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

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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 ohioensis* (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 °C.

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

| Species | N | % of total | Number of sites each species is found. |
|----------------------------|------------|------------|--|
| <i>Pyganodon grandis</i> | 107 | 25.4 | 8 |
| <i>Potamilus ohioensis</i> | 289 | 68.5 | 9 |
| <i>Leptodea fragilis</i> | 24 | 5.7 | 6 |
| <i>Toxolasma parvus</i> | 2 | 0.5 | 1 |
| Total | 422 | | |

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 ohioensis* 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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