFM 6907	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 4336	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	OSUM 34248	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 33171	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 57397	Duck River, Bedford Co., TN	W.H. Sedgwick	prior to 1973
	OSUM 34188	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 40882	Duck River, DRM 82.4, Tottys Bend Bridge, Hickman Co., TN	C.B. Stein	September 23, 1976
	OSUM 12057	Duck River, below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 12219	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14841	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15130	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 33327	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33903	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33943	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33963	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965

Appendix 3. Continued.

	OSUM 34871	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 38355	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 39571	Duck River, below US Rt 431, Hardison Mill, Marshall Co., TN	K.E. Wright	August 29, 1976
	OSUM 52493	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 15614	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34020	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34054	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34107	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34133	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34161	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 40720	Duck River, DRM 113.9, above TN Rt 50, Williamsport, Maury Co., TN	C.B. Stein	September 22, 1976
	UMMZ 73290	Duck River, Columbia, Maury Co., TN		
	UMMZ 128855	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	UMMZ 52742	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 52782	Duck River, Centerville, Hickman Co., TN		
	UMMZ 52776	Duck River, Columbia, Maury Co., TN		
	UMMZ 52795	Duck River, S of Waverly, Humphreys Co., TN		
	UMMZ 30132	Duck River, Only, Hickman Co., TN		
	UMMZ 58352	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 73290	Duck River, Columbia, Maury Co., TN		
	UMMZ 128855	Duck River, Williamsport, Maury Co., TN		
	UMMZ 52742	Duck River, Wilhoite, Marshall Co., TN		
	UMMZ 52782	Duck River, Centerville, Hickman Co., TN		
	UMMZ 52776	Duck River, Columbia, Maury Co., TN		
	UMMZ 52795	Duck River, Waverly, Humphreys Co., TN		
	UMMZ 30132	Duck River, Only, Hickman Co., TN		
	UMMZ 58352	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	USNM 521383	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
	USNM 512356	Duck River, Columbia, Maury Co., TN	B. Shimek	1891
Truncilla donaciformis	FMM 2930	Duck River, DRM 174, Marshall Co., TN		July 6, 1979
	FMM 3479	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	MFM 1413	Duck River, TN	A.G. Weatherby	
	MFM 9657	Duck River, Centerville, Hickman Co., TN	H.D. Athearn	May 25, 1962
	MFM 6921	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	NCMNH 28069	Duck River, DRM 179.1, lower island - Lillard Mill, Milltown, Marshall Co., TN	D. Hubbs, M. Bamlett	April 9, 1992
	OSUM 34197	Duck River, TN Rt 50, Centerville, Hickman Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 12232	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14851	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 33952	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 15622	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34066	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34119	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34149	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965

Appendix 3. Continued.

	OSUM 34167	Duck River, DRM 126.4, Alexander Bend, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 68172	Duck River		
	UMMZ 128864	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	UMMZ 52796	Duck River, S of Waverly, Humphreys Co., TN		
	UMMZ 52783	Duck River, Centerville, Hickman Co., TN		
Truncilla truncata	ANSP 347952	Duck River, Only, Hickman Co., TN	M. Hyett	
	ANSP 390137	Duck River, Sowell Ford, Maury Co., TN	R. Dillon, C. Gooch	
	ANSP 366823	Duck River, DRM 179, below Lillard Mill, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 363117	Duck River, DRM 132-131,below old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	FMM 2928	Duck River, DRM 174, Marshall Co., TN		July 6, 1979
	FMM 2929	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 25, 1974
	FMM 3465	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler	September 9, 1999
	FMM 3480	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	MCZ 5300	Duck River, Columbia, Maury Co., TN	R.E. Call	March 6, 1905
	MCZ 272792	Duck River, 10 mi ESE of Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	MFM 6916	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	NCMNH 6148	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler	September 9, 1999
	NCMNH 6151	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
	NCMNH 28070	Duck River, DRM 179.1, lower island - Lillard Mill, Milltown, Marshall Co., TN	D. Hubbs, M. Bamlett	April 9, 1992
	NCMNH 28086	Duck River, DRM 178.6, Marshall Co., TN	L.J. Levine	August 10, 1995
	OSUM 34209	Duck River, TN Rt 50, Hickman Co., TN	D.H. Stansbery, W.J. Clench	October 13, 1972
	OSUM 12231	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14850	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 33334	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33951	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33972	Duck River, US Rt 431, Hardison Mill, Marshall Co., TN	B.B. Carroll, B. Grinstead	June 30, 1965
	OSUM 38366	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 39580	Duck River, below US Rt 431, Hardison Mill, Marshall Co., TN	K.E. Wright	August 29, 1976
	OSUM 52503	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 14493	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	P. Yokley	July 7, 1965
	OSUM 15621	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 34032	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34065	Duck River, DRM 156.5, Sowell Mill Pike, Leftwich, Maury Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34118	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34148	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 128872	Duck River, Williamsport, Maury Co., TN	A.R. Cahn	
	UMMZ 70943	Duck River, Columbia, Maury Co., TN		
	UMMZ 30071	Duck River, Only, Hickman Co., TN		
	UMMZ 52784	Duck River, Centerville, Hickman Co., TN		
	UMMZ 52797	Duck River, S of Waverly, Humphreys Co., TN		
	USNM 521432	Duck River, Columbia, Maury Co., TN	B. Shimek	1891

Appendix 3. Continued.

Utterbackia imbecillis	MCZ 274851	Duck River, US Rt 41A bridge, 6 mi ESE of Shelbyville, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
	MFM 9663	Duck River, Centerville, Hickman Co., TN	H.D. Athearn	May 25, 1962
	OSUM 12375	Caney Creek, Rt 99, Marshall Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 19688	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
	OSUM 12226	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 15618	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	UMMZ 52751	Duck River, Columbia, Maury Co., TN		
	UMMZ 52786	Duck River, S of Waverly, Humphreys Co., TN		
Villosa fabalis	MCZ 98554	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	April 16, 1905
	MCZ 5340	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	1890's
	MCZ 98548	Duck River, Hardison Mill, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
	MFM 4337	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MFM 6924	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	OSUM 12238	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14856	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15141	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 16221	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33338	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, W.J. Clench	October 14, 1972
	OSUM 33914	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 52510	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	November 3, 1982
	OSUM 52528	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	October 25, 1982
	OSUM 16227	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34123	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	UMMZ 58340	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 52733	Duck River, Wilhoite, Marshall Co., TN		
Villosa iris	FMM 3053	Duck River, Coffee Co., TN		April 1, 1973
	FMM 3076	Duck River, Henry Horton State Park, Marshall Co., TN	P.W. Parmalee	October 24, 1973
	FMM 3464	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler	September 9, 1999
	MCZ 210943	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MCZ 16372	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	1890's
	MCZ 98552	Duck River, Hardison Mill, 12 mi NW of Lewisburg	W.J. Clench, H. van der Schalie	1933
	MCZ 274842	Duck River, US Rt 41A bridge, 6 mi ESE of Shelbyville, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
	MFM 11061	Duck River, 0.5 mi below Normandy, Bedford Co., TN	H.D. Athearn	November 11, 1963
	MFM 4328	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MFM 332	Duck River, Shelbyville, Bedford Co., TN		
	OSUM 30748	Big Rock Creek, RM 5.2, Berea Church, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 30759	Big Rock Creek, RM 3.3, The Sheep Neck, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 19, 1990
	OSUM 30767	Big Rock Creek, RM 5.8, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 17, 1990
	OSUM 15067	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 16218	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN		September 8, 1965

Appendix 3. Continued.

	OSUM 18377	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 21612	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
	OSUM 33123	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 12067	Duck River, DRM below Rt 31A, Henry Horton State Park, Marshall Co., TN	D.H. Stansbery	August 1, 1964
	OSUM 14857	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 15142	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
	OSUM 16222	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33915	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 52506	Duck River, DRM 179, Milltown, Marshall Co., TN		Oct. 1 - Nov. 15, 1982
	OSUM 16237	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34037	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 41549	East Rock Creek, at bridge and R.R., Marshall Co., TN	C.B. Stein	September 28, 1976
	OSUM 40901	Thompson Creek, Bedford Co., TN	C.B. Stein	September 29, 1976
	UMMZ 58341	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	USNM 85263	Duck River, TN	Shaeffer	
	USNM 85129	Duck River, TN	Shaeffer	
	USNM 85263	Duck River, TN	Shaeffer	
	USNM 85129	Duck River, TN	Shaeffer	
Villosa lienosa	UMMZ 85457	Duck River, TN		
Villosa taeniata	FMM 3042	Duck River, near Riverside, Coffee Co., TN		October 24, 2004
	FMM 3044	Duck River, Lillard Mill, Marshall Co., TN		April 12, 1985
	FMM 3046	Duck River, Route 431 bridge, East of Columbia, Maury Co., TN		July 25, 1974
	FMM 3050	Duck River, Route 231, South of Shelbyville, Bedford Co., TN		July 24, 1974
	FMM 3077	Duck River, Lillard Mill, Marshall Co., TN		April 12, 1985
	FMM 3468	Duck River, DRM 174.8, Cundiff Island, Marshall Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler	September 9, 1999
	FMM 3492	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
	FMM 3556	Duck River, TN Hwy 50, 4.5 mile SSE of junction I-40, Hickman Co., TN	E.M. Schilling, J.D. Williams	October 13, 2000
	FMM 3566	Duck River, 179.2, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt	July 27, 2000
	FMM 3567	Duck River, 173.8, Big Spring Island, Marshall Co., TN	S.A. Ahlstedt	September 7, 2004
	FMM 3624	Duck River, DRM 177.2, Creek Island, Marshall Co., TN	S.A. Ahlstedt	July 28, 2000
	FMM 3659	Duck River, DRM 173-179, Marshall Co., TN	L.J. Levine	August 23, 1997
	MCZ 98545	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	
	MFM 19788	Duck River, below Bone Cave Ford, 3.7 km W of Manchester, Coffee Co., TN	H.D. Athearn	June 22, 1969
	MFM 19801	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn	June 22, 1969
	MFM 4338	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
	MFM 19821	Duck River, Three Forks Bridge, 7 km NW of Normandy, Bedford Co., TN	H.D. Athearn	June 22, 1969
	MFM 21687	Duck River, Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
	MFM 6915	Duck River, below Lillard Mill, Milltown, Marshall Co., TN	H.D. Athearn	September 30, 1956
	MFM 11841	Duck River, below Cortner's Mill, Normandy, Bedford Co., TN	H.D. Athearn	September 7, 1964
	MFM 11057	Duck River, 0.8 km below Normandy, Bedford Co., TN	H.D. Athearn	November 11, 1963
	MFM 22754	Duck River, just below Crumpton Creek, 9 km NNE of Tullahoma, Coffee Co., TN	H.D. Athearn	July 25, 1971
	NCMNH 5659	Duck River, 3.7 km W of Manchester, Coffee Co., TN	H.D. Athearn, M.A. Athearn	June 22, 1969

Appendix 3. Continued.

	NCMNH 6155	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, R.S. Butler, L. Colley, B. Bingham	August 9, 1999
	NCMNH 28091	Duck River, DRM 173-179, Marshall Co., TN	L.J. Levine	August 23, 1997
	OSUM 30738	Big Rock Creek, RM 9.4, Double Bridges, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 17, 1990
	OSUM 30749	Big Rock Creek, RM 5.2, Berea Church, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 30760	Big Rock Creek, RM 3.3, The Sheep Neck, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 19, 1990
	OSUM 30768	Big Rock Creek, RM 5.8, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 17, 1990
	OSUM 16197	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
	OSUM 34242	Buffalo River, above TN Rt 13, Wayne Co., TN	B.G. Isom, P. Yokley	September 7, 1965
	OSUM 34253	Buffalo River, above TN Rt 13/TN Rt 48, Wayne Co., TN	B.G. Isom, P. Yokley	August 31, 1965
	OSUM 34281	Buffalo River, Natchez Trace, Lewis Co., TN	D.H. Stansbery, C.B. Stein, E.P. Keferl, K.A. Heffelfinger	July 12, 1968
	OSUM 19684	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
	OSUM 21610	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
	OSUM 33106	Duck River, Normandy, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33124	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33180	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33838	Duck River, Normandy, Bedford Co., TN	D.H. Stansbery, M.A. Stansbery, K.G. Borror	September 14, 1972
	OSUM 33868	Duck River, DRM 243, Haley-Normandy, Dement Bridge, Bedford Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
	OSUM 33881	Duck River, DRM 239.6, Three Forks Bridge, Bedford Co., TN	D.H. Stansbery, M.A. Stansbery, K.G. Borror	September 14, 1972
	OSUM 33890	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 33097	Duck River, Coffee Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 33793	Duck River, Riley Creek, Coffee Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
	OSUM 36573	Duck River, Manchester, Coffee Co., TN	J.D. Williams, D. Patterson	August 29, 1970
	OSUM 12239	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
	OSUM 14858	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
	OSUM 33916	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 33956	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
	OSUM 34882	Duck River, Henry Horton State Park, Marshall Co., TN	C.B. Stein, J. Frederick, Jr.	October 28, 1973
	OSUM 38370	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976
	OSUM 52507	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 52533	Duck River, TN	D. Manning	
	OSUM 30741	East Rock Creek, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 41550	East Rock Creek, at bridge and R.R., Marshall Co., TN	C.B. Stein	September 28, 1976
	OSUM 33877	Flat Creek, US Rt 231, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	UMMZ 58342	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
Villosa vanuxemensis	ANSP 366830	Duck River, DRM 179, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	January 17, 1986
	ANSP 391131	Duck River, DRM 172.4, below Hardison Mill, Maury / Marshall Co., TN	S.A. Ahlstedt	January 16, 1986
	FMM 3045	Duck River, Lillard Mill, Marshall Co., TN		April 12, 1985

Appendix 3. Continued.

FMM 3047	Duck River, near Riverside, Coffee Co., TN	P.W. Parmalee	October 24, 1973
FMM 3049	Duck River, Route 231, South of Shelbyville, Bedford Co., TN	P.W. Parmalee	July 24, 1974
FMM 3080	Duck River, DRM 155.4, Maury Co., TN	B.L. Manzano	April 18, 1981
FMM 3455	Duck River, DRM 133.0, Old Columbia Dam, Maury Co., TN	S.A. Ahlstedt, D. Hubbs, B. Butler, L. Colley, B. Bingham	September 9, 1999
FMM 3568	Duck River, DRM 179.2, Lillard Mill, Marshall Co., TN	S.A. Ahlstedt	July 27, 2000
FMM 3574	Duck River, DRM 178.6, Marshall Co., TN	S.A. Ahlstedt	July 27, 2000
MCZ 99968	Duck River, Shelbyville, Bedford Co., TN	A.E. Ortmann	September 1, 1922
MCZ 16373	Duck River, Columbia, Maury Co., TN	B. Walker	
MCZ 210967	Duck River, Clay Hill, Marshall Co., TN	H.D. Athearn	October 15, 1953
MCZ 98538	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN	W.J. Clench, H. van der Schalie	1933
MCZ 274845	Duck River, US Rt 41A bridge, 6 mi ESE of Shelbyville, Bedford Co., TN	W.J. Clench, H. van der Schalie	October 2, 1967
MCZ 16370	Duck River, Shelbyville, Bedford Co., TN	R.E. Call	1890's
MFM 21689	Duck River, from Dement Bridge, 1.3 km NNE of Roseville, Bedford Co., TN	H.D. Athearn	July 19, 1970
MFM 19787	Duck River, Bone Cave Ford, 3.7 km W of Manchester, Coffee Co., TN	H.D. Athearn	June 22, 1969
MFM 19802	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn	June 22, 1969
MFM 11842	Duck River, Cortner's Mill, Normandy, Bedford Co., TN	H.D. Athearn	September 7, 1964
MFM 22753	Duck River, just below Crumpton Creek, 9 km NNE of Tullahoma, Coffee Co., TN	H.D. Athearn	July 25, 1971
NCMNH 5656	Duck River, 10.1 km N of Tullahoma, Coffee Co., TN	H.D. Athearn, M.A. Athearn	June 22, 1969
OSUM 30750	Big Rock Creek, RM 5.2, Berea Church, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
OSUM 30761	Big Rock Creek, RM 3.3, The Sheep Neck, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 19, 1990
OSUM 30769	Big Rock Creek, RM 5.8, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 17, 1990
OSUM 40746	Big Rock Creek, Verona, Marshall Co., TN	C.B. Stein	September 28, 1976
OSUM 15065	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
OSUM 19683	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 2, 1967
OSUM 21611	Duck River, Shelbyville, Bedford Co., TN	D.H. Stansbery	October 4, 1966
OSUM 33107	Duck River, Normandy, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 33125	Duck River, DRM 243, Dement Bridge, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 33181	Duck River, DRM 221.3, between dam and US Rt 231, Shelbyville, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 33839	Duck River, Normandy, Bedford Co., TN	D.H. Stansbery, M.A. Stansbery, K.G. Borror	September 14, 1972
OSUM 33869	Duck River, DRM 243, Haley-Normandy, Dement Bridge, Bedford Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
OSUM 33882	Duck River, DRM 239.6, Three Forks Bridge, Bedford Co., TN	D.H. Stansbery, M.A. Stansbery, K.G. Borror	September 14, 1972
OSUM 33098	Duck River, Coffee Co., TN	B.G. Isom, P. Yokley	September 8, 1965
OSUM 33794	Duck River, Riley Creek, Coffee Co., TN	D.H. Stansbery, K.G. Borror, M.A. Stansbery	September 14, 1972
OSUM 12240	Duck River, 0.5 mi below US Rt 431, Marshall Co., TN	C.B. Stein	July 19, 1964
OSUM 14859	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery	September 5,7, 1964
OSUM 15144	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964
OSUM 16223	Duck River, DRM 179, Milltown, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
OSUM 33917	Duck River, Wilhoite Mills, Marshall Co., TN	B.G. Isom, P. Yokley	September 3, 1965
OSUM 38371	Duck River, DRM 179, Milltown, Marshall Co., TN	D.H. Stansbery, C.E. Boone	August 14, 1976

Appendix 3. Continued.

	OSUM 52508	Duck River, DRM 179, Milltown, Marshall Co., TN	S.A. Ahlstedt	Oct. 1 - Nov. 15, 1982
	OSUM 15628	Duck River, DRM 133.4, Columbia, Maury Co., TN	D.H. Stansbery	September 5, 1964
	OSUM 16228	Duck River, DRM 159.4, Sowell Ford, Maury Co., TN	B.G. Isom, P. Yokley	September 2, 1965
	OSUM 34124	Duck River, DRM 133.4, Columbia, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 34152	Duck River, DRM 130.4, mouth of Rutherford Creek, Maury Co., TN	B.G. Isom, P. Yokley	September 1, 1965
	OSUM 30742	East Rock Creek, DRM 8.2, Marshall Co., TN	S.A. Ahlstedt, C.F. Saylor	September 18, 1990
	OSUM 41551	East Rock Creek, at bridge and R.R., Marshall Co., TN	C.B. Stein	September 28, 1976
	OSUM 33790	Fall Creek, Anchor Mill, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 33878	Flat Creek, US Rt. 231, Bedford Co., TN	D.H. Stansbery, W.J. Clench	October 15, 1972
	OSUM 40739	Fountain Creek, Maury Co., TN	C.B. Stein	September 27, 1976
	OSUM 33023	Garrison Fork, Fairfield, Bedford Co., TN	B.G. Isom, P. Yokley	September 8, 1965
	OSUM 40718	Greenlick Creek, TN Rt. 50, Maury Co., TN	C.B. Stein	September 22, 1976
	OSUM 40910	North Fork Creek, US Rt. 41A, Bedford Co., TN	C.B. Stein	September 30, 1976
	OSUM 40737	Rutherford Creek, Co., Rt. 6256, Lanton, Maury Co., TN	C.B. Stein	September 27, 1976
	OSUM 40902	Thompson Creek, Bedford Co., TN	C.B. Stein	September 29, 1976
	OSUM 52907	Wartrace Creek, TN Rt. 82, Bedford Co., TN	D.H. Stansbery, K.G. Borror, A.E. Spreitzer	November 4, 1978
	UMMZ 89207	Duck River, TN		
	UMMZ 52734	Duck River, Marshall Co., TN		
	UMMZ 58343	Duck River, Hardison Mill, 12 mi NW of Lewisburg, Marshall Co., TN		
	UMMZ 52765	Duck River, Columbia, Maury Co., TN		
Villosa sp.	OSUM 15066	Duck River, DRM 235.6, US Rt 41A/TN Rt 16, Bedford Co., TN	D.H. Stansbery	September 7, 1964
	OSUM 15143	Duck River, above US Rt 31A, Wilhoite Mills, Marshall Co., TN	D.H. Stansbery	September 5,6,8, 1964

Appendix 4. The approximate number of species by major taxonomic groups that inhabit the Duck River Basin Tennessee (data sources: TVA Heritage Program, United States Geological Survey, and Tennessee Aquarium Research Institute).

Taxa	**Species**
Periphyton and algae	89
Aquatic plants and Bryophytes	14
Zooplankton	65
Flatworms and Oligchaetes	19
Non-insect arthorpods	12
Freshwater insects	207
Freshwater snails	22
Freshwater mussels	54
Fishes	147
Frogs and Turtles	15
Total Species Count	>644