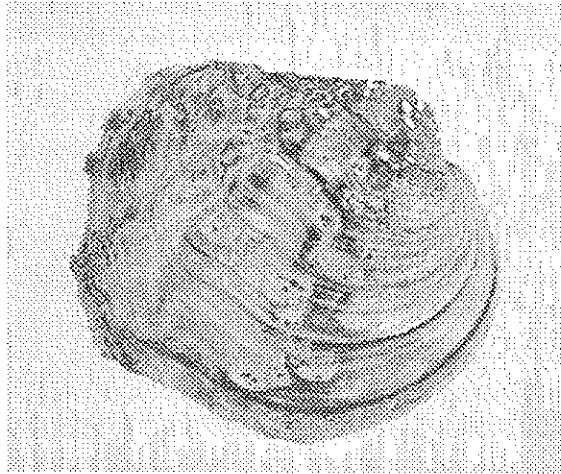


Posey  
2002

### Conservation Status of Freshwater Mussels in Arkansas

By Bill Posey

During the past 35 years, numbers of individuals and species diversity of native mussels have declined throughout the United States and Canada. In 1993, The Nature Conservancy recognized 55% of North America's mussels as extinct or imperiled compared to only 7% of the continent's bird and mammal species. By 1997, that number had risen to 68% for mussels in the United States.



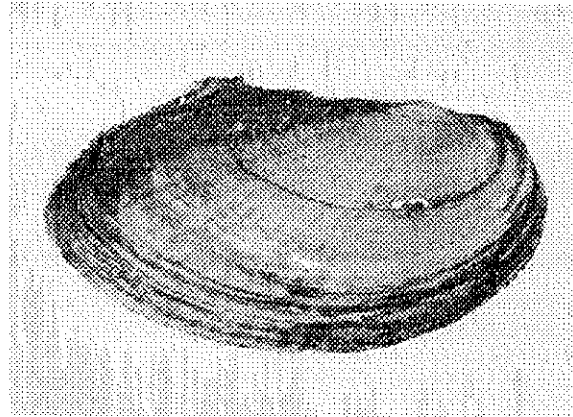
Winged mapleleaf (*Quadrula fragosa*)

In 1987, a publication printed in the Proceedings of the Arkansas Academy of Science listed the current conservation status of 18 species of mussels thought to occur within Arkansas. At the time, 69 species of mussels were thought to occur within the State and the results were that 26% of these mussels were considered rare and/or endangered. Since that time, one species has been removed from the state list of species, which would in reality make the number 17 (25%). The U.S. Fish and Wildlife Service (USFWS) listed only four of those species as endangered or threatened.

Arkansas is now home to seven species that are listed as endangered by the USFWS, including the Ouachita rock pocketbook, Curtis' pearly mussel, turgid blossom, pink mucket, fat pocketbook, speckled pocketbook, and winged mapleleaf, as well as the threatened Arkansas fat mucket. Two other species, the Neosho mucket and scaleshell are in the listing process to be listed by the USFWS in the future. Unfortunately, the Curtis' pearly mussel and the turgid blossom, two of the federally listed species, have probably been extirpated from Arkansas. Both of these species were at the southern edge of their range within northern Arkansas.

In 1997, a follow up publication in the Journal of the Arkansas Academy of Science revealed 12 species not listed by the USFWS within Arkansas that might need additional protection, bringing the species in need of conservation total to 21. Only one species from the 1987 report, the pyramid pigtoe, was removed from the list of species in need of conservation that currently exists in Arkansas. Surveys of the lower Ouachita, Little Missouri and Saline rivers completed before the 1997 publication revealed abundant populations of this species.

Since the publication of the 1987 paper, five new species have been added to the species list for Arkansas. This resulted in a total number of species in Arkansas of 74, of which, 28% are considered endangered, threatened or of special concern by the USFWS or malacologists within the state.



Scaleshell (*Leptodea leptodon*)

Arkansas is below the national average for species that may soon be extirpated but we don't need to pat ourselves on the back too soon. The percentage of imperiled species has risen over the last 13 years from 25% to 28%. Additionally, research utilizing DNA analysis is going to help elucidate some problems with morphologically similar species, which may in turn become endangered or threatened species or species of special concern. Stream surveys may reveal populations of species that may or may not have been recorded for the state and could influence the number found on this list. However, it is also hoped that through these surveys, species thought extirpated will be rediscovered.

The regions of greatest concern within Arkansas are found in the Ouachita and Ozark highlands according to the Nature Conservancy. Several endemic species are located within these unique regions and if they are lost, there are no replacements. On a national scale, mussels and snails found in the southeast portion of the United States are becoming more rare and many are likely to become extinct within the next 20 years.

predators until hatching. When the eggs hatch, about 65 days later, the young emit a high-pitched croaking noise alerting the female to come dig them out; she then carries them to water. The young may remain together for extended periods, up to a year or more.

Alligators are tertiary consumers and play a vital role in maintaining the balance of wetland animal communities. Alligators excavate cavities or burrows into overhanging banks as far as 6 m (20 ft) to escape winter weather and drought conditions. They also create "gator holes", depressions excavated over the years, which provide a crucial source of water and act as refuges for many species during extreme droughts. It has been shown that translocated alligators will home great distances back to their original home range. The historic and recent distribution of alligators in Arkansas includes the Gulf Coastal Plain, Mississippi Delta, and associated wetlands of the Arkansas River valley above Little Rock.

#### **Regulatory History**

For over one hundred years extensive habitat loss through the draining of wetlands, coupled with the added pressures of direct take by hunters, caused alligator population numbers to reach an all time low by 1960. As a result, the Arkansas Game and Fish Commission enacted a regulation to protect the alligator in 1961. The federal government passed legislation in March of 1967 listing the alligator as an endangered species, thus protecting the animal from take, six years before enactment of the Endangered Species Act of 1973. In January 1977, the alligator was down-listed to threatened status. In June 1987, it was de-listed to recovered status and subject to a five-year monitoring program. At present, it remains on the federal listing as "Threatened due to Similarity of Appearance". This was done to ensure proper regulation of the legal trade in alligator skins or products made from them, to protect other

endangered crocodylian species with skins that are similar in appearance.

With the advent of de-listing to recovered status, regulatory jurisdiction has been deferred to the state level: *Code of Federal Regulations: Title 50, Part 17. §17.42 Special rules – reptiles*. The exception to this is the U.S. Fish and Wildlife Service regulation of traffic in alligator hides or products made from them, whether from wild or captive stock. Arkansas Game and Fish Commission regulations that pertain directly to alligators include; *Section 18.00 General Hunting Regulations, Code 18.14 Taking of Alligator Prohibited; Section 40.00 Alligator Farmer Regulations*.

#### **History of Restocking Efforts**

By the mid-1960's, Arkansas' alligator population was severely depleted. At that time the greatest populations persisted in the southwestern quarter of the state. It was estimated from a survey conducted in 1973 that only 1900 alligators occurred in Arkansas, in Hempstead, Lafayette, and Miller counties. Prior to this, in 1970 or 1971, the Arkansas Game and Fish Commission attempted a restocking effort, utilizing native stocks taken from Grassy Lake in Little River County, however these efforts proved unsuccessful. Shortly thereafter, an agreement between the Louisiana Department of Fisheries and Wildlife and the Arkansas Game and Fish Commission was established. This agreement provided sub-adult alligators taken from the wild in Louisiana, by AGFC personnel, to restock areas within their historic range in Arkansas. Between 1972 and 1984, 2,841 alligators were captured in Louisiana and released in Arkansas. It has been reported that approximately 80% of restocked alligators were released on private lands, at the owner's request, in the belief that they would control nuisance animals such as beaver, rough fish, snapping turtles, and venomous snakes.

## The Ouachita Rock Pocketbook

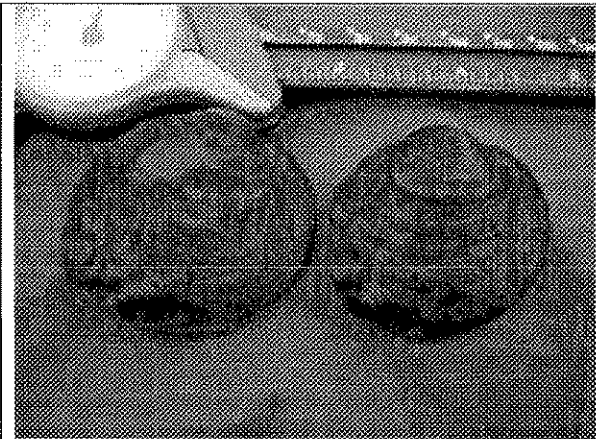
*Arkansia wheeleri* - Ortman and Walker, 1912

### Chapter 2

By Bill Posey

In the last issue of "Life in the Rocks", I shared historical and recent information about the Ouachita Rock Pocketbook. As you might guess from my last article, this species is of particular interest to me, and since I live in the vicinity of its geographic range, it is relatively easy for me to search for new locations where it might exist. While I stated previously the future for this species remains in question, we have begun to answer some questions concerning the species' existence in Arkansas and I am now even more optimistic for a favorable future than only a few months ago.

Knowledge that the species once occurred in the Little River and finding dead individuals fueled the desire to continue searching in the River and persistence has finally paid off. In October 2002 another malacologist and I were able to locate two live juvenile Ouachita Rock Pocketbook mussels from a mussel bed, the first to be seen by a malacologist in Arkansas in recent years.



Juvenile Rock Pocketbook mussels.

After completing our study of that site, we continued searching other habitats that might support more individuals. Rather than looking in the habitat where the species should occur, the outside of bendways, we did the opposite by searching on the inside of bendways and were rewarded with two female Ouachita Rock Pocketbook mussels within a few minutes, bringing the total for that day to four. We did not wish to disturb the mussel bed more than we had and determined the best course of action would be to return these individuals to the substrate and return in a few weeks to collect them to use in determining the host fish, a project that is ongoing at Arkansas State University.



Ouachita Rock Pocketbook Mussels.

Two more attempts to locate this species have been met with success and the total number of live Ouachita Rock Pocketbook mussels now stands at eight. While the number may seem modest compared to other common species, this is the greatest number to be seen in Arkansas since the early 1900's.

Finding these individuals coupled with the work on their life history helps to further my resolve that the species can be saved. These surveys and studies of the species' life history, lead me to believe that the species could be removed from the Endangered Species List. However, there is still a long road ahead before that day will arrive.

