

# Kansas Pearly Mussel Newslines

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The *Kansas Pearly Mussel Newslines* is published on an occasionally basis by the Kansas Dept. of Wildlife & Parks, and includes topics about freshwater mussels and other aquatic critters.

Brian K. Obermeyer, Editor  
Edwin J. Miller, Associate Editor  
Karen J. Couch, Illustrator

## New Editor of the *Kansas Pearly Mussel Newslines*

Edwin Miller was recently promoted as T&E Species Coordinator for KDWP (Jerry Horak's old position), and is consequently swamped with new responsibilities and tasks. As a result, Ed has decided to relinquish some of his editorial duties for the *KS Pearly Mussel Newslines* to Brian Obermeyer. Ed will continue to serve the newsletter as Associate Editor.

## Y2K mussel workshop

The 7th Kansas mussel workshop has been tentatively set for August 10 and 11. The first day of the workshop will be held at the Independence Community College, and will include presentations about mussels and other aquatic topics. There will also be a mussel identification session at the conclusion of presentations. If weather and water levels cooperate, we will have several mussel sampling excursions to the Verdigris, Elk, and Fall rivers on the second day.

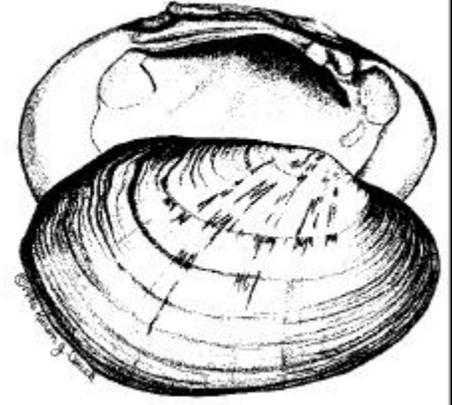
If you have a presentation about mollusks or any other aquatic topic that you would like to share, please contact Ed Miller or Brian Obermeyer. A meeting agenda will be sent out in early July to those persons on the *Kansas Pearly Mussel Newslines* mailing list. We hope you can make it!

## Neosho mucket restoration project

Dr. Chris Barnhart, Associate Professor, Southwest Missouri State University

There is little doubt that many mussel populations are declining. Although demographic information is usually sketchy, young individuals are often rare, and we infer that some factor is interfering with recruitment. However, there is good news along with the bad. Luckily, most mussels are very long-lived, with lifespan ranging up to 100 years in some species. Therefore, populations do not disappear "overnight" from poor recruitment alone. Secondly, reproduction usually seems normal, even if recruitment isn't. Regardless of rarity, old age, or declining populations, individual female mussels generally seem to produce normal glochidia in large numbers. Finally, there is good reason to believe that the survival of these larvae to adulthood can be aided fairly easily by human intervention. With a little help from their friends, mussel populations might be increased dramatically in a short time.

Mussels produce thousands or even millions of glochidia per female. Even under normal conditions, only a tiny fraction of these larvae will ever reach a suitable host fish. The availability of host fish is inevitably a limiting factor for mussel recruitment. Of those few that do reach the host and transform, many will presumably fall into unsuitable habitat (silty or unstable substrate) after leaving the fish. These two steps alone, reaching the host fish and subsequently reaching suitable habitat, probably account for more than 99.99% of mortality in each generation. This news may be good, because it should be possible to drastically increase survivorship by putting glochidia on the proper host, recovering the transformed juveniles, and then releasing them in suitable habitat.



Late last summer, we carried out a pilot project in which larval Neosho muckets (*Lampsilis rafinesqueana*) were transformed on fish at the Chesapeake State Fish Hatchery in Missouri and released into historic habitat in Kansas. There are several reasons for working with Neosho muckets. This species is state-listed as endangered in Kansas and Oklahoma, and imperiled in Missouri. The distribution of Neosho muckets is particularly well understood in Kansas because of recent survey work by Brian Obermeyer and others. Although many populations have been lost, it is still fairly easy to find "brood stock" of this species in a few localities. Neosho muckets are also relatively easy to propagate because their fish hosts include largemouth bass, which are readily available in fish hatcheries.

For our pilot experiments, we obtained glochidia from a single female Neosho mucket, which was collected in the Fall River, northwest of Neodesha, in July of 1999. The glochidia were placed on fingerling largemouth bass at the Chesapeake Fish Hatchery near Chesapeake, Missouri. Several hundred glochidia attached to each fish, and

(Continued on page 2)

(*Neosho mucket restoration project – Continued from page 1*) transformation took place within 1 month. Approximately 70% of attached glochidia transformed and were recovered from the holding tank by siphoning and filtration. The transformed juveniles are tiny, less than 1 millimeter long (Figure 1), so that counting and handling them are challenging. On the other hand, they don't require a lot of space!

The main purpose of this initial project was to perfect methods. However, we returned some of the juveniles to the Fall River. Brian Obermeyer, John Bills, and Ed Miller released over 19,000 juvenile Neosho muckets at 4 Fall River sites located on the Fall River Wildlife Area in Greenwood County. The reach of river on Fall River Wildlife Area was chosen as a release area because Neosho muckets formerly occurred there, based on the presence of their weathered and relic shells, and because other mussel species are still found within this stretch of river, indicating that the habitat is suitable. Fall River Lake constitutes a dispersal barrier, so that recolonization of the wildlife area from surviving Neosho mucket populations below the reservoir is unlikely. Likewise, the new population in the wildlife area should have no genetic effect on Neosho mucket populations below the reservoir. Assuming that the juveniles survive, they will be large enough to relocate within about 3 years. Neosho muckets apparently often live over 30 years, so that even a single cohort could buy decades of time to investigate and correct factors that have limited natural recruitment. We hope to carry out similar projects with this species and others later this year.

This pilot project was a cooperative effort involving MDC, KDWP, USFWS, S&PR, the Neosho National Fish Hatchery, and the SMSU Biology Department. I would like to thank everyone that was involved, including B&B Obermeyer, E. Miller, J. Bills, J. Horak, D. Mulhern, M. Baird, B. Simmons, D. Sheridan, J. Maenner and his crew at the Chesapeake Hatchery, and D. Hendrix, R. May and others at the Neosho National Fish Hatchery.



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**Figure 1.** A school of juvenile mussels. The object at right is a paper staple (diameter 0.5 mm).

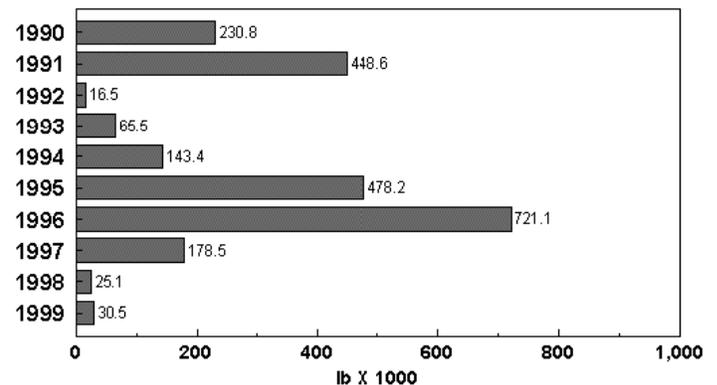
## Kansas mussel harvest report: 1999,

Tom D. Mosher, KDWP

The Kansas Department of Wildlife and Parks sold 16 mussel harvester and one mussel buyer permits during 1999. This was the lowest number of permits sold during the past decade and reflected the uncertain demand and the low market value of the shells.

Musselers harvested approximately 30,500 lbs. of mussels in Kansas during 1999. This represented nearly a 22% increase from 1998, despite the decrease in permit sales. The 1999 harvest of the mapleleaf (*Quadrula quadrula*) declined 77% from 1998, due largely to a decrease in the harvest of mussels in reservoirs. The harvest of the threeridge (*Amblema plicata*) increased by 52% from that of 1998, and the monkeyface (*Quadrula metanevra*) increased by 208%, due to increased harvest activity and market demand in August and September. Harvest of bleufers (*Potamilus purpuratus*) increased 32% from that reported in 1998.

### Kansas mussel harvest: 1990-1999



Shellers reported a harvest of 22,495 lbs. of threeridge shells from three Kansas rivers in 1999. The Neosho River accounted for 58% of the total harvest, whereas 33% were harvested from the Verdigris River. Permit holders reported harvesting 5,311 lbs. of monkeyface shells in 1999. Sixty-seven percent of the harvest was reported from the Neosho River. The mapleleaf ranked third in harvest, with 1,856 lbs. Lake Wabaunsee contributed 63% of the mapleleaf harvest, while the Neosho River yielded 17%, and the Verdigris River yielded 12%. Only three permit holders harvested "lake" mapleleaf shells in 1999, and there was no in-state buyer for these shells.

Mussel harvest activities declined sharply after the American Shell Company stopped buying shells in June 1998. Activity continued to be low from April to

(Continued from page 2)

June 1999 when only three permit holders reported harvesting shells. Despite the increased market demand in the later half of 1999, only 11 people reported harvesting shells. Potential value paid to shellers for harvested shells in 1999 was approximately \$18,872, a 28% decrease of the harvest value from 1998. The Kansas Department of Wildlife and Parks received several complaints about the lack of shell buyers in Kansas during 1999.

## Changes in mussels over the last 20 years in the Walnut River basin

Dr. Bill Langley, Butler County Community College

One long-lived invertebrate that cannot escape pollution insults to streams are mussels. The diversity and health of mussel populations can show the accumulated effects of impairments to a stream. In 1979, Rose Hacker conducted a thorough study of mussels in the Walnut River basin. We returned to some of her sites in 1999 and sampled in a similar manner to compare species composition. Our prediction was that fewer species and individuals would be found in 1999 than in 1979, given the poor health of the Walnut and Whitewater rivers.

We sampled freshwater mussels at a total of 27 sites located in the Walnut, West Branch of the Walnut, Little Walnut, and Whitewater rivers. Samples were collected during the fall of 1999. All vacant shells were taken to the lab for cleaning and identification. Live specimens were identified and released in the field, or released later after being identified in the lab. Two comparison categories were made to assess the change in the basin's mussel composition: live/fresh and weathered. The number of individuals found for each species in 1979 and 1999 were compared as equal, less than 1979, or more than 1979. This was done for each of the six commonly found species in the study: the giant floater, pond mussel, fragile papershell, mapleleaf, and white heelsplitter. Species in which only a few individuals were reported in 1979 were combined into a group called uncommon. A sign test was used to detect changes over time.

**Results & Discussion.**—We found 235 live/fresh specimens and 303 weathered specimens. All but six of the species found in 1979 at these sites were found in 1999 (Table 1). The only new species found in 1999 was the Asian clam. It represents an invading species and was found scattered throughout the basin. In 1979, only weathered shells of the pistolgrip mussel were found, but in 1999 several live specimens were collected in the Walnut and Little Walnut rivers. There were significantly more sites with a greater

number of uncommon species in 1979 than in 1999 for both the live/ fresh specimens and for weathered specimens. Even though the threeridge showed a similar decrease, the only significant difference was with weathered specimens. Even though point source pollution has decreased markedly in the last 25 years, non-point source pollution has not. The finding that there has been a widespread decline of many mussel species supports the idea that non-point source pollution is continuing to degrade the streams in Butler County.

**Table 1.** List of species found by Rose Hacker (1979) and by present study (1999). E = extant (live/recently dead shells) and W = weathered shells. Presence is indicated by an "x". Bold font indicates that the species is listed by the state as "Species in Need of Conservation".

Species		1979		1999	
		E	W	E	W
Giant floater	<i>Pyganodon grandis</i>	x	x	x	x
Threeridge	<i>Amblema plicata</i>	x	x	x	x
Pond mussel	<i>Ligumia subrostrata</i>	x	x	x	x
Fragile papershell	<i>Leptodea fragilis</i>	x	x	x	x
Mapleleaf	<i>Quadrula quadrula</i>	x	x	x	x
White heelsplitter	<i>Lasmigona complanata</i>	x	x	x	x
<b>*Wabash pigtoe</b>	<i>Fusconaia flava</i>	x	x	x	x
*Pistolgrip	<i>Tritogonia verrucosa</i>	...	x	x	x
<b>*Fatmucket</b>	<i>Lampsilis siliquoidea</i>	x	x	...	x
*Pimpleback	<i>Quadrula pustulosa</i>	x	x	x	x
*Plain pocketbook	<i>Lampsilis cardium</i>	...	x	...	x
<b>*Yellow sandshell</b>	<i>Lampsilis teres</i>	x	x	x	x
*Pink papershell	<i>Potamilus ohioensis</i>	x	x	...	x
*Bleufer	<i>Potamilus purpuratus</i>	x	x	...	x
Lilliput	<i>Toxolasma parvus</i>	x	x	...	...
<b>Deertoe</b>	<i>Truncilla truncata</i>	...	x	...	...
<b>Creepers</b>	<i>Strophitus undulatus</i>	x	x	...	...
Paper pondshell	<i>Utterbackia imbecillis</i>	x	x	...	...
Pondhorn	<i>Unio merus tetralasmus</i>	x	x	...	...
Threehorn wartyback	<i>Obliquaria reflexa</i>	...	x	...	...
Asian Clam	<i>Corbicula fluminea</i>	...	...	x	x

\* Indicates species belongs to the group designated "uncommon species".

## Archeological excavations in the Lower Walnut River basin reveal diverse pre-settlement mussel fauna

An upcoming publication by the Kansas State Historical Society concerning archaeological sites in the Lower Walnut River basin near Arkansas City is expected to contain a section authored by Dan Bleam (Wichita State University) dealing with shell material associated with the excavations. The twenty species of unionid mussels identified in the current work will update and augment an earlier study by Waldo Wedel (1959) at three of the included sites. The time frame represented by the Lower Walnut River sites run from roughly 50 a.d. to the late 1700's. The diversity demonstrated across time in these archaeological samples is in stark contrast to the more recent study of the mussel fauna by Rose Hacker (1980), in which only three living mussel species were represented from three of her sampling sites located in the same area

### Literature Cited:

Wedel, W. 1959. An Introduction to Kansas Archaeology. Bull. No. 174. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.

Hacker, R. 1980. Unionid Mussels of the Walnut River Basin, Kansas. M.S. Thesis, Wichita State University.

*Editor's Note: Several Neosho mucket (Lampsilis rafinesqueana) valves were present among the 20 species excavated from the archeological sites. This is the first record of the Neosho mucket in the Walnut River basin*

## Tennessee shell company agrees to pay restitution

In July 1998, the Tennessee Shell Company pleaded guilty to a felony violation of the Lacey Act for buying and exporting thousands of pounds of freshwater mussels illegally taken from rivers in Michigan, Ohio, Kentucky, and West Virginia. The company agreed to pay \$1 million to the National Fish and Wildlife Foundation for use in mussel conservation.

The Foundation created the Freshwater Mussel Conservation Fund to use the restitution monies, which will be paid over a four-year period, to support research and other efforts to preserve the Nation's freshwater mussel populations. So far, more than \$260,000 in grants have been awarded to two universities and seven state and federal agencies.

The first six projects financed by the fund include two efforts that will propagate healthy juvenile mus-

sels for research and restocking programs. A third project will produce a web-based, searchable, bibliographic database on North America's freshwater mussels, a much-needed reference for the research community.

Three projects focus specifically on improving law enforcement efforts to protect mussel resources from illegal trade. Researchers will study the use of trace metal profiles to identify where shells were collected, an analysis that could help enforcement officers determine whether mussels were legally harvested.

(taken from <http://news.fws.gov>)

## State's first recovery plan for mussels is available on the Internet

Below are links for downloading a copy of the state's first species recovery plan; i.e., a recovery plan for four freshwater mussels in southeast Kansas. The files are in Adobe PDF format, so you'll need Adobe Acrobat Reader to view it. The first link includes the preface, abstract, and table of contents sections, and the second link is the main body of the recovery plan. The second link is large, about 2.5 megabytes, so it will take a while to download. Even though the Secretary of KDWP has tentatively okayed the recovery plan, it won't be final until it has been reviewed by a local committee of citizens that live in the affected watersheds. Therefore, the plan is still considered a draft, so treat accordingly. As soon as we incorporate the committee's input, the plan will be published and distributed. We are hoping to have copies available at the August mussel workshop.

[http://www.geocities.com/b\\_obermeyer/intro2.PDF](http://www.geocities.com/b_obermeyer/intro2.PDF)

[http://www.geocities.com/b\\_obermeyer/body.PDF](http://www.geocities.com/b_obermeyer/body.PDF)

## KDWP mussel collections, 1999

Ninety stream sites were sampled by two KDWP stream teams, LARB and GEMO, during summer 1999. The LARB stream team sampled 45 Lower Arkansas River basin sites in 16 counties in south-central Kansas. LARB is a three-year study, with 1999 being the first collection year. GEMO followed a geomorphology crew from the Kansas Water Office, and sampled 45 sites adjacent to USGS gaging stations in 29 counties. The 1999 GEMO collection was the first of a two year study.

Mussel collections from the LARB survey yielded 18 species, with a total of 15 extant species (live and/or recently dead). Three species represented only by relic valves—Wabash pigtoe, yellow sandshell, and creeper—are all state-listed as species in need of conservation (SINC). An additional SINC species, the fatmucket, was represented by both recently dead

(Continued from page 4)

and weathered shell material. Extant species found at the largest number of LARB sites were the giant floater, pondhorn, pondmussel, and pimpleback, whereas the giant floater, pondhorn, pondmussel, and lilliput were the most widespread weathered/relic species, respectively. The Asian clam was found at nine LARB sites.

GEMO collections revealed a total of 17 species, including four SINC species: cylindrical papershell, Wabash pigtoe, fatmucket, and creeper. Ten species were represented by extant specimens and 16 as weathered/relic shells. Seven species were represented only by relic valves. The most common extant species (*i.e.*, found at the largest number of sites) were the pink papershell, fragile papershell, and giant floater, whereas the giant floater, pimpleback, lilliput, and pondhorn were the most widespread species represented by weathered/relic shell material. The cylindrical papershell was the only SINC species represented by extant representatives, with a live individual collected at a Smoky Hill River site in Ellis County (012-GEMO-99). The Asian clam was found at three GEMO sites.

## Mussel study at Melvern, Fall River, and Elk City wildlife areas

Matt Combes, a graduate student at Emporia State University, is investigating the relative influence of reservoir backwater on riverine mussel assemblages upstream from Melvern, Fall River, and Elk City lakes. Matt will conduct timed groping searches at 12 sites in each stream above these reservoirs (*i.e.*, the Marais des Cygnes, Fall, and Elk rivers). Four sampling sites have been selected in each of three habitat sections (upstream reach, middle reach, and downstream reach), which are based on the frequency of reservoir inundation. The upstream reach is the section of each river that has been inundated by lake backwater for < 1% of the total number of days since reservoir dam closure. The middle reach is based on inundation from 1% to 10% of the total number of days since dam closure. The downstream section is the area inundated for > 10% of the total number of days since dam closure. In order to assess mussel assemblages not affected by reservoir inundation, two of the upstream reach sites are situated above the maximum flood pool elevation of each reservoir. Basing habitat sections on the frequency and duration of inundation from reservoir backwater will allow Matt to test his hypothesis—using an analysis of variance—that there will be a trend of decreased species richness and abundance, and a shift toward silt tolerant species at sites closer to the conservation pool elevation, which are more frequently

inundated.

The study was initiated last summer (1999), with 17 sites sampled to date. Preliminary analysis indicates a trend of fewer species and lower species abundance at sites more frequently inundated. Collections of weathered shell material reveal a much reduced mussel assemblage from that of historic levels. For example, 24 species were represented by weathered valves at nine Marais des Cygnes River sites upstream from Melvern Lake, compared to only 12 species collected alive. The study is being funded by KDWP agricultural monies from Melvern, Fall River, and Elk City wildlife areas.

## Freshwater Mollusk Conservation Society

The Freshwater Mollusk Conservation Society (FMCS) is dedicated to the conservation of and advocacy of freshwater mollusks, North America's most imperiled animals. Membership in the society is open to anyone interested in freshwater mollusks who supports the stated purposes of the Society (see [http://www.sari.org/FMCS\\_General\\_Information.htm](http://www.sari.org/FMCS_General_Information.htm)). Membership is \$15 for students and \$30 for regular members, and includes a subscription to the *Ellipsaria* newsletter. Membership Contact Information:

Freshwater Mollusk Conservation Society  
C/O Heidi Dunn, Treasurer  
114 Algana Court  
St. Peters, Missouri 63376  
Phone: (314) 447-5355  
Mailto: [ecologists@aol.com](mailto:ecologists@aol.com)  
[http://www.sari.org/FMCS\\_Membership\\_Form.htm](http://www.sari.org/FMCS_Membership_Form.htm)

## Mussel news from the past

Oswego, Sept. 14, 1936—How'd you like to find \$100 in one mussel shell? One man did just that last week while hunting shells for a button factory here.

Ray Taylor, a local jeweler, has the pearl in his window. He says that some man from Parsons whose name he can't recall came in the shop the other day with the pearl and wanted to know how much it was worth. The company to which Taylor sent the gem said it to be worth about \$100.

"This fellow said he got it out of the [Neosho] river," Taylor said. "It's the largest I've ever seen in this part of the country. They come that way in the Wabash or the White River over in Missouri but not often even there." Most river pearls are small things, shaped something like a button but this one is perfectly round and about the size of a pencil eraser.

—Taken from the *Parsons Sun*, Sept. 14, 1936

## Mussel sampling from the 1999 mussel workshop

One of the benefits of the past six mussel workshops—all hosted by KDWP under the guidance of Edwin Miller—has been volunteer participation to sample freshwater mussels. Some very useful data has been collected during these field trip, and we hope this trend continues. At last summer's workshop, three stream sites were sampled by 19 volunteers. Ed Miller (KDWP) led a group to a Neosho River site north of Chanute on Bob Baker's property, Charles Cope (KDWP) supervised a group of volunteers on the Fall River on Harold Blinn's property in Wilson County, and Brian Obermeyer (Stream & Prairie Research) took an eager group to Emerson Newbery's farm located on the old cutoff channel of the Neosho River in Neosho County. See tables below for description of sites, comments, and results.

<b>Site:</b> Neosho River — 200 meters downstream of Barker's Dam, N of Chanute; Neosho Co., T27S R18E Sec. 5 (E1/2)			
<b>GPS:</b> N 37°43.445 W 95°27.203			
<b>Landowner:</b> Robert Barker			
<b>Collectors:</b> K. Couch, G. Horak, S. Lynott, E. Miller, D. Martinez, T. Mosher, D. Mulhern, and V. Tabor			
<b>Comments:</b> This was a repeat of a mussel survey conducted at the same site on 9 August 1994, in which 192 individuals of 15 species were collected. The survey conducted last summer resulted in 13 species and 618 individuals. Also found were six recently dead butterfly ( <i>E. lineolata</i> ) shells.			
Species		1994	1999
Monkeyface	<i>Quadrula metanevra</i>	L	243
Pimpleback	<i>Quadrula pustulosa</i>	L	94
Threehorn wartyback	<i>Obliquaria reflexa</i>	L	94
Pistolgrip	<i>Tritogonia verrucosa</i>	L	71
Threeridge	<i>Amblema plicata</i>	L	40
Mapleleaf	<i>Quadrula quadrula</i>	L	28
Plain pocketbook	<i>Lampsilis cardium</i>	L	25
Wabash pigtoe	<i>Fusconaia flava</i>	L	16
Fragile papershell	<i>Leptodea fragilis</i>	L	5
Butterfly	<i>Ellipsaria lineolata</i>	L	5
Bleufer	<i>Potamilus purpuratus</i>	L	5
Spike	<i>Elliptio dilatata</i>	...	1
Pink papershell	<i>Potamilus ohioensis</i>	...	1
Neosho mucket	<i>Lampsilis rafinesqueana</i>	L	...
Creeper	<i>Strophitus undulatus</i>	L	...
Wartyback	<i>Quadrula nodulata</i>	L	...
Yellow sandshell	<i>Lampsilis teres</i>	L	...
L = live			

<b>Site:</b> Old cutoff channel of the Neosho River; 3.5 mi. S, 0.35 mi. E St. Paul, Neosho Co., T30S R20E Sec. 1 (NE1/4)			
<b>Landowner:</b> Emerson Newbery			
<b>Effort:</b> 20 sq. meter quadrats in a 50 m reach			
<b>Collectors:</b> B. Angelo, C. Hase, K. Mitchell, B. Obermeyer, K. Sherraden, S. Sherraden, and T. Stahl.			
<b>Comments:</b> Species composition was similar to a collection made in 1994 by Obermeyer et al. (see below). However, we did not collect the flutedshell, and we found 2 additional species: wartyback and pink papershell. Perhaps the most noticeable difference between collections was the decline in the threeridge. In 1994, this species was the most abundant mussel collected, representing 20.4% of the collection, whereas the species represented only 10% from the 1999 sample. Although qualitative sampling favors the collection of larger mussels, the percent composition of the washboard was similar in both collections; <i>i.e.</i> , 10.2% in 1994 versus 8.7% in 1999. Although not presented in the table below, the group qualitatively sampled downstream (~100 m) for approximately one hour, and found a number of live butterfly and round pigtoes.			
Species		1994	1999
Pimpleback	<i>Quadrula pustulosa</i>	L	74
Wabash pigtoe	<i>Fusconaia flava</i>	L	40
Threeridge	<i>Amblema plicata</i>	L	27
Mapleleaf	<i>Quadrula quadrula</i>	L	25
Washboard	<i>Megaloniais nervosa</i>	L	24
Threehorn wartyback	<i>Obliquaria reflexa</i>	L	13
Pistolgrip	<i>Tritogonia verrucosa</i>	L	13
Monkeyface	<i>Quadrula metanevra</i>	L	12
Spike	<i>Elliptio dilatata</i>	L	11
Fragile papershell	<i>Leptodea fragilis</i>	L	10
Round pigtoe	<i>Pleurobema sintoxia</i>	L	7
Butterfly	<i>Ellipsaria lineolata</i>	L	4
Bleufer	<i>Potamilus purpuratus</i>	L	3
Plain pocketbook	<i>Lampsilis cardium</i>	L	2
Wartyback	<i>Quadrula nodulata</i>	...	2
Neosho mucket	<i>Lampsilis rafinesqueana</i>	L	2
Pink papershell	<i>Potamilus ohioensis</i>	...	2
White heelsplitter	<i>Lasmigona complanata</i>	L	1
Fawnsfoot	<i>Truncilla donaciformis</i>	L	1
Yellow sandshell	<i>Lampsilis teres</i>	L	1
Flutedshell	<i>Lasmigona costata</i>	L	...
Ouachita kidneyshell	<i>Ptychobranchus occidentalis</i>	W	W
Giant floater	<i>Pyganodon grandis</i>	W	...
Rabbitsfoot	<i>Quadrula cylindrica</i>	W	...
Creeper	<i>Strophitus undulatus</i>	W	W
Fawnsfoot	<i>Truncilla donaciformis</i>	L	W
Deertoe	<i>Truncilla truncata</i>	...	W
L = live; W = weathered shell material			

(Continued from page 6)

<b>Site:</b> Fall River — upstream from the Hitchcock bridge; 1.35 mi. N, 1.0 mi. W of New Albany; Wilson Co., T28S R13E Sec. 25 (NW1/4 NW1/4)		
<b>Landowner:</b> Harold Blinn		
<b>Collectors:</b> C. Cope, M. Combes, J. Mason, and R. Tush		
<b>Comments:</b> Sampling effort was not comparable to a 1993 collection, in which 40 sq. m quadrats were sampled.		
Species		1999
Threeridge	<i>Amblema plicata</i>	7
Wabash pigtoe	<i>Fusconaia flava</i>	29
Plain pocketbook	<i>Lampsilis cardium</i>	3
Round pigtoe	<i>Pleurobema sintoxia</i>	2
Bleufer	<i>Potamilus purpuratus</i>	2
Ouachita kid-	<i>Ptychobranchus occidentalis</i>	1
Monkeyface	<i>Quadrula metanevra</i>	25
Pimpleback	<i>Quadrula pustulosa</i>	30
Mapleleaf	<i>Quadrula quadrula</i>	4
Pistolgrip	<i>Tritogonia verrucosa</i>	21

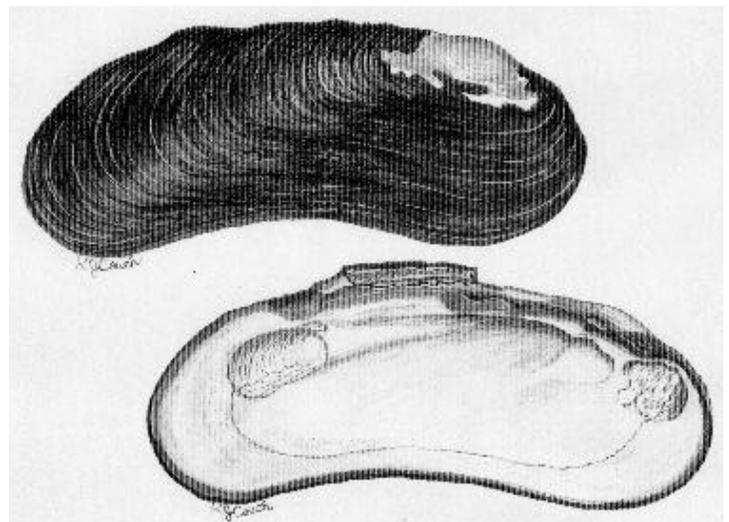
## New mussel records in the Osage River system, including two new species for the state

A single weathered valve of the spectaclecase (*Cumberlandia monodonta*) was collected by Bruce Freske and Bill Peterson, USFWS, in August of 1998 on a gravel bar in the Marais des Cygnes River, Linn Co., approximately 4 km upstream from the KS-MO state line. This collection represents the first specimen of the Family Margaritiferidae documented from Kansas, and extends the species' known historic distribution in the upper Osage River system by about 90 km. On 2 Aug. 1999, Brian Obermeyer (BKO) collected a disarticulated valve of the purple wartyback (*Cyclonaias tuberculata*) in the Marais des Cygnes River, Linn Co., about 2.4 river km upstream from the KS-MO state line. This collection extends the range of this species approximately 55 km westward in the Osage River system, and represents the first collection of the species in Kansas. Both the purple wartyback and spectaclecase shells are in relatively good condition; *i.e.*, the nacre, although faded, is not chalky, and the periostracum is mostly intact.

Although the butterfly (*Ellipsaria lineolata*) and monkeyface (*Quadrula metanevra*) are well documented in the Arkansas River system, these species had previously not been collected in the Kansas portion of the Osage River system. A single relic valve of the butterfly was collected by KDHE in 1997 from the Marais des Cygnes River at Rantoul, Franklin Co. Last summer,

two live butterfly specimens were collected by BKO on a gravel bar in the Marais des Cygnes River at the same location as the purple wartyback valve mentioned above, and seven live specimens were collected by Ed Miller and others near the spectaclecase site. In 1996, a single weathered valve of the monkeyface was collected from the Marais des Cygnes River at Ottawa, in Franklin Co. A relatively fresh valve of the monkeyface was collected last summer by BKO on a gravel bar in the Marais des Cygnes River at the *C. tuberculata* site.

Based on recent collections of the mucket (*Actinonaias ligamentina*), the Kansas Department of Wildlife and Parks recently added the mucket to its list of Endangered species. In 1996, a live mucket was collected in a gravelly riffle near the confluence of Eightmile Creek during a KDHE survey of the Marais des Cygnes River in Franklin Co. near Ottawa. A recently dead specimen was collected from an adjoining gravel bar and retained by KDHE as a voucher. Later the same year, several relic valves of the mucket were collected from the Marais des Cygnes River at locations in western Franklin Co. and eastern Osage Co. In 1997, another live individual and several recently dead specimens of the mucket were discovered in a gravelly reach of the Marais des Cygnes River in eastern Franklin Co. — during the 1997 mussel workshop. KDHE has collected a few unweathered specimens along with weathered shells from Pottawatomie Creek in southeastern Franklin Co. Another, slightly weathered specimen was collected in 1999 from a gravel bar in the Marmaton River in eastern Bourbon Co. These findings indicate that the mucket was once rather widespread in the upper Osage River system in Kansas, and is still present in the Marais des Cygnes River, though it appears to be extremely rare there.



Spectaclecase (*Cumberlandia monodonta*)

*Kansas Pearly Mussel Newsline*  
c/o Brian K. Obermeyer  
Stream & Prairie Research  
Rt. 2 Box 141  
Eureka, KS 67045

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bko@eurekaerald.com

