



Life in the Rocks



The Newsletter of the Arkansas Game and Fish Commission Nongame Aquatics Program

Recent Notes on Mussels in Arkansas

By Bill Posey

In January 2001, I reported on the status of freshwater mussels in Arkansas. During the interim, a number of discoveries have been made, some of which I have reported in previous editions of this newsletter. I felt like it was time to compile this information to provide readers with an update on the status of Arkansas Mussels.

Six years ago I reported that 74 mussel species existed in Arkansas. While the number of species has increased since that time, it is still difficult to ascertain the exact number that we currently have. It appears that at least 77 species are now found in Arkansas and the number will likely exceed 80. There are several studies currently underway that will determine if we have undescribed species in Arkansas or if species that were previously described but discounted are in fact, valid species. At least two undescribed species do occur here and the description and names of those species should be available before the end of 2007.

I also reported that 55 mussel species were considered “Special Concern” species. Our knowledge of these species has increased due to additional surveys since 1997, resulting in a reduction of the number to 52 “Special Concern” species. These are now considered “Species of Greatest Conservation Need”.



Undescribed species from Arkansas.

The change in terminology is due to the [Arkansas Wildlife Action Plan](#) that was written by Arkansas Game and Fish Commission biologists, partners from other state and federal agencies, and private individuals as part of a funding agreement for management of nongame species (species that are not hunted or fished for sport).

I reported in 2001 that seven mussel species were listed as endangered or threatened under the Endangered Species Act, and that two additional species were in the listing process. Since that time, only the scaleshell mussel (*Leptodea leptodon*) was listed as endangered while the Neosho mucket remains a candidate for listing. One other species, the spectaclecase mussel (*Cumberlandia monodonta*), is now a Candidate for listing. The status of the rabbitsfoot mussel (*Quadrula cylindrica*) and the Ouachita creekshell (*Villosa arkansasensis*)



Spectaclecase mussel from the Ouachita River, 2005.

are being reviewed to determine if each is candidate for listing as endangered or threatened.

With the addition of the Louisiana pearlshell, the total number of endangered and threatened species listed by the US Fish and Wildlife Service is now up to nine in Arkansas.

With nine federally listed mussel species in Arkansas, this brings the percentage of Arkansas' endangered species that are mussels up to 29% of all animals and plants and 36% of all animals that are federally listed in Arkansas. Other federally listed animals include one snail, five mammals, one insect, four fish, two crayfish, and four birds.

Two species recently recognized in Arkansas include the southern pocketbook (*Lampsilis ornata*) and the federally threatened Louisiana pearlshell (*Pseudunio hembli*). The first is known to occur in an 80-mile portion of the mainstem Saline River while the latter is only recorded from Bayou Dorcheat in Southwest Arkansas. One species that has tentatively been removed from the list of Arkansas Mussels is the sandbank pocketbook (*Lampsilis satura*) a species that appears to be genetically similar to the plain pocketbook (*Lampsilis cardium*). However, shell characteristics are dissimilar between the species requiring a tentative removal at this time.



Southern pocketbook mussel from the Saline River, 2006.

The conservation status of many of these species is better understood now than in 2001. Surveys conducted over the last five years have revealed additional populations of two endangered mussels including the federally endangered speckled pocketbook (*Lampsilis streckeri*), the endangered Ouachita rock pocketbook (*Arkansia wheeleri*), and other "Species of Greatest Conservation Need".

Speckled pocketbook mussels were found in all of the major forks of the Little Red River, although they are still restricted to the Little Red River basin. Reproduction for this species has been documented in the basin where several juvenile speckled pocketbook mussels were located during the surveys.

It was anticipated that with the discovery of additional populations of speckled pocketbook mussels that the species could be down listed from endangered to threatened status. However, with the discovery of natural gas in the watershed, it is feared that exploration and retrieval of the gas could have a negative impact on the species. Therefore, the species' endangered status remains unchanged.

Ouachita rock pocketbook mussels were discovered in the Little River between

Millwood Dam and the mouth, which is approximately 10 miles of habitat where it was not known to occur. In addition, reproduction for this species has been documented in this habitat with evidence of gravid females in 2002 and two juveniles discovered in 2007.

Fat pocketbook mussels (*Potamilus capax*), previously believed to only occur in the St. Francis River Basin in Arkansas, have been discovered at multiple sites and even some high-density populations are known within the basin. The species has also been found in dike fields on the Mississippi River bringing hope that this species may one day be down-listed from endangered to threatened and eventually removed from the US Fish and Wildlife Service's list of threatened and endangered animals.

Additional surveys for the Curtis pearly mussel (*Epioblasma florentina curtisi*) have not revealed a live or dead shell of the species from the Spring River basin in Northeast Arkansas. It may be that the species is now extirpated from Arkansas and it may even be extinct. Additional surveys are planned to search for the species but the future for the species is looking rather depressing.

One bright note from the Curtis pearly mussel survey was the discovery of a population of snuffbox mussels (*Epioblasma triquetra*) in the Spring River. This species had been documented once in the past 25 years but over 50 fresh dead specimens were discovered in several presumed muskrat middens. Live individuals were also found at one site in the Spring River.

Host fish identification studies have been conducted for several of Arkansas' endangered or threatened species, which include the



Snuffbox mussel from Spring River, 2005

speckled pocketbook (*Lampsilis streckeri*), Arkansas fatmucket (*L. powellii*), winged mapleleaf (*Quadrula fragosa*) and the Ouachita rock pocketbook (*Arkansia wheeleri*). In addition, host fish were identified for two "Species of Greatest Conservation Need" that include the Ouachita creekshell (*Villosa arkansasensis*) and the rabbitsfoot mussel (*Quadrula cylindrica*). Because these animals are required to parasitize a host to complete transformation from larvae to juvenile, understanding their host needs is an integral part of conserving these unique species.

While this is certainly not an exhaustive record of all activities in Arkansas concerning freshwater mussels in Arkansas since 2001, I believe the outlook for many species in Arkansas is better than previously described. There are still those species that are on the brink of extinction, some that are not as stable as once believed but others are certainly more stable than was documented in the past. There are also some taxonomic uncertainties associated with this diverse fauna, but the questions are slowly being answered and some day the questions may finally be answered. For now, I will just keep plodding along in my quest to answers these questions in hopes that I can make the plight of this unique fauna turn for the better.

Pebbles...

(Quick notes on what we've been up to...)

- Bill met with the Tennessee Wildlife Resources Agency and the Mississippi Department Wildlife, Fisheries and Parks personnel to discuss commercial fishing regulations for the Mississippi River where it is shared with each of the three states.
- Brian worked with Betty Crump (US Forest Service), Dr. Henry Robison (Southern Arkansas University), and Dr. Tom Buchanan (U of A – Fort Smith) to prepare a presentation on taxonomic changes regarding Arkansas fishes. Betty presented this at the Arkansas Chapter American Fisheries Society meeting.
- Kelly hosted Sumio Okada, a Ph.D. student from Japan, to discuss cryptobranchid salamander biology and conservation. Sumio is currently studying the ecology of the Japanese Giant Salamander, the nearest living relative to Arkansas' Ozark Hellbender.
- Bill attended MICRA's Paddlefish and Sturgeon Committee meeting in St. Louis where sturgeon management was discussed.
- Brian met with other Fisheries Division biologists for discussion so standardized sampling procedures for lake electrofishing and for stream sampling.
- Brian, Bill, and Kelly attended a Fisheries Division Budget Unit Managers meeting.
- Kelly, along with his fellow AGFC colleagues, participated in the AGFC-Legislative Meet and Greet dinner.
- Brian, Bill, and Mark attended a stream biology and management workshop at U of A – Pine Bluff.
- Bill and other Fisheries Division Biologists and Administration attended a meeting with commercial fishers to discuss regulation changes.
- Kelly met with staff of the Tulsa Zoo and Oklahoma State University graduate students at the Lonoke Fish Hatchery to conduct health assessments of the Alligator Snapping Turtles housed at the hatchery. These turtles are to be transferred to the Oklahoma Department of Wildlife Conservation for use in a captive propagation and re-stocking program in April.
- Brian and Mark, along with cooperators including USFWS, ANHC, and TNC, completed cave aquatics monitoring in several high priority endangered species caves in north Arkansas.
- Bill conducted an Environmental Education event at the Janet Huckabee, Arkansas River Valley Nature Center in Fort Smith.
- Kelly and his wife Lisa spent 14 days in March exploring the tropical rainforest and rivers of Amazonian Peru. They observed or collected over 100 species of amphibians and reptiles. They also saw monkeys, macaws, parrots, as well as both pink and gray river dolphins in the wild.
- Bill attended the biannual symposium of the Freshwater Mollusk Conservation Society held at the Peabody in Little Rock. He, with other malacologists, led a field trip on the Saline River near Benton for some of the participants.

Pebbles...

...continued

- Brian attended the Arkansas Chapter American Fisheries Society meeting, where he presented a half-day workshop on crayfishes.
- Bill spent two days assisting in a survey of the Little River for the endangered Ouachita rock pocketbook mussel as part of an environmental assessment for the construction of a new power plant near Fulton, Arkansas.
- Brian attended the Southern Division American Fisheries Society meeting in Memphis.
- Bill met with Tri-Lakes US Army Corps of Engineers managers and a US Fish and Wildlife Service biologist to discuss methods to reduce impacts to the endangered Ouachita rock pocketbook mussel in the Little River below Millwood Lake.
- Brian traveled to the Illinois Natural History Survey and St. Louis University to meet with collaborating researchers and drop off collections of crayfish specimens.

- Bill assisted the Black Bass Program, Fish Pathologist and District 7 Fisheries Biologists with electrofishing on Millwood Lake and data gathering from the captured fish.



Brian Wagner, Nongame Aquatics Biologist - bkwagner@agfc.state.ar.us
 Bill Posey, Malacologist/Commercial Fish Biologist - brposey@agfc.state.ar.us
 Kelly Irwin, Herpetologist - kirwin@agfc.state.ar.us
 Mark Kottmyer, Part-time Technician
 Arkansas Game & Fish Commission, 915 E. Sevier Street, Benton, AR 72015



While driving across north Arkansas in February, Brian and Mark spotted this tractor, and the damage it had done, in Osage Creek. If you see something like this, contact the Arkansas Department of Environmental Quality to make sure the operator has complied with their permitting procedures.



Arkansas Game & Fish Commission
Nongame Aquatics Program
915 E. Sevier Street
Benton, AR 72015