

## MTNHP Yellowstone Mussel Surveys 2009

Surveys of freshwater mussels (Unionidae) were conducted by the Montana Natural Heritage Program (D. Stagliano + field technicians) on the Yellowstone River and major tributaries between Billings and Sydney, MT during July 21-23 & Sept. 8-11, 2009; including more intensive searches upstream and downstream of the Intake Diversion Dam. Survey areas were chosen opportunistically and focused on suitable mussel habitat: usually depositional areas on the inside bends of the river, run/glide geomorphic



reaches with gravel substrates, on the downstream side of islands, or in side channels that were deemed perennially connected. Aquascopes (glass bottomed buckets) were used for shallow (<1m) underwater viewing working transects in an upstream direction within 1m on each side of the transect line. A series of timed 50m transects are performed along the longitudinal length of the river depending on suitable habitat (Young 2001), average length covered during these surveys was ~250m. SCUBA apparatus was utilized for deeper transects (<1m) at multiple sites in the mainstem.

Mussels (live and dead shells) encountered during the transect were identified to species, measured, enumerated and released as close as possible to where they were taken. Dead shells were taken back as a voucher collection record deposited at the Montana Natural Heritage Program and Montana

State University. All survey sites were photographed & geo-referenced with a GPS unit.

### Mussel Survey Draft Results Summary

We found evidence (live organisms or recent dead shells) or have previous data that the fatmucket (*Lampsilis siliquoidaea*) continuously occupies suitable habitat in the mainstem Yellowstone River from the Bighorn River confluence to the ND border and further downstream to the confluence with the Missouri River. We documented no

evidence that supports this species occurring in the Yellowstone River upstream of Billings or between Billings down to the Bighorn River confluence. Although the data has not been mapped, compiled or analyzed yet, it is quite apparent that populations of the Fatmucket in the Yellowstone River mainstem are not as abundant as in the Missouri River reaches that have been sampled (Stagliano, unpublished).

- Fatmucket catch rates on the mainstem Yellowstone averaged ~1 mussel/man-hour search or about 1 mussel per 300m transect (compared to ~7 mussels/hr in the Missouri River between Fort Benton and Fort Peck).
- Two sites on the Bighorn River had fatmuckets avg. ~6 mussels/man-hour or about 1 mussel per 50m transect.
- Ten transects (with shallow aquascopes and SCUBA) on the north and south shores performed between the FWP Intake FAS Boat Ramp and the Intake Diversion Dam produced only 3 live fatmuckets and 2 recent shells.
- Estimated number of mussels in the cross-sectional area between the FAS boat ramp and the base of the Diversion Dam is 24 individuals, not worth relocation efforts.
- We documented the first records of the giant floater (*Pyganodon grandis*) in the Yellowstone Basin at 3 tributary sites (O'Fallon, Little Porcupine, Tongue River), but no evidence has been found for this species in the mainstem.
- The introduced mapleleaf (*Quadrula quadrula*) (Figure 3) was found in good numbers in the Tongue River (10 ind./hr), but was not found live in the Yellowstone mainstem. There is the report of mapleleaf shells near Hysham further upstream on the Yellowstone from the Tongue River (valid ID on the shells, but of questionable origin).

