

1994 Annual Report

Reestablish Populations of Endangered and Threatened Species in Shoal Creek

Mussel Introductions

Qualitative sampling of the mussel transplant site near Lawrenceburg, TN indicated that very few of the original 239 adult mussels transplanted in 1992 remained on site. Only two dead mussels were found. However, live, marked mussels were found up to 700 m downstream, indicating transport by high flow events. Since few mussels remained at the original location, transplants of adult mussels in 1994 were made at three other locations 400 to 800 m downstream. In 1994, a total of 2,222 adult mussels of 6 species were collected from the Tennessee River and scrubbed with a wire brush to avoid any possibility of introducing zebra mussels into Shoal Creek. Numbers of each species introduced at the site near Lawrenceburg, TN were determined by availability (Table 1). A second transplant site was located at Goose Shoals in Alabama and 2,003 adult mussels from the Tennessee River were introduced in 1994.

In 1994, two additional methods were used to reintroduce mussels into Shoal Creek. In June, we collected 132 redline darters and 42 rainbow darters by electrofishing near our adult transplant site in Tennessee. At streamside, the darters were anesthetized and glochidia from Medionidus conradicus were pipetted directly onto their gills. After recovering from the anesthetic, the fish were returned to the creek. Although it is unknown how many juveniles were eventually produced by this technique, based on results of laboratory experiments, potentially 15,000 glochidia successfully transformed into juveniles.

We also collected gravid mussels from the Duck River and infested smallmouth bass with glochidia of Lampsilis fasciola, and infested rock bass with glochidia of Villosa taeniata.

The infested fish were maintained in laboratory aquaria. Juveniles were siphoned from the aquaria and once a week were translocated into Shoal Creek. Approximately 3,500 juvenile Lampsilis fasciola and 2,500 juvenile Villosa taeniata were introduced into Shoal Creek near Lawrenceburg, TN. Although known numbers of juveniles can be introduced by this method, it is labor intensive. Consequently, we do not intend to use this method in the future. We believe that more juveniles can be introduced by infesting fish at streamside and immediately releasing them. Moreover, this method probably results in a wider distribution of juveniles and perhaps survival.

Fish Collections

In the spring, a sample of fish were collected from the transplant site near Lawrenceburg, TN to assess potential glochidial infestations. During the summer additional fish samples were collected throughout Shoal Creek to assess host fish distributions. These samples have not yet been processed. Intensive fish sampling near Lawrenceburg and at Goose Shoals is scheduled for the spring-summer of 1995 to determine potential mussel reproduction.

Table 1. Numbers and species of adult mussels translocated in 1994 into Shoal Creek near Lawrenceburg, TN, and at Goose Shoals, AL.

Species	Location	
	TN	AL
<u>Amblema plicata</u>	567	1069
<u>Cyclonaias tuberculata</u>	91	13
<u>Ellipsaria lineolata</u>	15	--
<u>Fusconaia ebena</u>	311	--
<u>Fusconaia flava</u>	52	136
<u>Lampsilis teres</u>	1	--
<u>Leptodea fragilis</u>	1	7
<u>Ligumia recta</u>	43	--
<u>Megalonaias nervosa</u>	138	131
<u>Obliquaria reflexa</u>	136	115
<u>Pleurobema cordatum</u>	1	--
<u>Potamilus alatus</u>	139	171
<u>Pyganodon grandis</u>	--	1
<u>Quadrula metanevra</u>	83	3
<u>Quadrula pustulosa</u>	423	147
<u>Quadrula quadrula</u>	199	199
<u>Tritogonia verrucosa</u>	22	11
Total	2222	2003