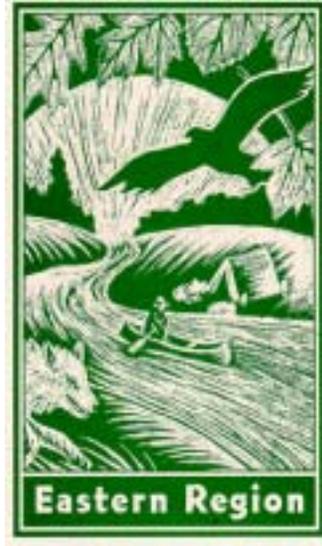


*Conservation Assessment  
for  
Vallonia gracilicosta albula (Sterki 1893)*



*USDA Forest Service, Eastern Region*  
January 16, 2003

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*This document is undergoing peer review, comments welcome.*

*This Conservation Assessment was prepared to compile the published and unpublished information on the subject taxon or community; or this document was prepared by another organization and provides information to serve as a Conservation Assessment for the Eastern Region of the Forest Service. It does not represent a management decision by the U.S. Forest Service. Though the best scientific information available was used and subject experts were consulted in preparation of this document, it is expected that new information will arise. In the spirit of continuous learning and adaptive management, if you have information that will assist in conserving the subject taxon, please contact the Eastern Region of the Forest Service - Threatened and Endangered Species Program at 310 Wisconsin Avenue, Suite 580 Milwaukee, Wisconsin 53203.*

**Table of Contents**

**EXECUTIVE SUMMARY ..... 3**  
**ACKNOWLEDGEMENTS ..... 3**  
**NOMENCLATURE AND TAXONOMY ..... 4**  
**DESCRIPTION OF SPECIES ..... 4**  
**LIFE HISTORY..... 4**  
**HABITAT ..... 4**  
**DISTRIBUTION AND ABUNDANCE ..... 4**  
**POPULATION BIOLOGY AND VIABILITY ..... 7**  
**POTENTIAL THREATS AND MONITORING ..... 7**  
**SUMMARY OF LAND OWNERSHIP ANF EXISTING HABITAT  
PROTECTION..... 8**  
**SUMMARY OF EXISTING MANAGEMENT ACTIVITIES..... 8**  
**PAST AND CURRENT CONSERVATION ACTIVITIES ..... 8**  
**RESEARCH AND MONITORING..... 8**  
**REFERENCES..... 9**  
**LIST OF CONTACTS..... 10**

## EXECUTIVE SUMMARY

This is a draft Conservation Assessment providing a summary of readily available information on the distribution, ecology, habitat and population biology of *Vallonia gracilicosta albula*, a terrestrial snail, in the Great Lake States. This document was compiled to assist in writing of the Conservation Assessment for the Niagara Escarpment Community.

*Vallonia gracilicosta albula* is a subspecies disjunct from Rocky Mountain range of *Vallonia gracilicosta*. It is a common fossil in Wisconsin glacial sediments from the southern Great Plains through southern parts of Iowa and Indiana (Nekola 1998b) and was previously thought to be extirpated from the eastern United States (M. Hoggarth, pers. comm. 2001). It is known from less than a dozen sites in Iowa and Minnesota, 23 sites in eastern Wisconsin and 10 sites in southern Ontario. At the eight sites it was found to occur in the Upper Peninsula of Michigan, it was most often found associated with dry limestone cliffs with the presence of dense stands of *Thuja occidentalis*, however, it was also found at relatively moist sites with early successional *Populus tremuloides*, and among *Thuja occidentalis*, *Tsuga canadensis* and *Acer saccharum* overstories and mix of *Aibes balsamea*, *Betula papyrifera*, *Thuja occidentalis* and *Picea glauca*.

There is very little information published on this species. *Vallonia gracilicosta albula* is not listed on the State Threatened and Endangered List for any state in the Great Lakes Region.

Threats to individual populations are habitat (microclimatic) changes from activities such as quarrying and timber management, specifically clear-cutting (Nekola 1998b).

Life history and population viability information is needed for this species.

## ACKNOWLEDGEMENTS

Information was provided by the following individuals: Dr. Michael Hoggarth, Associate Professor and Chair, Department of Life and Earth Sciences, Otterbein College, Westerville, Ohio; Dave Cuthrell, Associate Program Leader Zoology, Michigan Natural Features Inventory. Laura Hutchinson, Library Services Leader, North Central Research Station in St. Paul Minnesota conducted a literature search on this species. Julie Williams compiled the State Endangered, Threatened and Sensitive Species lists for the majority of the states within the continental U.S. and Canadian provinces.

## NOMENCLATURE AND TAXONOMY

- Scientific name:** *Vallonia gracilicosta* (Reinhardt 1883)
- Subspecies:** *Vallonia gracilicosta albula* (Sterki 1893)
- Common name:** Multirib Vallonia
- Order:** Styломmatophora
- Family:** Valloniidae
- Synonym (s):** No synonyms.

## DESCRIPTION OF SPECIES

*Vallonia gracilicosta albula* is a subspecies differing from the Rocky Mountain species by possessing a less thickened peristome and by being more than twice as wide as tall (2.5-2.9 mm wide). In Michigan, it is most similar to *V. cosata* but can be distinguished from this species by a greater number of radial ribs (45-50) on the body whorl (Nekola 1998b).

## LIFE HISTORY

Not documented.

## HABITAT

In New Mexico *Vallonia gracilicosta* is associated with *Populus-Quercus-Juglans* gallery forests with total vegetational cover and little slope (Correa 1997). In Ontario, this species is restricted to carbonate cliffs and algific talus slopes and it is restricted to the Niagaran escarpment in Michigan (Nekola 1998b). In Michigan, all the sites with occurrences of this species were dry carbonate cliffs over 5 meters in height that are wooded most often with *Thuja occidentalis* (Nekola 1998b).

## DISTRIBUTION AND ABUNDANCE

Current known distribution of the range of this species is from Newfoundland and the eastern coast of Hudson's Bay to Cape Cod, southern Ontario to northeastern Iowa, eastern Wisconsin and southeastern Minnesota and the Upper Peninsula of Michigan (Nekola 1998b). It is known from less than a dozen sites in Iowa and Minnesota, 23 sites in eastern Wisconsin and 10 sites in southern Ontario. It was found present at eight sites in the Upper Peninsula of Michigan and these sites represent the total range of this species in Michigan (Nekola 1998). NatureServe (2001) additionally adds the following states as being in the distribution of this species, New Mexico, Utah, Kentucky, and Illinois.

Frest and Dickson (1986) list *Vallonia gracilicosta* (Reinhardt) as generally a Rocky Mountain taxon, with relict sites in the Paleozoic Plateau in Minnesota and Iowa ( Frest and Dickson 1986). This species was reported from Eastport in Fremont County Missouri and the Lake Okoboji region Missouri. It is a very common loess fossil throughout the state; in the Loess Hills also, but especially in the northern four counties (Frest and Dickson 1986).

### Status in the Great Lakes Region

**Table 1.** State Ranks for *Vallonia gracilicosta albula*

State	State Threatened/Endangered or Special Concern Listing	State/Province Heritage Status Ranks
Illinois	Not listed as T/E or Special Concern	S?
Indiana	Not listed as T/E or Special Concern	Not ranked.
Michigan	Not listed as T/E or Special Concern	S? S1 is suggested in addition to state status endangered (Nekola 1998b).
Minnesota	Not listed as T/E or Special Concern	Not ranked.
New York	Not listed as T/E or Special Concern	Not ranked.
Ohio	Not listed as T/E or Special Concern	Not ranked.
Ontario	Not listed as T/E or Special Concern	S1S2
Pennsylvania	Not listed as T/E or Special Concern	Not ranked
Wisconsin	Not listed as T/E or Special Concern	Not ranked

This species is also rated SX in Kentucky, S? in New Mexico, S2S3 in Utah (NatureServe 2000). State status information was not located for Alaska, Florida, Georgia, Idaho, Kansas, Maine, Maryland, New Hampshire, New Jersey, North Carolina, Rhode Island, Tennessee, Texas and West Virginia.

**State Ranks:** S1=critically imperiled; extreme rarity or because of some factor of its biology making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals (<1,000). S2= Imperiled: rarity or because of other factors making it very vulnerable to extirpation from the state. Typically 6 to 20 occurrences or few remaining individuals (1,000-3,000). S1S2 is between S1 and S2.

S3=Vulnerable; rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences or between 3,000 to 10,000 individuals. S? denotes not enough information is available to rank.

**The global rank** is G3G4, the rounded rank is G3 ( NatureServe 2002). G3=rare to uncommon; usually between 20 to 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances. G4 = apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery. A rank of G3G4 means it is between the G3 and G4 ranking.

**Table 2** *Vallonia gracilicosta albula* Occurrence in the Great Lake States by County, State and Year\*

State	County of Occurrence	Number of Occurrences and Year
<b>Illinois</b>	Not tracked by Natural Heritage in this state.	
<b>Indiana</b>	Not tracked by Natural Heritage in this state.	
<b>Michigan</b>	Chippewa County Delta County	5 occurrences. 3 occurrences. This species is not tracked by Michigan Natural Features Inventory.
<b>Minnesota</b>	Not tracked by Natural Heritage in this state.	
<b>New York</b>	Not tracked by Natural Heritage in this state.	
<b>Ohio</b>	Not tracked by Natural Heritage in this state.	
<b>Ontario</b>	Not tracked by Natural Heritage in this province.	
<b>Pennsylvania</b>	Not tracked by Natural Heritage in this state.	
<b>Wisconsin</b>	Not tracked by Natural Heritage in this state.	

County occurrence information from Michigan Natural Features Inventory, Michigan County Element List-September 1999, Wisconsin Natural Heritage Program, Rare Species and Natural Communities, NHI Working List by County, Indiana Natural Heritage Data Center, List of Endangered, Threatened, and Rare Species by County, November 16, 1999, Ontario Natural Heritage Information Centre, Rare Species Query by County query ran 1/9/01.

## POPULATION BIOLOGY AND VIABILITY

Not documented.

## POTENTIAL THREATS AND MONITORING

Generally, threats to this and other land snails include anthropogenic (highway corridors, railroad right-of-ways) and other disturbances (Nekola 1998b). Generally, sites providing habitat for land snail communities are being lost to development, agriculture and forestry management (Frest 1991, Nekola 1998b). In areas with a population of land snails, forest clearing has negative impacts as well as any activities that may alter groundwater flow (Nekola 1998a) and will change the microclimate increasing chances of land snails desiccation (Nekola 1998b). Threats also include ATV use (Nekola 1998b). Specific threats to populations documented in Nekola 1998 inventory is clear-cutting and quarrying. Acid rain may be a threat to this species (D. Cuthrell, pers. comm. 2001).

### Present or Threatened Risks to Habitat or Range

**Table 3** *Threats or Risks to Vallonia gracilicosta albula and Its Habitat by Forest*

<b>Forest</b>	<b>Risk or Threat</b>
<b>Chequamegon-Nicolet</b>	Not on RF Sensitive Species list for the Cheq-Nicolet.
<b>Chippewa</b>	Not on RF Sensitive Species list for the Chippewa.
<b>Hiawatha</b>	The site is a very high conservation priority and should be protected from recreation and timber management (Nekola 1998b). The population is protected by old growth status (S. Sjogren personal communication 2000).
<b>Huron-Manistee</b>	Not on RF Sensitive Species list for the Huron-Manistee.
<b>Ottawa</b>	Not on RF Sensitive Species list for the Ottawa.
<b>Superior</b>	Not on RF Sensitive Species list for the Superior.

### Commercial, Recreational, Scientific or Educational Overutilization

#### Disease or Predation

None known. This species is too small to be preyed upon by mammalian predators (D. Cuthrell pers. comm. 2001).

### Inadequacy of Existing Regulatory Mechanisms

None documented.

## **Other Natural or Human Factors Affecting Continued Existence of Species**

None documented.

## **SUMMARY OF LAND OWNERSHIP AND EXISTING HABITAT PROTECTION**

Landownership in the Upper Peninsula study Nekola (1998b) was listed as one occurrence at a State Park. The one occurrence on the Hiawatha National Forest is in an area that has old growth designation. The ownership of the other sites in Michigan are not known.

## **SUMMARY OF EXISTING MANAGEMENT ACTIVITIES**

None known.

## **PAST AND CURRENT CONSERVATION ACTIVITIES**

None known.

## **RESEARCH AND MONITORING**

The National Biological Information Infrastructure (NBII) was searched for this species at <http://search.usgs.gov/nbii/query>, no documents were found.

### **Existing Surveys, Monitoring and Research**

Dr. Jeffery Nekola, University of Wisconsin Green Bay conducted a study : Terrestrial Gastropod Inventory of the Niagaran Escarpment and Keweenaw Volcanic Belt in Michigan's Upper Peninsula in 1998.

### **Survey Protocol**

Samples are collected from various habitats, larger land snails are collected by hand and placed in plastic snap vials. Four liter litter samples are used to collect smaller taxa. At woodland sites, concentrate collections at places of abundance of larger snails, along the base of cliffs, rocks, trees, soil covering ledges or at microclimates such as cold air vents on a cliff face. In open sites collect small blocks of turf (ca 125 cm<sup>3</sup>) or loose soil and leaf litter accumulations under or adjacent to cobbles, boulders or shrubs (Nekola 1998b) or from hummock sides, undisturbed places or swales (Nekola and Frest 1996). Samples could also be taken under shrubs (Nekola and Frest 1996). At the lab, use a low-temperature soil oven to slowly and completely dry the samples. Once dry, soak the samples in water for 3-24 hours and sieve. Use a neutral-brown background, binocular microscope and sable brush to separate shells for identification (Nekola 1998b).

### **Research Priorities**

Life history and population viability information is needed for this species.

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