

INFO-MUSSEL NEWSLETTER

 Texas Parks and Wildlife Department - Inland Fisheries Research

Heart of the Hills Research Station - Robert G. Howells

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MUSSEL SURVEY SITES

DECEMBER 1993

- West Fork Trinity River at Highway 148 - John Prentice and John Chamberlin from HOH examined this area and found standing pools without flowing waters. No Asian clams were found. The only unionid taken was a pair of valves from tapered pondhorn.
- Fort Richardson State Park Lake - Prentice and Chamberlain also examined this limestone quarry lake, but no mussels were observed.
- Bosque River at Route 16 - this river crossing was observed from the highway bridge but no mussels or shells were seen and no good mussel habitat was evident; subsequently no sampling effort was expended.
- Buchanan Reservoir - David Van Meter from HOH collected a number of species during a trip to Garrett Island on the upper end of this reservoir including fragile papershell, threeridge, southern mapleleaf, bleufer, giant floater, Tampico pearlymussel, and Asian clams. He reported levels had dropped so far that some areas contained only rock or cobble (less desirable habitat than sand or muddy areas along the shoreline).
- Small impoundments near Hubbard, Texas - John Prentice from HOH visited five small impoundments in this area during fish survey work, but failed to observe mussels at any of these areas.
- Small impoundments at Temple, Texas - Prentice also examined two small impoundments here. Valves from paper pondshell were found at Solomons Park Lake, Central Park, Temple.
- B.A. Steinhagen Reservoir - This reservoir was drawn down in mid-December in an effort to kill noxious water hyacinth growths. HOH technicians Tony Castillo and Todd Viola were dispatched to examine those unionids left behind by the receding waters. Specimens included:
 - Washboard (2) - first from this area, including a small juvenile
 - Threeridge (19) - with atypically heavy ridges
 - Bleufers (61)
 - Texas heelsplitter (1) - our first living specimen
 - Rock-pocketbook (3) - previously only one living animal had been collected
 - Pistolgrip (1) - our first living specimen; a mature female
 - Southern mapleleaf (11)
 - Common mapleleaf (19)
 - Western pimpleback (54)
 - Fragile papershell (11)
 - Threehorn wartyback (76) - only 7-8 specimens from two locations taken previously
 - Giant floater (29)
 - Flat floater (4)
 - Louisiana fatmucket (33)
 - Bankclimber (41) - only one living specimen had been taken by us in surveys before
 - Little spectaclecase (1) - our first specimen
 - Texas lilliput (1) - a single dead pair of valves
 This represents over a third of the species present in the state found at one location and the collection of several species not previously found alive in our surveys.
- Angelina River - Paul Seidensticker, Inland Fisheries management Jasper, called to report Mike Radcliff had just found several large mussels at the Bevilport boat ramp left behind as water

levels dropped in response to lower levels in B.A. Steinhagen Reservoir down stream. When this area was examined in May 1993, water levels were very high. Brailing failed to yield any specimens and diving produced only a single pimpleback. Radcliff's observations suggest mussel populations may still remain in this sanctuary area.

- Musselers Sue Martin and Mike Bagwell of San Angelo sent shells collected from a number of Texas water bodies to help with our survey efforts including:
 - Lake Limestone - one southern mapleleaf, one yellow sandshell,
 - Lake Conroe - two giant floaters,
 - Lake Mexia - two southern mapleleaves, two pond mussels,
 - Caddo Lake - two washboards,
 - Navarro Mills Reservoir - two Louisiana fatmuckets, one fragile papershell
 - Ray Roberts Reservoir - one yellow sandshell, one lilliput; Martin reported the lake was drained when visited and giant floaters were the dominant species present.
 - Lake Brownwood - one yellow sandshell, three Texas lilliputs,
 - Lake Fairfield (?) - two southern mapleleaves.

Martin also reported mussels present in Squaw Creek Reservoir where waters were extremely clear. She also expressed concern about the large number of mussels at Caddo Lake where shell erosion was so severe as to be causing apparent mortalities (other musselers have made similar observations concerning northeastern Texas mussels; some have questioned if a disease agent is responsible in addition to local acid waters).

OUACHITA ROCK-POCKETBOOK STATUS REPORT:

The annual progress report prepared and submitted to the U.S Fish and Wildlife Service was apparently well received based on a letter subsequently sent from the Oklahoma office.

GIANT FLOATER HOSTS EXAMINED:

Glochidia obtained from a giant floater from Lake Corpus Christi in November were placed on potential host fishes in December including bluegill x redear sunfish hybrids, Rio Grande cichlids, greenthroat darters, and a Mexican tetra. Glochidia attached to all specimens. However, over the holidays, the sunfish hybrids opted to use the darters and tetra for Christmas dinner prior to transformation of the glochidia. Glochidia had been present since the 16th of December, suggesting both the darters and tetra would likely have been acceptable hosts. As of 31 December, glochidia still remain on the other specimens. Rio Grande cichlids appear to be a completely new host species and family for giant floaters. *

GLOCHIDIA-CAUSED HOST IMMUNITY:

A green sunfish previously infected with paper pondshell glochidia was exposed to giant floater glochidia during the above work. If indeed immunity had developed from the previous infection, the giant floater glochidia should have been rejected after several days. However, while relative few giant floater glochidia did attach to the green sunfish, some did and continue to remain attached to fins at this time. This finding tends to cast some doubt concerning the extent of immunity some fish develop following glochidial infection.

To further examine the immunity question, a large number of bluegill x redear sunfish were infected with giant floater glochidia. Because both the host fish and glochidia were available in abundance at the same time, we will now hopefully have a selection of "immune" fish available for future research.

MUSSEL BOOK UPDATE:

All edits have again been made and a new draft generated. HOH lab director, Dick Luebke, will get the manuscript 3 January for (hopefully) its last major edit.

LACK OF COLD-RELATED MORTALITY AT LAKE CORPUS CHRISTI:

During the Thanksgiving holiday severe cold weather hit much of the state with freezing temperatures extending well down into southern Texas. In the past, some musselers have attributed mussel mortalities to periods of cold weather. Dropping water levels at Lake Corpus Christi over a period of several months had concentrated large numbers of mussels in very shallow waters where they would be exposed to cold and also easily examined thereafter. Inland Fishery management biologist (Mathis), Mike Reed, checked shore zone areas of the lake in December and reported no significant changes in mortality beyond normal levels observed there in October and November sampling. It should be noted, however, that while overnight temperature reached into the teens and twenties (F) on several nights, days were relative sunny and warm. Similarly, no reports of mortalities have been received from Nasworthy or Buchanan reservoirs where mussels were also present in shallow waters.

YELLOW SANDSHELL PEARL REPORTED:

Kunz' (1897) report on freshwater pearls for the U.S. Fish Commission as well as a variety of popular papers have reported gem-quality pearls from a variety of freshwater mussel species. However, none appear to have indicated whether or not yellow sandshell produces pearls. Because it often occurs in shallow waters and is relatively thin-shelled yet tenacious to life, yellow sandshells are often damaged by raccoons or other predators, but survive and heal shell punctures. Examination of such damaged shells suggested this species probably could produce pearls, yet actual confirmation was lacking. Finally, musseler Sue Martin reported finding a pearl in a yellow sandshell from Central Texas. Yellow sandshells apparently can produce pearls, but do so only very rarely.

ELECTROPHORETIC ANALYSIS:

Attempts to use electrophoresis to help define problematic species identifications started at HOH. Initial indications are that some species like mapleleafs and pimplebacks will be especially difficult. To help in this effort, Tennessee Shell Company (Camden, TN) has offered to send representatives of living mapleleafs (Quadrula quadrula) and pimplebacks (Q. pustulosa) to HOH in the near future. Obtaining specimens from a location so far removed from Texas will go a long way to better defining local species and associated musseling regulations.

USFWS PROPOSED MUSSEL SPECIES LISTING:

In September, the American Fisheries Society listed 17 Texas mussels as endangered, threatened, or of special concern. It seemed logical that if AFS listed these species, sooner or later the U.S. Fish and Wildlife Service may do so as well. A paper by Neves (October 1993) now reports that in fact five of these 17 species were already proposed for listing by USFWS (Federal Register November 1991). These include Salina mucket, Texas hornshell, Texas heelsplitter, false spike, and Mexican fawnsfoot.

ASIAN CLAMS - GOLF COURSE INVASIONS AND PROPER NAME

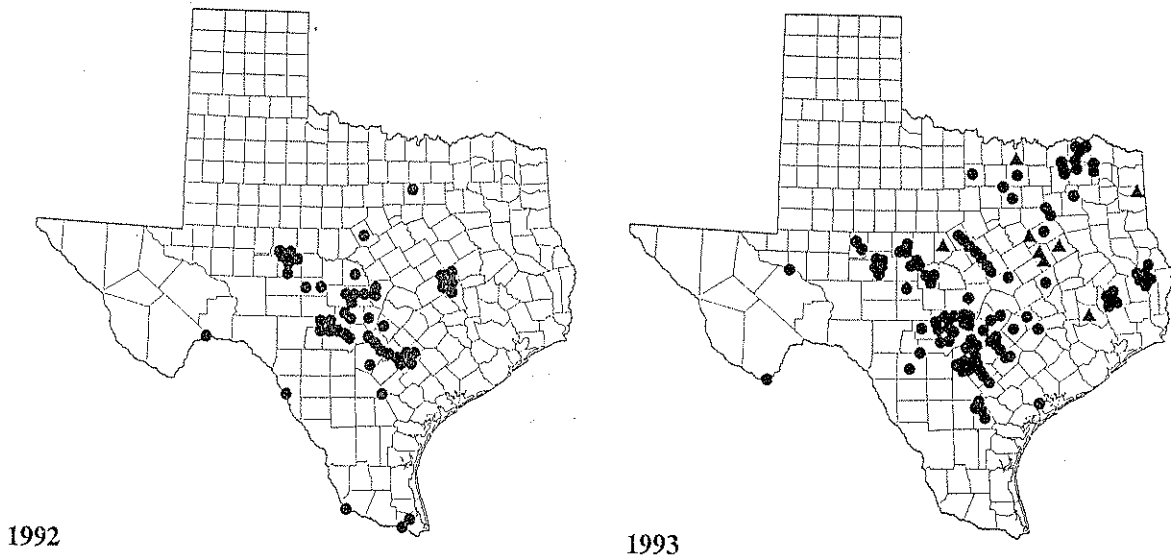
The American Fisheries Society guide to common and scientific names (Turgeon et al. 1988) has listed Corbicula as "Asian" rather than "Asiatic" clam. Many individuals now seem to be following this trend. The entire mussel book was recently scanned to correct this glitch.

The last few weeks have produced a flurry of calls concerning high densities of Asian clams in the sprinkler system at a San Angelo golf course. The golf course apparently draws water from Nasworthy Reservoir into a small holding pond, then pumps it through its irrigation lines. Asian clams have become so abundant that their shells have even plugged sprinkling heads. During discussions with golf course personnel, engineering consultants, and filtration unit manufacturers, it became apparent that high-volume water filtration had developed to a surprising state. In the early

70s, those of us working with profile wire screening systems at power plants felt lucky to exclude objects of about 1 mm in size. Now it seems that profile wire screening can actually filter out objects of only a few microns and that more-standard screening can exclude down to 0.11 mm (smaller than most Asian clam veligers). One manufacturer reported that some Texas golf courses using turbid water have actually accumulated 2-3 inches of silt on their greens requiring relandscaping. Now even silt can be filtered out of such irrigation waters. Wow!

SUMMARY OF 1992 - 1993 TPWD MUSSEL SURVEYS:

TPWD mussel inquiries began in January 1992. The first field collections were taken in late April 1992 and have continued through the present. In 1992, we examined over 50 locations around Texas; in 1993 we reached over 100. The following maps indicate some of the areas surveyed. Some locations were in close proximity so single dots sometimes represent multiple locations. Triangles represent specimens sent to HOH by musselers from waters not yet surveyed by us.



PEARLS OF WISDOM:

- Concern over the failure to find living pistolgrrips in over 50 sites sampled in 1992 and over 100 sites in 1993 was reported here earlier. Although the initial concern remains in place, a single living female pistolgrip was found in B.A. Steinhagen Reservoir on 29 December 1993 by the HOH staff.
- U.S. Army Corps of Engineers personnel at B.A. Steinhagen Reservoir reported musselers harvesting mussels in the Neches River below the reservoir earlier in December. This area is a no-harvest mussel sanctuary and indeed one of our best sanctuaries examined to date with high densities, diverse populations, and rare species. Further, many Neches River species are dwarf forms which rarely reach legal size.

LOSING THE OLD SHELL GAME: NEW YEAR'S PREDICTION

It has become an annual event for many psychics and others to offer New Year's predictions of events to come. Accordingly a prediction about Texas mussel populations would seem to be in order. This prediction does not necessarily reflect the position of TPWD or any other individual or group, but is only my own. PREDICTION: With 10-15 years between a third and half of the freshwater mussel species now present in Texas will be either extirpated or nearly so. This comment will be reviewed a decade or so from now to see. Happy New Year.