The Newsletter of the Freshwater Mollusk Conservation Society

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- Freshwater Mollusk Bibliography
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Submissions for the December 2007 issue of Ellipsaria may be sent to the editor at any time but are requested by **November 16, 2007**. Anyone may submit an article but you must be a member of FMCS to receive Ellipsaria. Please limit submissions to about one page. Categories for contributions include news, new publications, meeting announcements, current issues affecting mollusks, job postings, contributed articles (including ongoing research projects), abstracts, and society committee reports. Electronic submissions are preferred; contact the editor with any questions. Note that submissions are not peer reviewed, but are checked for content and general editing.  

Thanks to Jeremy Tiemann for help assembling and mailing this newsletter.  

Please send change of address information to the Secretary.
Announcements

2006 Workshop Proceedings
Due to circumstances beyond my control, there will not be a Proceedings volume from the 2006 workshop on captive care. Those of you who had prepaid will be reimbursed.

Submitted by Tom Watters

Obituary – Wayne Lawrence Davis
Wayne Lawrence Davis, 53, of Harrodsburg, KY, died Tuesday, Aug. 21, 2007 at his residence. Born Sept. 29, 1953 in Rock Island, IL, he was the son of the late Henry Oren and Virginia Tunnell Davis, and was the husband of Marianne Malone Davis.

He was a retired Kentucky Department of Fish & Wildlife fishery biologist and was director of Mercer County Emergency Management.

In addition to his wife, survivors include: one daughter, Dawn Anne Davis of Harrodsburg; one son, Bill Davis of Union, KY; and two sisters, Kay Wyssbrod and Barb Zimmerer both of Louisville, KY. Memorial contributions may be sent to Mercer County Baseball c/o Mercer County Schools or Ducks Unlimited, One Waterfowl Way, Memphis, TN 38120. Expressions of sympathy may be sent to the family at www.ransdellfuneralchapel.com

From http://tinyurl.com/2qc2dn

Obituary – Juan Jose Parodiz
Juan Jose Parodiz passed away on 4 September 2007. Jose, curator emeritus at the Carnegie Museum of Natural History, was 95 years old at the time of his death. Jose worked for 20 years in Argentina (where he was born) before coming to the Carnegie Museum. He is best known as a specialist in Nearctic and Neotropical unionids.

Posted to the Unio list by Charlie Sturm

A brief summary of his career is posted at: http://www.carnegiemnh.org/mollusks/staff/former.htm

OVUM First Annual Meeting
In the fine tradition of the Bay Area Malacologist (BAM), Southern California Unified Malacologists (SCUM), Mid-Atlantic Malacologist (MAM) we are pleased to announce the first annual meeting of the Ohio (River) Valley Unified Malacologist (OVUM). OVUM has no dues, officers, abstracts, or publications.

OVUM, a one-day meeting, will be held at the Carnegie Museum of Natural History on Saturday, 27 October 2007 from 10AM until the last presentation (to end by 5PM at the latest). Light refreshments such as fruit, bagels, coffee, tea, and water will be available from 9-10:00AM. The meeting will be in the American Indian Room on the third floor of the Museum. The meeting is open to professionals, amateurs, and students; basically anyone who has an interest in mollusks.
Presentations should be limited to 15 minutes. A computer projector and overhead projector will be available. Presentations are encouraged from amateurs, professionals, and students. Presentations are informal and can cover any topic relating to mollusks. Current research, a recent collecting trip, or an interesting specimen are all likely topics for a presentation. You can notify us ahead of time or the morning of the meeting if you would like to speak on some topic.

At noon, we will break for lunch. There are numerous restaurants within walking distance of the Museum as well as within the Museum. A list of restaurants will be made available the day of the meeting. Information on local hotels can be obtained from Charlie Sturm.

The collection and/or library of the Section of Mollusks will be available after the presentations are concluded. Those interested in availing themselves of these opportunities should contact Tim Pearce (PearceT@CarnegieMNH.org; phone 412-622-1916) or Charlie Sturm (csturmjr@pitt.edu) in advance.

If you have any questions regarding the meeting or the Carnegie Museum, please contact Charlie Sturm.

We look forward to seeing you in Pittsburgh in October.

**Contributed Articles**

The following articles were contributed by FMCS members and others in the malacological community. The contributions are incorporated into the newsletter with minimal editing and the opinions expressed therein are those of the authors.

**Host Identifications or Confirmations**

G. Thomas Watters, Trisha Gibson, Brooke Smith & Kody Kuehn
Columbus Zoo & Aquarium Freshwater Mussel Research & Conservation Facility
& The Ohio State University

All transformations at 20º C.
* = apparently new host identification.
Studies funded through the Ohio Division of Wildlife.

1) *Amblema plicata* (June)
   - Suitable host:
     - Yellow Perch (days to transformation – 14; % transformed – 55%)
   - Hosts yielding no transformation:
     - Grass Pickerel

2) *Elliptio complanata* (March) (% transformed – not measured)
   - Suitable host:
     - Bluegill (days to transformation – 21)
     - Yellow Perch (days to transformation – 20)
     - Green Sunfish (days to transformation – 20)
     - Red-ear Sunfish (days to transformation – 20)
     - Banded Sculpin (days to transformation – 22)
   - Hosts yielding no transformation:
     - Striped Shiner

3) *Pleurobema sintoxia* (June)
   - Suitable host:
     - Largemouth Bass (days to transformation – 11; % transformed – <1%)
   - Host yielding no transformation:
     - Longear Sunfish, Striped Shiner, Rosefin Shiner, Yellow Perch

4) *Utterbackia imbecilllis* (August)
   - Suitable host:
     - Bluegill (days to transformation – 7; % transformed – 39%)
     - Striped Shiner (days to transformation – 7; % transformed – 7%)

5) *Toxolasma parvum* (June)
   - Suitable host:
     - Bluegill (days to transformation – 21; % transformed – 92%)

**Publications**


New occasional journal - *Malacofauna Balearica*. In CD format, *Malacofauna Balearica* is devoted to the study of molluscs in the Balearic Islands. It will publish original papers on local faunistic studies and advances in alpha-taxonomy. The first issue was distributed on June 25, 2007. The journal is available free of charge and may be downloaded from the web: http://www.journal-malaco.fr/page-32.html. Please contact Cristian R. Altaba for more information: cristianr.altaba@uib.es
Host yielding no transformation:
Greenside Darter, Fantail Darter, Banded Darter, Logperch, Yellow Perch, Stonecat, Goldfish

6) *Venustaconcha ellipsiformis* (May, August)
Suitable host:
- Fantail Darter (days to transformation – 13; % transformed – 69%)
- Banded Darter (days to transformation – 27; % transformed – 38%)

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**Discovery of living clubshell (Pleurobema clava) in New York State**

Darran Crabtree¹, Tamara Smith², and Kathleen O’Brien³

1The Nature Conservancy, Allegheny College, Meadville, PA 16403 (dcrabtree@tnc.org)
2Pennsylvania Natural Heritage Program, Northwest Field Station, Union City 16438
3New York State Department of Environmental Conservation, Albany, NY 12233

Research Summary

As part of basin-wide surveys to determine the current distribution of rare mussels in the Allegheny system in NY, we have discovered living clubshell (*Pleurobema clava*) at two sites in Cassadaga Creek, and one weathered dead specimen (both valves) in Allegheny River in 2005-2007. Historically this species was known only from Cassadaga Creek in NY, but had never been collected alive (Strayer and Jirka 1997). Although finding live clubshell in Cassadaga is significant, the very low numbers (4) and old age of all individuals (15+ years) does not bode well for the continued survival of this species in NY. Nearby in PA, robust populations of clubshell exist in both French Creek and Allegheny River; offering the potential for population augmentation.

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**Additional Information Concerning the Conquest of Europe by the Invasive Chinese Pond Mussel Sinanodonta woodiana. 15. News from Bulgaria, Italy, Poland and Sweden**

Henk K. Mienis
Mollusc Collection, National Collections of Natural History, Dept. Zool., Tel Aviv University, IL-69978 Tel Aviv, Israel
and
National Mollusc Collection, Dept. Evol., Systematics & Ecol., Hebrew University of Jerusalem, IL-91904 Jerusalem, Israel
mienis@netzer.org.il

The first European specimens of the Chinese pond mussel *Sinanodonta woodiana* (Lea, 1834) were discovered in Romania in 1979. Since then this alien species has invaded large parts of Europe; its presence in the Danube has played without doubt an important role. The border between Romania and its southern neighbour Bulgaria is formed almost over its entire length by the Danube. Therefore it is remarkable that we had to wait 27 years for the first record of it from that country.

In Italy it is moving slowly but steadily southwards and recently has been reported from the region of Campania just north of Napoli. In Poland numerous papers have been published in the past about this species. Recently several studies saw the light based on material from the well known Konin Lake complex. An investigation of the distribution of large freshwater mussels turned up the first Scandinavian Chinese pond mussel in Sweden.

**Bulgaria**

In October-November 2005, the first specimens of *Sinanodonta woodiana* were located on Bulgarian soil (Hubenov, 2006). Mussels were collected at 8 different localities along the Danube River between the villages of Gorni Vadin and Ruse (km 655 - km 498). They varied in length from 62 to 143 mm and the largest specimens were estimated to be about 5-6 years of age.

The Chinese pond mussel was expected to occur in Bulgaria for a long time because backwaters of the Danube form excellent breeding places for these mussels almost over the entire length of Europe's longest river. At this time only records from the German part of the Danube are still lacking.

**Italy**

The Chinese pond mussel occurs in Italy at least since 1997 (Manganelli et al., 1998). The first records were from the northern part of Italy; however, last year specimens were reported from the beach of Palo Laziale near Roma (Albano, 2006), much more to the south. The latest news comes from an even more southern locality: the river Calore Irpino (or Beneventano), where it joins the river Volturro in Campania, north-east of Naples (De Vico et al., 2007).

**Poland**

The Konin heated lake system, in fact a complex of five different interconnected lakes used for cooling the Patnow and Konin power stations in Central Poland, has provided the research material for numerous studies on various aspects of *Sinanodonta woodiana*. Recently, three additional studies have been carried out in which Chinese pond mussels from that area were involved.

Kraszewski (2006) studied the affects of the heterogeneity of the habitats found in the lake complex, including the differences in water temperature, on the shell morphology, size, colour, and growth rate in *Sinanodonta*. The largest and heaviest mussels were found in the warmest habitats with the fastest water flow. Some specimens reached a weight of 900 gram.

In another study, of which only an abstract has been published (Kraszewski & Zdanowski, 2006), the whole
mollusc fauna of the Konin lake complex has been investigated. Seven alien species were among them: the bivalves Dreissena polymorpha and Sinanodonta woodiana and the gastropods Melanoides tuberculata, Potamopyrgus antipodarum, Physella acuta, Menetus dilatatus, and Ferrisia waueteri. Most abundant among these invasive species was Dreissena, but Sinanodonta was also numerous and likewise Melanoides, although the latter only locally.

In another abstract, Soroka (2006) published brief information concerning double uniparental inheritance of mitochondrial DNA in Sinanodonta woodiana. She observed a high genetic diversity in specimens from Poland and Japan.

Swedish

During a survey devoted to the presence of large freshwater mussels in general and Unio crassus in particular in Skåne, the most southern province of Sweden, Mikael Svensson and Linus Ekström discovered the first Chinese pond mussel in Scandinavia. They found a juvenile specimen measuring 77 x 46 mm (length x height) in Lerbäcken, a small stream near Höör, in June 2005 (Svensson & Ekström, 2006; von Proschwitz, 2006: Fig. 7). This specimen was found near the outlet of a carp-pond! Without doubt it reached that pond by means of the release of infected carps bought at the outlet of a carp-pond! Without doubt it reached that pond by means of the release of infected carps bought somewhere in Europe where Sinanodonta woodiana has established viable populations.

References


A first record of Gyraulus albus from Israel

Henk K. Mienis

Mollusc Collection, National Collections of Natural History, Dept. Zoology, Tel Aviv Univ., IL-69978 Tel Aviv, Israel and National Mollusc Collection, Dept. Evol., Systematics & Ecol., Hebrew University of Jerusalem, IL-91904 Jerusalem, Israel mienis@netzer.org.il

A study of aquatic mollusc samples collected in the temporary rain pool of Berekhat Ya’ar (Arabic: Birkat Ata), near Hadera, Israel, and preserved in the Mollusc Collections of the Tel Aviv University (TAU) and the Hebrew University of Jerusalem (HUJ), revealed that almost each time someone sampled the pool a different combination of species was encountered (Mienis, in prep.). Data are available from 1925 until fairly recently and so far seven different species have been recorded: Bithynia phialensis (Conrad, 1852), Haitia acuta (Draparnaud, 1852), Bulinus truncatus (Audouin, 1826), Gyraulus albus (Müller, 1774), Planorbella duryi (Wetherby, 1879), Planorbis planorbis antiochianus (Locard, 1883) and Radix balthica (Linnaeus, 1758).

The record of Bithynia phialensis dates back to the period when this pool carried water the entire year. When the groundwater level was lowered by over-pumping the aquifer for supplying potable water for the growing villages in the area, species typical for variable water levels took over: Haitia acuta, Bulinus truncatus and Planorbis planorbis antiochianus. At the end of the 20th Century typical aquarium and garden pond snails started to appear in the pool: Planorbella duryi and Radix balthica together with some exotic fish and plant species. Obviously the pool was discovered by local owners of aquariums/garden pools as a suitable dumping place for their surplus animals and plants.

No explanation could be found for the presence of Gyraulus albus. Three specimens were collected by Dr. Avital Gasith of the Tel Aviv University on 28 February 1984. In spite of their poor state of preservation they matched in full details specimens from the Czech Republic and the Netherlands in the TAU-collection, and Great Britain, Austria and Italy in the HUJ-collection. This sample of Gyraulus albus was found together with Haitia acuta and Bulinus truncatus.

No reliable records of Gyraulus albus are known so far from Israel. It has also never been recorded from its neighbours Egypt, Jordan, Lebanon, and Syria. The nearest locality of this typical Palearctic species is in Turkey (Yilderim et al., 2006). Most likely this Gyraulus species reached Berekhat Ya’ar by means of aerial distribution for example by hitch-
hiking among the feathers of migrant waterfowl. Of course, we may not rule out the possibility that this species may be placed among the exotic species imported unintentionally with aquatic aquarium and pond plants from Europe.

Reference

Preliminary Report of Continental Mollusks in the Central Paraná State Region, Southern Brazil, with Additional Information

A. Ignacio Agudo
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iagudo@lycos.com – http://www.malacologia.com.br

On May 28-30, 2007 (autumn), field work was conducted in the central area of the Paraná State - PR, specifically in the Municipal District of Iretama, seeking freshwater and terrestrial mollusks in the highlands that form the regional Third Plateau, geographical domain of “araucária” forest and several tributaries of the macrobasin of the Paraná River, located at the extreme west of the state, headquarters of the great reservoir of the “Hydroelectric of Itaipu”*


We explored the lands and farms neighboring the “Termas de Jurema Hotel Resort” property, a famous brazilian tourist thermal complex (hot mineral waters), lands irrigated by the small secondary river “Laranjeiras”, branch of the “Formoso River” microbasin (that outlines the property), that flows into the “Ivai River”, that travels the Third Plateau until finally to be integrated to the great “Paraná River”.

The material obtained in the field for the present report was deposited in the Malacological Collection allotted in the University of Santa Catarina's State (ECZ/CCB/UFSC), Florianópolis, and its specific determination was basically based on the contribution of Simone (2006). For more information about the Paraná State geographical territory and continental malacological fauna, see Agudo 2004, 2005, 2006 a-c, 2007 a-b and Agudo-Padrón 2007.

Systematic Species List

Class BIVALVIA
Order UNIONOIDA
Family MYCETOPODIDAE (2)
- Anodontites tenebricosus (Lea, 1834) (+) (*)

Family HYRIDAE (1)
- Haasica balzani (Ihering, 1893) (++)

(+*)Morretes (1949: 25), previously cited Anodontites (Styganodon) tenebricosa from the Paraná River Basin (++)Previously observed in “Iguaçu Waterfalls National Park” (Agudo 2006 b: 9).

Family HYRIDAE (1)
- Rhipidodonta (= Diplodon) charruana (d'Orbigny, 1835)

Order VENEROIDA
Family CORBICULIDAE (1)
- Corbicula fluminea (Müller, 1774) (+)(*)

(+*)Occurrence of this species in high densities is verified in local aqueduct (channels of fluvial conversion) (Fig. 1) (Agudo 2005: 10). It seems that the occurrence of exotic Corbicula spp precedes the entrance of the Asian Golden Mussel, Limnoperna fortunei (Dunker, 1857), in the ecosystems invaded (Agudo 2007 b: 18) – see TAKEDA et al (2007).

Figure 1. Local aqueduct served by the waters of the secondary river “Laranjeiras”.

Class GASTROPODA
Subclass Prosobranchia
Family THIARIDAE (1)
- Aylacostoma tenuilabris (Reeves, 1860) (+)

(+*)New record from the State (Agudo 2006 b, c). Subclass Pulmonata
Family BULIMULIDAE (1)
- Bulimus tenuissimus (d’Orbigny, 1835) (+)

(+*)New record from the State (Agudo 2006 b, c). Family LYMNAEIDAE (1)
- Pseudosuccicnea (=Lymnaea) columella Say, 1817 (+)

(++)Exclusively in the local aqueduct (Fig. 1).

Family PLANORBIDAE (1)
- Drepanotrema anatinum (d’Orbigny, 1835) (+)

(+*)New record from the State (Agudo 2006 b, c), exclusively in the local aqueduct (Fig. 1).

Family STROPHOCHEILIDAE (1)
- Mirinaba (= Strophocheilus, Metara) jaussaudi (Morretes, 1937)

Family SUBULINIDAE (1)
- Allopeas (= Lamellaxis) micra d’Orbigny, 1835 (*)

The malacological study and inventory recently conducted by us in the Paraná State included some other new information and registrations of freshwater and terrestrial species, based in specific literature report including the contributions of Colley & Salgado (2007) for the “Serra do Mar” (Colley & Santos 2006, Agudo 2006 c) and Gregoric et al (2006) from “Iguaçú Waterfall National Park”:

**THE “IGUAÇÚ WATERFALL NATIONAL PARK”**

**Class GASTROPODA**

**Subclass Prosobranchia**

- Family AMPULLARIIDAE
  - Pomacea canaliculara (Lamarck, 1819) (*)
  - Pomacea megastoma (Sowerby, 1825) (**) (++)

**Subclass Pulmonata**

- Family ANCILIDAE
  - Laevapex sp (*)(**)

- Family PHYSIDAE
  - Aplexa (=Stenophysa) marmorata Building, 1828 (**) (++)

- Family CHILINIDAE
  - Chilina megastoma H. Scott, 1958 (*)

- Family PLANORBIDAE
  - Acrorbis petricola Odhner, 1937 (*)
  - Biomphalaria peregrina (d’Orbigny, 1835) (**) (++)

(*) Mentioned for the Argentinean territory of the National Park by Gregoric et al (2006).

(**) Confirmed new record from region (Agudo 2007a:11).

Recently (May 22, 2007) the “Instituto Ambiental do Paraná - IAP” (Environmental Institute of Paraná) published for the State the “First Official List of Exotic Invader Species up to now known in Brazil” (Hórus 2007), including 3 of the species of mollusks recognized: *Achatina fulica* (Bowdich, 1822), *Bradybaena similis*ris* (Férussac, 1821) and *Limnoperna fortunei* (Dunker, 1857).

Finally, although the Family VERONICELLIDAE, in the Subclass GYMNOPHILA that includes great South American native slugs as the species Belocaulus angustipes (Heynemann, 1885), recently registered for the Iguacu Waterfall National Park territory (Agudo 2007 a: 11), was “included erroneously” in the Subclass PULMONATA.

**References**


Development of a mollusc fauna in a storage reservoir for run off rainwater on the isle of Terschelling, the Netherlands, 4

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mienis@netzer.org.il

Shortly after publication of the third update of the development of a mollusc fauna in a storage reservoir for run off rainwater near the village of Midsland on the isle of Terschelling, the Netherlands (Mienis, 2006), I received the results of a brief survey of the same reservoir carried out by Mrs. Sylvia J. van Leeuwen on 19 October 2006. She serves as the coordinator for the molluscs of the Dutch Wadden Sea Islands in the framework of the Atlas Project of the Dutch Mollusc Fauna.

She managed to collect eleven species of which two turned out to be new for that reservoir: *Potamopyrgus antipodarum* (Gray, 1843) and *Pisidium* species. Of the Pea mussel only a single specimen was collected and so far it has not been identified at species level. Both species were among the molluscs, of which I suspected that they will settle in that reservoir in the near future (Mienis, 2006). However, I did not expect that to happen so soon.

Between October 2002 and October 2006 the number of freshwater molluscs recorded from that reservoir near Midsland has increased from two to sixteen (Table 1)! In the future we may expect that several other species will discover this tiny wetland. Noteworthy is for example still the complete absence of any representative of the amphibious snail family Succineidae of which four species have been recorded from the isle of Terschelling (Gittenberger et al., 1984).

Table 1: Freshwater molluscs recorded from the storage reservoir near Midsland, Terschelling (2002-2006).

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<td><em>Potamopyrgus antipodarum</em></td>
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<td><em>Musculium lacustre</em></td>
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* This species was previously known as *Radix ovata* (Draparnaud, 1805).
** This species was previously known as *Radix peregrina* auct.

Abbreviations:  H.K.M. = leg. Henk K. Mienis, Tel Aviv/Jerusalem; S.J.v.L. = leg. Sylvia J. van Leeuwen, Bilthoven

Acknowledgement
I like to thank Mrs. Sylvia J. van Leeuwen (Bilthoven) for giving me the permission to publish the results of her survey.

References
A Survey of Freshwater Mussels (Family Unionidae) at Lake Nocona, Montague County, Texas

Charles R. Randklev, Benjamin J. Lundeen & James H. Kennedy
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This report documents the first phase of a long-term study to monitor the effects of draw-downs and long-lasting droughts on unionid populations in Lake Nocona, a West Texas impoundment. The aim of this survey is to provide a comprehensive baseline for future studies. While the Red River drainage in West Texas has been surveyed in previous studies, little is known about unionid fauna at Lake Nocona (Howells 1997). Lake Nocona is situated off FM 2634, 12.8 km northeast of the City of Nacona in Montague County, and was formed by impounding Farmer’s Creek in 1960. This lake serves as a source for drinking water and recreation (TPWD 2007).

On 21 March 2007, freshwater mussels were collected by hand along nine 100-m x 14-m transects. These searches were timed for a total of 30 minutes per transect. Sample sites consisted of sandy shorelines, and were selected based on the ability to access the lake. Both empty valves that appeared to be “recently dead” as defined by Howells (2000) and live specimens were collected. One live voucher specimen of *Pyganodon grandis* (Say 1829) and *Potamilus ohiensis* (Rafinesque 1820) were preserved in 95% ethanol on site, and taken back to the University of North Texas to be placed in the Elm Fork Natural Heritage Museum, Denton, Texas. Howells et al. (1996) and Parmalee & Bogan (1998) were used for identification and terminology followed Turgeon et al. 1998. Physical measurements including temperature, pH, conductivity and dissolved oxygen were taken for each sample site.

Adjusted conductivity ranged from 1034 – 1216 μS, while unadjusted measured 872 – 1169 μS. Recorded values for pH ranged from 8.18 – 8.44. Dissolved oxygen ranged from 6.6 – 9.5 mg/L. The average water temperature during the sampling period was 19.78 ºC.

**Table 1. A list and occurrence of freshwater mussels found at Lake Nocona.**

<table>
<thead>
<tr>
<th>Species</th>
<th>N</th>
<th>% of total</th>
<th>Number of sites each species is found.</th>
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<tr>
<td><em>Pyganodon grandis</em></td>
<td>107</td>
<td>25.4</td>
<td>8</td>
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<tr>
<td><em>Potamilus ohiensis</em></td>
<td>289</td>
<td>68.5</td>
<td>9</td>
</tr>
<tr>
<td><em>Leptodea fragilis</em></td>
<td>24</td>
<td>5.7</td>
<td>6</td>
</tr>
<tr>
<td><em>Toxolasma parvus</em></td>
<td>2</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>422</td>
<td></td>
<td></td>
</tr>
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</table>

A total of 422 unionids representing four different species were collected (Table 1). *Corbicula* sp(p), although not enumerated was found at all nine sample sites. *Potamilus ohiensis* was the most abundant species and was found at all sites. *Pyganodon grandis* was the second most abundant species and it was found at all but one sample site. *Leptodea fragilis* (Rafinesque 1820) was found at 6 sample sites, but represented only 5.7% of the sampled unionid fauna. *Toxolasma parvus* (Barnes 1823) was found at only a single site (Table 1). Some *T. parvus* specimens may have been overlooked due to their small size.

Unionid diversity is low in Lake Nocona, comprising entirely of lentic-tolerant species. The fauna surveyed is similar to those found farther west in the Wichita and Little Wichita River impoundments (Howells 1997). Future studies will revisit the same sample sites to monitor changes in abundance and species richness.

**Literature Cited**

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We thank Steve Wolverton, University of North Texas, Dave Britton, U.S. Fish and Wildlife Service and Robert G. Howells, BioStudies for supporting various aspects of this research.
FMCS 2006 Freshwater Mollusk Bibliography

Compiled by Kevin S. Cummings
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This bibliography lists freshwater mollusk papers that have been published up to and including 2006 and that have not appeared in previous FMCS bibliographies. A large number of theses and dissertations have been added to the bibliography this year. In addition, over 200 references on the exotic New Zealand mudsnail, largely taken from Daniel L. Gustafson’s (Montana State University, Bozeman) web page have been included.

http://www.esg.montana.edu/aim/mollusca/nzms/nzmsbib.html

Citations are split into five groups: Unionoida, Sphaeriidae, Corbiculidae, Dreissenidae & Other Bivalves, and Gastropoda. Papers that list taxa from more than one category are included in each group. A searchable database of over 16,000 references on freshwater mollusks is available at: http://ellipse.inhs.uiuc.edu:591/mollusk/

To insure that papers are cited correctly, researchers are encouraged to send pdf’s or reprints to: Kevin S. Cummings, Illinois Natural History Survey, 1816 S. Oak Street, Champaign, Illinois 61820 or ksc@inhs.uiuc.edu

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Hoppy Says —
Drought = low flows = stranded mussels
...be a caretaker!

Submitted by Steve Ahlstedt
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