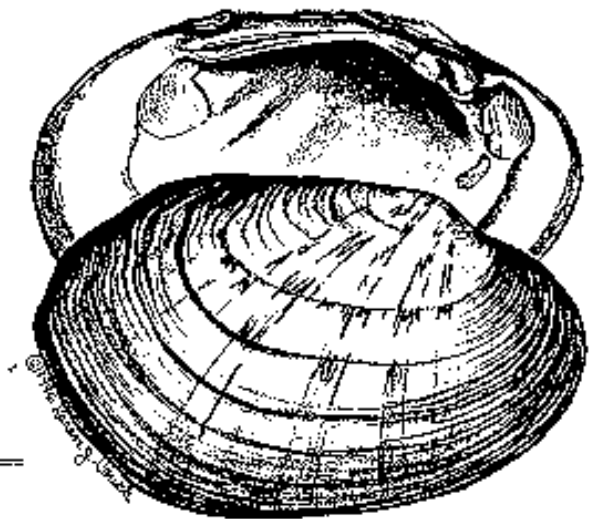


Kansas PEARLY MUSSEL Newsline

Kansas Dept. Wildlife & Parks Spring 1998
Editor: Edwin J. Miller



Captive Rearing Unionid Mussels

This spring the Neosho National Fish Hatchery and Southwest Missouri State University plan to begin experiments on the captive rearing of Neosho mussels (*Lampsilis rafinesqueana*). Dr. Chris Barnhart and his students at SMSU have identified several species of black basses as suitable hosts of this mussel, which is considered to be endangered in Kansas. The current population stronghold of this species is in the lower Spring River.

Microscopic larval mussels (glochidia) collected from the Spring River population will be placed on hatchery-reared largemouth bass. After metamorphosis, the juvenile mussels will be transferred to artificial stream systems where they will be fed a diet of cultured phytoplankton. The juvenile mussels are initially so small that they are barely visible to the eye. If all goes well, they will grow to a size suitable for release (several millimeters in length) within one year.

Doug Aloisi, David Hendrix, and co-workers at the Neosho Hatchery are currently working with a close relative of the Neosho mussel, the plain pocketbook mussel (*Lampsilis cardium*), to develop suitable rearing methods. Barnhart's lab is currently investigating the fish hosts and reproductive adaptations of several unionid species as well as experimenting with rearing the transformed juveniles. Research on unionids at SMSU has been partly supported by Kansas Wildlife and Parks.###

(Dr. Chris Barnhart, Southwest Missouri State University, Springfield, MO)

Refuge Poachers Apprehended

On the morning of August 12, 1997, landowners Dan and Dale Small called the KDWP office to report a flatbottom boat and three men being dropped off on the Verdigris River mussel refuge. The shellers were first seen working their way upstream and systematically removing threeridge, monkeyface, and mapleleaf mussels. They were photographed by Dale Small and questioned by Conservation Officers Knuth and Ramshaw. The three 40-year-old men were cited for 1) taking freshwater mussels from closed waters, 2) taking illegal sized shell, 3) criminal mussel fishing without permission of landowner, 4) possession of illegal species of mussel, and 5) two of the three had no mussel harvest license. The landowners, disgusted with illegal mussel harvest and trash dumping along the river, have gated their field road. They have granted access to KDWP personnel for law enforcement, scientific, or education use of this diverse and mussel rich stretch of the Verdigris River. Thanks to the Smalls for protecting the river resources, and the extra time it will take them to get into their farm fields.###

Mussel Symposium Held in Columbus, Ohio

A freshwater mussel symposium, with the theme "Conservation, Captive Care and Propagation", was held March 6-8, 1998, in Columbus, Ohio. The meeting was hosted by the Columbus Zoo, the Ohio Department of Natural Resources (Division of Wildlife), the Ohio Biological Survey, and the University of Maryland Baltimore County. There were 194 registrants from 28 states and 3 countries.

Topics of the sessions included captive care and maintenance of adult mussels, mussel physiology and nutrition, juvenile rearing, propagation and reintroduction, glochidia transformation techniques and methods, and public outreach and conservation programs.

One workshop was on the subject of design and construction of captive care facilities. Another was on mussel identification and glochidia transformation techniques, presented by Dr. Tom Watters of the Ohio State University and Bob Howells of the Texas Parks and Wildlife Department. Attendees of this workshop were able to briefly utilize the extensive freshwater mussel collection at the Museum of Biological Diversity and visit the Aquatic Ecology Laboratory, both on the grounds of OSU.

The highlight of the meeting was the keynote address entitled "Unionid Transitions", presented by Dr. David H. Stansbery, Professor Emeritus and Curator of Mollusca at the OSU museum. At the end of his program, Dr. Stansbery received a standing ovation. ###

-- Karen J. Couch, Olathe

Third National Freshwater Mussel Symposium: March 1999

The National Freshwater Mollusk Conservation Society (formerly the National Native Mussel Conservation Committee) announces the 3rd National Freshwater Mussel Symposium, "Musseling in on Biodiversity", hosted by the Southeast Aquatic Research Institute and the Tennessee Aquarium. The dates are March 17-19, 1999, at the Clarion Hotel, 407 Chestnut Street, Chattanooga, Tennessee.

The meeting will be similar in format to the Conservation and Management of Freshwater Mussels meetings held in St. Louis, Missouri in 1992 and 1995. The theme of this symposium will be freshwater mussel biodiversity. Like the earlier meetings, this symposium will focus on status surveys, life histories, habitat requirements, biology, techniques, etc. in both oral and poster presentation formats. In addition to the freshwater mussel presentations, there will be a special session dealing with the conservation of freshwater gastropods. As with the previous meetings, the proceedings will be published. A call for papers will follow in the fall of 1998. Scientists, researchers, conservation agency personnel, federal and state biologists with an interest in freshwater mollusks are encouraged to participate. Current meeting information will soon be available on the Southeast Aquatic Research Institute web site at {<http://www.sari.org>}.###

---Karen J. Couch, Olathe

Verdigris River Mussel Refuge: Six Years Later

Eight sites on the Verdigris River in Wilson and Montgomery Counties were resurveyed in 1997, six years after an initial attempt to evaluate a designated mussel refuge. Four sites are outside and four inside the refuge. Sampling was replicated with 40 randomly placed quadrats searched at each site. The objectives were to follow trends of mussels and to determine the effect of commercial harvest on populations of legally harvested mussels. Following are some preliminary results and a table comparing the unionid counts of the two survey periods.

- Generally, the overall relative rank of mussel species at these survey sites has not changed over the last six years (Table 1). The mean number of mussels per quadrat increased from 5.94 to 8.52. The overall number of specimens examined in 1997 was 2,726. There are indications of some populations undergoing change.
- Two sites showed a significant increase (using rank sum comparison tests) in mussel numbers (one in refuge, one outside) and one site showed a significant decrease in mussel numbers (in refuge) since the 1991 survey.
- The monkeyface (*Quadrula metanevra*) population increased significantly from 1991 to 1997. Seven of the eight sites showed an increase and the overall number increased from 505 to 971. This increase occurred in monkeyface smaller than legal size (2.75-inch shell height).
- Although sample size is small, some trends appear to be developing. Western fanshell (*Cyprogenia aberti*) and Wartyback (*Quadrula nodulata*) increased at six of the eight sites while no yellow sandshells (*Lampsilis teres*) were collected at the six sites where they were found in 1991.
- The number of legal size monkeyface and threeridge (*Amblema plicata*) was greater in the refuge than outside it. However this difference appears to be independent of the refuge. In other words, the refuge had no significant effect ($\alpha=0.05$) in protecting these mussels. This differs from the results in 1991 when the refuge was shown to have a significant impact in protecting large specimens of these two species.
- There was no significant difference in size of threeridge found in and out of refuge in 1997. However, compared to 1991 data, refuge threeridge decreased in average size from 88.8 to 73.9mm shell height in the last six years. Illegal shelling was reported and documented in the refuge over the last few years with high shell prices and low summer water levels. It appears that illegal shelling was intense enough to be revealed in the survey data regarding threeridge. The two largest size classes of threeridge combined (80<100mm and 100<120mm) had counts decline from 213 in 1991 to 82 in 1997. ### (E.J. Miller, KDWP, Independence)

Table 1. Overall comparison of freshwater mussels found in 1991 and 1997 on eight sites on lower Verdigris River. Search effort was equal with 40 randomly placed quadrats searched at each site.

Mussel Species	1991 Survey	Percent of 1991 total	1997 Survey	Percent of 1997 total	Change from 1991
<i>Amblyma plicata</i>	276	14.6%	174	6.4%	-102
<i>Cyprogenia aberti</i>	4	0.2	16	0.6	+12
<i>Ellipsaria lineolata</i>	5	0.3	11	0.4	+6
<i>Fusconia flava</i>	184	9.7	413	15.2	+229
<i>Lampsilis cardium</i>	49	2.6	32	1.2	-17
<i>Lampsilis refinesqueana</i>	5	0.3	2	0.1	-3
<i>Lampsilis teres</i>	13	0.7	0	0	-13
<i>Lesmigona complanata</i>	6	0.3	6	0.2	nc
<i>Leptodea fragilis</i>	64	3.4	69	2.5	+5
<i>Megalaniais nervosa</i>	7	0.4	2	0.1	-5
<i>Obliquaria reflexa</i>	102	5.4	156	5.7	+54
<i>Pleurobema coccineum</i>	42	2.2	73	2.7	+31
<i>Potamilis purpurans</i>	26	1.4	12	0.4	-14
<i>Pygostrobranchus occidentalis</i>	7	0.4	21	0.8	+14
<i>Quadrula metanewa</i>	505	26.7	971	35.6	+466
<i>Quadrula nodulata</i>	11	0.6	20	0.7	+9
<i>Quadrula pustulosa</i>	331	17.5	466	17.1	+135
<i>Quadrula quadrula</i>	85	4.5	117	4.3	+32
<i>Strophitus undulatus</i>	38	2.0	25	0.9	-13
<i>Tritigonia verrucosa</i>	84	4.4	116	4.3	+32
<i>Truncilla donaciformis</i>	45	2.4	24	0.9	-21
TOTAL	1889	100	2726	100.1	+837

1997 Kansas Mussel Harvest

During 1997, 106 mussel harvesters and 4 mussel buyer permits were sold by the Kansas Department of Wildlife and Parks. Mussel harvester permits decreased by 49% from 1996. Of these, 99 harvesters were Kansas residents while 7 harvesters were nonresidents. Two of the buyers were Kansas residents and 2 were nonresidents. The decrease in permits was prompted by the reported success of harvesters in 1996, and by the lower prices being paid for river shells in 1997. Some buyers were not buying river shells in 1997.

Musselers harvested approximately 178,500 lbs. of mussels in Kansas during 1997. This represents a 75% decrease over the estimated harvest of 1996, and 62% decrease from 1995.

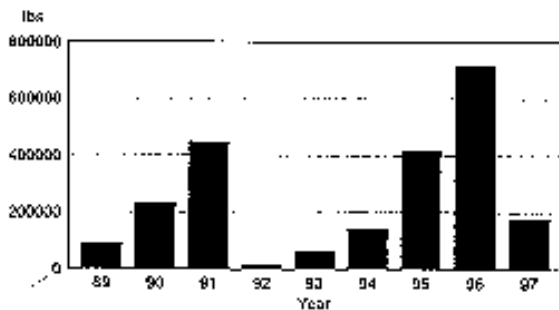
Threeridge (*Amblema plicata*) harvest decreased 85% from 1996. Most threeridge mussels were harvested from rivers (76%). The Neosho River accounted for 36% of the total harvest, while 28% were harvested from the Fall River and 9% from the Verdigris River.

The 1997 harvest of mapleleaf (*Quadrula quadrula*) was 18% less than during 1996. Most of these shells (84%) were harvested from reservoirs. Perry Reservoir and Fall River Reservoir ranked first and second in harvest of mapleleaf.

The reported harvest of monkeyface mussels (*Quadrula metanevra*) decreased 88% from 1996. This decrease reflected the lower price paid for river mussels in 1997. Harvest from the Neosho River accounted for 71% of the reported harvest, while the Verdigris accounted for 11%, and 10% were harvested from the Fall River.

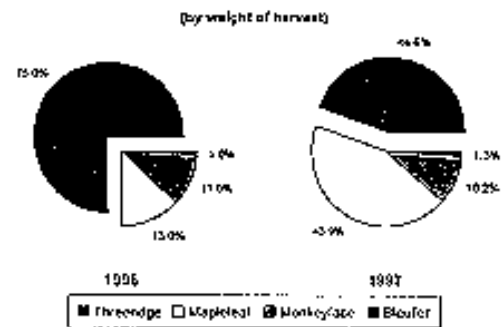
(excerpts from 1997 Kansas Mussel Summary, T. D. Mosher)

Commercial mussel harvest: 1989-1997



1997 total harvest: 178,481 lbs

Proportion of mussel species commercially harvested in 1996 and 1997.



Pearly Mussel Workshop/ Field Trip Report

Marais des Cygnes River

(Special thanks to K. Couch & B. Obermeyer for leading field trips)

		Site A	Site B
SPECIES LIST (live specimens only)			
<i>Actinonaias ligamentina</i>	mucket		1
<i>Amblema plicata</i>	threeridge	16	612
<i>Arcidens confragosus</i>	rock pocketbook		3
<i>Elliptio dilatata</i>	spike		22
<i>Fusconcia flava</i>	Wabash pigtoe	2	190
<i>Lasmigona complanata</i>	white heelsplitter	4	9
<i>Leptodea fragilis</i>	fragile papershell	43	11
<i>Megalonaias nervosa</i>	washboard		43
<i>Obliquaria reflexa</i>	threehorn wartyback	43	24
<i>Pleurobema coccineum</i>	round pigtoe		4
<i>Potamilus alatus</i>	pink heelsplitter	16	11
<i>Quadrula nodulata</i>	wartyback		3
<i>Quadrula pustulosa</i>	pimpleback	9	229
<i>Quadrula quadrula</i>	mapleleaf	5	83
<i>Strophitus undulatus</i>	squawfoot	13	5
<i>Tritogonia verrucosa</i>	pistolgrip	15	47
<i>Truncilla truncata</i>	deertoe	9	9
Total		175	1306

Site A: Ottawa, KS/ Franklin Co./T16,R19,Sec35

7 August 1997

Search time: 952 minutes = 15.87 hours

CPUE = 11.0 mussels/man hour

notes: 1) downstream of city dam and west of K68 bridge

2) juvenile pimpleback and pistolgrip found in survey

3) relic *A. confragosus* found

4) *Corbicula* common

5) 22 participants

Site B: Miami Co./T18,R21,Sec1

8 August 1997

Search time: 1076 minutes = 17.93 hours

CPUE = 72.8 mussels/man hour

notes: 1) upstream from bridge approx. 200-500 meters

2) two *A. confragosus* measured 55-85-125mm and 64-87-133mm

3) *Corbicula* present but not considered abundant

4) relic shells of *Ligumia recta* and *Lasmigona costata* found

5) one fresh (articulated) *A. ligamentina* also found

6) the live and fresh *A. ligamentina* appeared to be old specimens

7) slides were taken of rare mussels

8) 18 participants on morning field trip