

2-10-2002

First Records of Loosely Coiled Valve Snail in North Dakota

Bruce A. Hanson

USGS Northern Prairie Wildlife Research Center

Ned H. Euliss Jr.

USGS Northern Prairie Wildlife Research Center

David M. Mushet

USGS Northern Prairie Wildlife Research Center, dmushet@usgs.gov

Follow this and additional works at: <http://digitalcommons.unl.edu/usgsnpwrc>

 Part of the [Other International and Area Studies Commons](#)

Hanson, Bruce A.; Euliss, Ned H. Jr.; and Mushet, David M., "First Records of Loosely Coiled Valve Snail in North Dakota" (2002).
USGS Northern Prairie Wildlife Research Center. 152.
<http://digitalcommons.unl.edu/usgsnpwrc/152>

This Article is brought to you for free and open access by the Wildlife Damage Management, Internet Center for at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in USGS Northern Prairie Wildlife Research Center by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

FIRST RECORDS OF LOOSELY COILED VALVE SNAIL IN NORTH DAKOTA -- The loosely coiled valve snail (*Valvata lewisii* Currier [1868] morph *ontariensis* Baker [1931]) is typically found in North America from Lake Superior (specifically Shakespeare Island) northward up the drainages of the Attawapiskat, Albany, and Severn rivers (Clarke 1973). Although rare, the loosely coiled morphological form occurs throughout much of the range of the normal coiled *Valvata lewisii* (Clarke 1973). The range of *Valvata lewisii* encompasses southern Canada from Quebec to British Columbia and northern United States from New York to Minnesota (Burch and Tottenham 1980). Morphological variation in this genus has led to a confusing taxonomy. Clarke (1973) considers *ontariensis* a subspecies of *Valvata syncera* and also considers *lewisii* a smooth variant subspecies of *Valvata syncera*. More recent literature (Burch 1982) considers *ontariensis* a morphological form of *Valvata lewisii*.

On 14 June 1994 we collected a living specimen of *Valvata lewisii* morph *ontariensis* (Fig. 1) at the Cottonwood Lake Study Area, Stutsman County, North Dakota. The voucher specimen is housed in the aquatic invertebrate collection at Northern Prairie Wildlife Research Center. We captured the specimen in a funnel trap (Swanson 1978) in the shallow marsh zone of a seasonal wetland. This is in contrast to the typical habitats for this species, which are large lakes and rivers (Clarke 1981). Water depth at the site where we collected *Valvata lewisii* *ontariensis* was 33 cm. Shallow marsh plants in the wetland included water smartweed (*Polygonum amphibium*), turion duckweed (*Lemna turionifera*), slough sedge (*Carex atherodes*), star duckweed (*Lemna trisulca*), and whitetop (*Scolochloa festucacea*). Although this wetland was a seasonal wetland (Stewart and Kantrud 1971), a small stand of narrow-leaved cattail (*Typha angustifolia*) and hardstem bulrush (*Schoenoplectus acutus* var. *acutus*) has been present since high water conditions began in 1993. The wetland is at an intermediate elevation within the study area, and functions as a hydrological flow-through system (Winter and Rosenberry 1995). The specific conductivity during the growing season of 1994 ranged from 1454 to 2230 μ S per cm. The hydrologic setting, geology, water chemistry, and wetland plant communities of key wetlands at the Cottonwood Lake Study Area have been described by Winter and Carr (1980), Swanson (1990), LaBaugh et al. (1996), and Poiani et al. (1996), respectively.

We collected a second live specimen of *Valvata lewisii* morph *ontariensis* at the Cottonwood Lake Study Area from an additional seasonal wetland on 18 July 1995. This specimen also was collected with a funnel trap set in the shallow marsh zone at a water depth of 45 cm. The shallow marsh zone contained water smartweed, slough sedge, common spikerush (*Eleocharis palustris*), curly dock (*Rumex crispus*), and turion duckweed. No deep marsh plants (Stewart and Kantrud 1971) were observed. The wetland was at a higher elevation within the study area

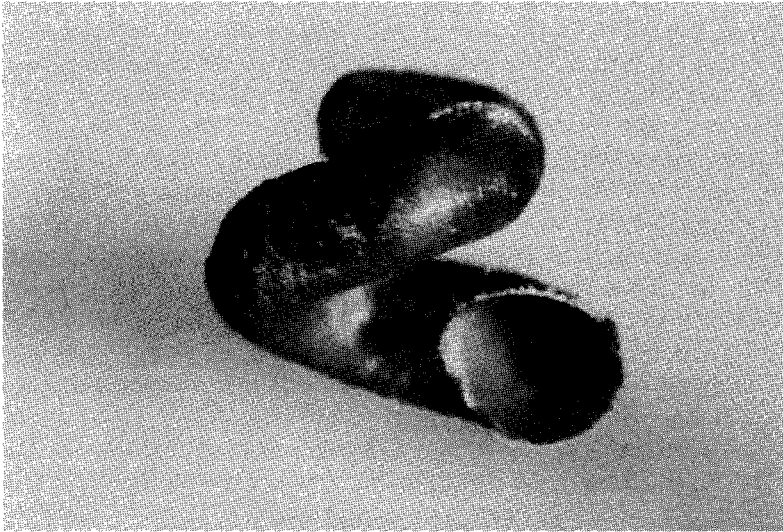


Figure 1. Loosely coiled valve snail (*Valvata lewisii* morph *ontariensis*). Collected at the Cottonwood Lake Study Area 14 July 1994.

than the previous wetland and functioned as a hydrological recharge system (Winter and Rosenberry 1995). The specific conductivity of this wetland during the growing season of 1995 ranged from 88 to 173 μ S per cm.

We thank Robert Hershler, National Museum of Natural History, for verification of the specimen, and Jane E. Austin, Lawrence D. Igle, Dale A. Wrubleski, and two anonymous individuals for reviewing the manuscript. -- Bruce A. Hanson, Ned H. Euliss, Jr., and David M. Mushet, U. S. Geological Survey, Northern Prairie Wildlife Research Center, 8711 37th Street SE, Jamestown, ND 58401.

LITERATURE CITED

- Baker, F. C. 1931. Description of a new variety of *Valvata lewisii* Currier. *Nautilus* 44:21-24.
- Burch, J. B. 1982. North American freshwater snails. *Transactions of the POETS Society* 1:217-365.

- Burch, J. B., and J. L. Tottenham. 1980. North American freshwater snails. *Transactions of the POETS Society* 1:81-215.
- Clarke, A. H., Jr. 1973. The freshwater mollusks of the Canadian Interior Basin. *Malacologia* 13:1-509.
- Clarke, A. H., Jr. 1981. The freshwater mollusks of Canada. National Museum of Canada, Ottawa, Canada.
- Currier, A. O. 1868. List of the shell-bearing Mollusca of Michigan, especially of Kent and adjoining counties. *Miscellaneous Publication Kent Scientific Institute* 1:1-12.
- La Baugh, J. W., T. C. Winter, G. A. Swanson, D. O. Rosenberry, R. D. Nelson, and N. H. Euliss, Jr. 1996. Changes in atmospheric patterns affect midcontinent wetlands sensitive to climate. *Limnology and Oceanography* 41:864-870.
- Poiani, K. A., W. C. Johnson, G. A. Swanson, and T. C. Winter. 1996. Climate change and northern prairie wetlands. *Limnology and Oceanography* 41:871-881.
- Stewart, R. E., and H. A. Kantrud. 1971. Classification of natural ponds and lakes in the glaciated prairie region. United States Fish and Wildlife Service, Resources Publication No. 92.
- Swanson, G. A. 1978. Funnel trap for collecting littoral aquatic invertebrates. *Progressive Fish-Culturist* 40:73.
- Swanson, K. D. 1990. Chemical evolution of ground water in clay till in a prairie wetlands setting in the Cottonwood Lake area, Stutsman County, North Dakota. M.S. Thesis. University of Wisconsin, Madison.
- Winter, T. C., and M. R. Carr. 1980. Hydrologic setting of wetlands in the Cottonwood Lake area, Stutsman County, North Dakota. U. S. Geological Survey, Water Resources Investigation Report 88-99.
- Winter, T. C., and D. O. Rosenberry. 1995. The interaction of groundwater with prairie pothole wetlands in the Cottonwood Lake area, east-central North Dakota, 1979-1990. *Wetlands* 15:193-211.

Received 10 October 2001

Accepted 10 February 2002