

## Occurrence of the Rock Pocketbook Mussel, *Arcidens confragosus* (Bivalvia: Unionidae), in the Poteau and Deep Fork Rivers of Oklahoma.

**A. David Martinez**

U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, 222 South Houston Avenue, Tulsa, OK 74127

**Daniel E. Spooner**

Oklahoma Biological Survey and Department of Zoology, University of Oklahoma, 111 East Chesapeake Street, Norman, OK, 73019

**Todd G. Adornato and Suzanne Y. Dudding**

U.S. Fish and Wildlife Service, Oklahoma Ecological Services Field Office, 222 South Houston Avenue, Tulsa, OK 74127

**Caryn C. Vaughn**

Oklahoma Biological Survey and Department of Zoology, University of Oklahoma, 111 East Chesapeake Street, Norman, OK, 73019

The rock pocketbook, *Arcidens confragosus* (Say, 1829), is a freshwater mussel, distinguished from other mussel species by a rhomboidal shell profile, high beaks, knobbed and double-looped beak sculpturing, folded disc sculpturing, olive green to black periostracum, compressed pseudocardinal teeth, and poorly developed lateral teeth (Burch 1975, Clarke 1981). The species occurs widely throughout the Mississippi River and other Gulf Coast drainages (Johnson 1980), though usually at low abundances. To our knowledge, it has not been reported previously from Oklahoma, despite mussel surveys having been performed extensively throughout the state over nearly a century of time. Branson (1983) included *A. confragosus* among the species he covered because of its known occurrence near Oklahoma in Ozarkian and Gulf Coastal streams.

On 13 July 2000, a University of Oklahoma survey crew (D.E. Spooner, J. Johnson, M. Moore, and A. Richardson) discovered a single live individual of *A. confragosus* in the Poteau River approximately 5.9 km downstream from Morris Creek in LeFlore

County, Oklahoma. The individual was collected in a shallow (<1 m) riffle consisting of sandy gravel substrate with water willow, *Dianthera americana*. This individual was relatively thick-shelled (L 149 mm x H 95 mm x W 60 mm) and collected with other disproportionately large, thick-shelled phenotypes of other species (*Amblema plicata*, *Megaloniais nervosa*, and *Quadrula pustulosa*; Vaughn and Spooner 2004).

On 11 September 2000, a US Fish and Wildlife Service crew investigating a large mussel kill found a single live individual of *A. confragosus* in the Deep Fork River approximately 2.0 km downstream from Cussetah Creek in Okmulgee County, Oklahoma. It was found in the sandy substrate of a shallow (<1 m) pool near the downstream inside bank of a meander. This individual was relatively smaller (L 87 mm x H 60 mm x W 39 mm) than the Poteau River specimen. Other bivalve species found living at the same locality included *Amblema plicata*, *Fusconaia flava*, *Lampsilis teres*, *Leptodea fragilis*, *Potamilus purpuratus*, *Quadrula pustulosa*, *Q. quadrula*, *Tritogonia verrucosa*, *Truncilla donaciformis*, and the ex-

otic *Corbicula fluminea*. Other species indicated by empty shells only at the site included *Lasmigona complanata* and *Potamilus ohiensis*. At the time of this investigation, sewage pollution responsible for the kill had recently reached the locality, and several mussels situated mid-channel were already dead or in a distressed condition.

Known host fish for *A. confragosus* include the American eel, *Anguilla rostrata*; gizzard shad, *Dorosoma cepedianum*; rock bass, *Ambloplites rupestris*; white crappie, *Pomoxis annularis*; and freshwater drum, *Aplodinotus grunniens* (Fuller 1974). Of these species, gizzard shad, white crappie, and freshwater drum all are common native fishes of both the Poteau and Deep Fork Rivers, and the eel inhabited the Poteau historically (Cross and Moore 1952, Pigg et al 1998). The Oklahoma Department of Wildlife Conservation has stocked none of the documented host species in Wister Reservoir, which lies 21.2 km upstream from the Poteau River locality, nor in Eufaula Reservoir, which lies 24.2 km downstream from the Deep Fork locality (M. David Routledge, ODWC, pers. comm. 2004, Garland Wright, ODWC, pers. comm. 2004).

The Poteau River *A. confragosus* individual was preserved and deposited in the mollusk collection of the Oklahoma Biological Survey. The Deep Fork individual was photographed, preserved, and deposited in the mollusk collection of the University of Science and Arts of Oklahoma, Chickasha.

Contributions to this communication by employees of the U.S Fish and Wildlife Service represent the views of those individuals, and do not necessarily reflect the view of that agency.

## REFERENCES

- Branson BA. 1983. The mussels (Unionacea: Bivalvia) of Oklahoma - Part 2: the Unioninae, Pleurobemini and Anodontini. Proc Okla Acad Sci 63:49-59.
- Burch JB. 1975. Freshwater unionacean clams (Mollusca: Pelecypoda) of North America. 2nd ed. Hamburg (MI): Malacological Publications. 204 p.
- Clarke AH. 1981. The tribe Alasmidontini (Unionidae: Anodontinae), Part I: *Pegias*, *Alasmidonta*, and *Arcidens*. Washington DC: Smithsonian Institution Press. Smithsonian Contributions to Zoology No. 326. 101 p.
- Cross FB, Moore GA. 1952. The fishes of the Poteau River, Oklahoma and Arkansas. Am Midl Nat 47(2):396-412.
- Fuller SLH. 1974. Clams and mussels (Mollusca: Bivalvia). In: Hart CW Jr, Fuller SLH, editors. Pollution ecology of freshwater invertebrates. New York (NY): Academic Press. p 215-273.
- Johnson RI. 1980. Zoogeography of North American Unionacea (Mollusca: Bivalvia) north of the maximum Pleistocene glaciation. Bull Mus Comp Zool 149(2):77-189.
- Pigg J, Coleman MS, Wright J, Gibbs R, Gido K, Lemmons RR. 1998. An ecological investigation of the ichthyofauna in the Deep Fork River, central Oklahoma: 1976 to 1996. Proc Okla Acad Sci 78:67-110.
- Vaughn CC, Spooner DE. 2004. Status of the mussel fauna of the Poteau River and implications for commercial harvest. Am Midl Nat 152(2):336-346.

Received: May 7, 2004; Accepted: January 4, 2005