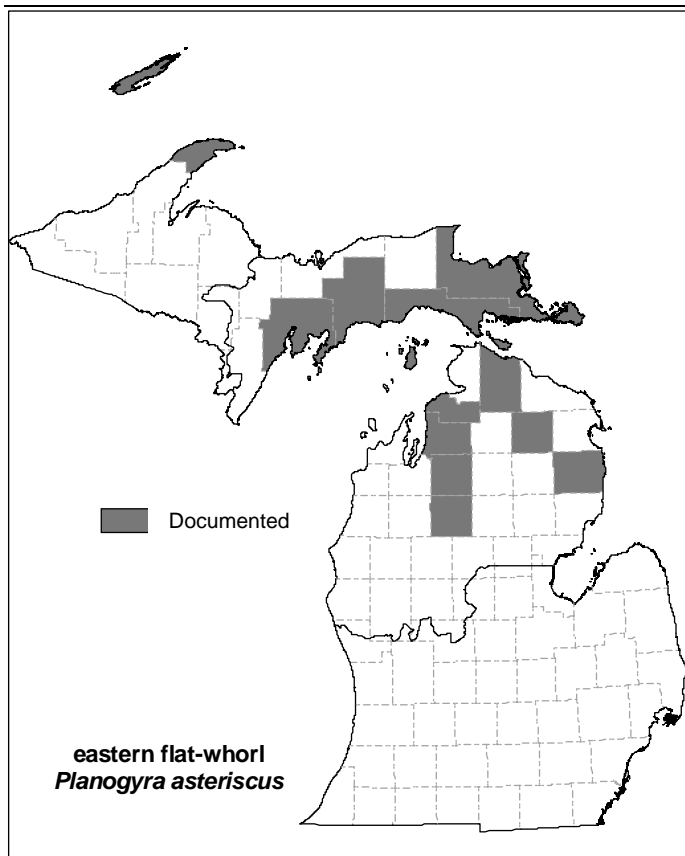


LAND SNAILS



eastern flat-whorl

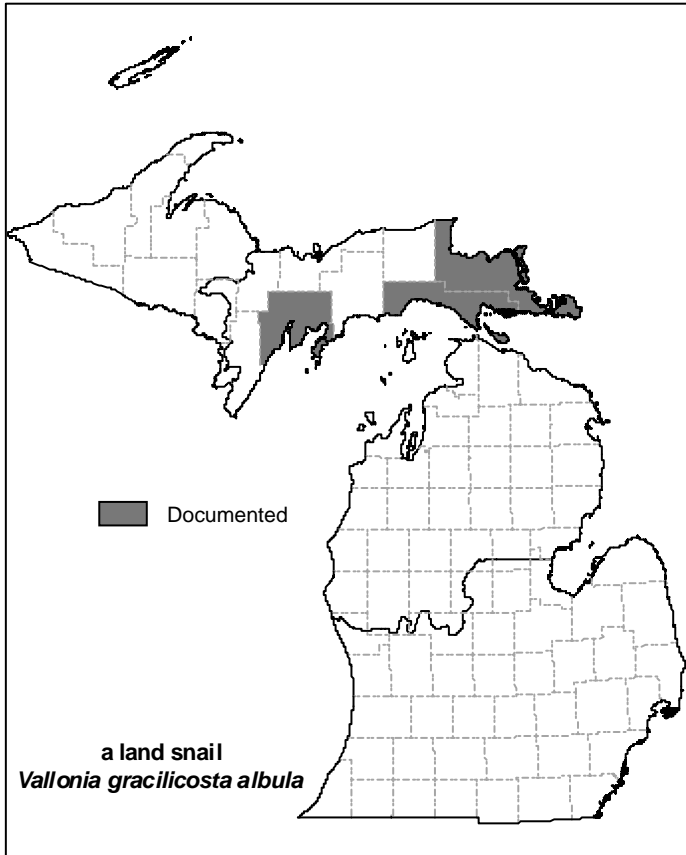
(*Planogyra asteriscus*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. Known from only 9 sites in Michigan. It is considered very rare in the State.

ASSOCIATED LANDSCAPE FEATURES: lowland shrub; lowland conifer; bog; fen; swamp; coastal dune/beach; inland rock/cliff/ledge; other (deep leaf litter)

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need surveys to assess abundance and distribution, particularly in cedar swamps; need basic life history information; need to identify threats.



a land snail

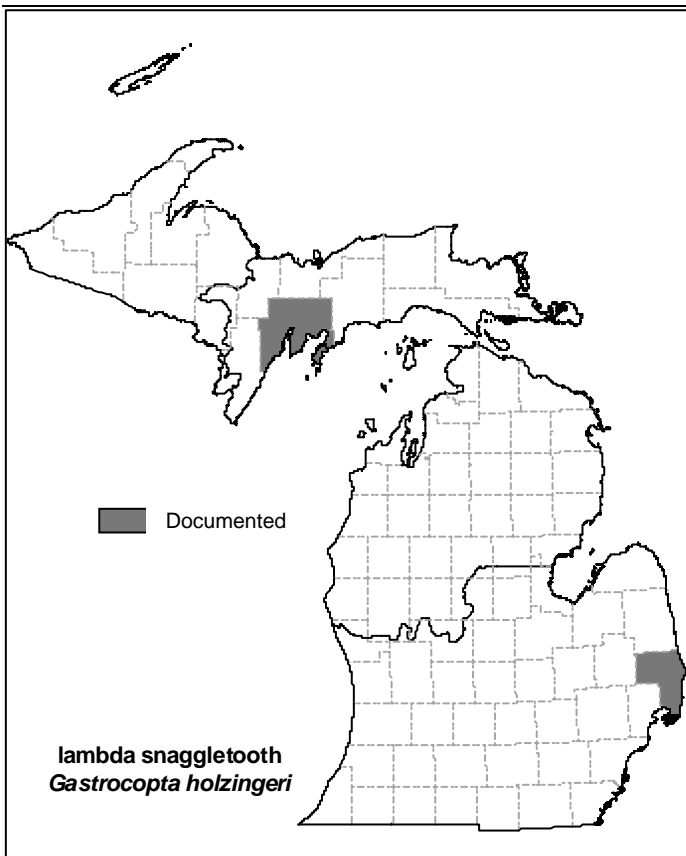
(*Vallonia gracilicosta albula*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. Known from only 8 locations in the upper peninsula. This species is considered critically imperiled in Michigan due to extreme rarity.

ASSOCIATED LANDSCAPE FEATURES: rock/cliff/ledge

ASSOCIATED THREATS: lack of scientific knowledge; forestry practices

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats. Require cool, moist conditions; canopy removal will result in dryer microhabitat conditions unsuitable for this species. At least one Michigan occurrence is at risk of being clearcut. This species may also be known by the name *Vallonia albula*.



lambda snaggletooth

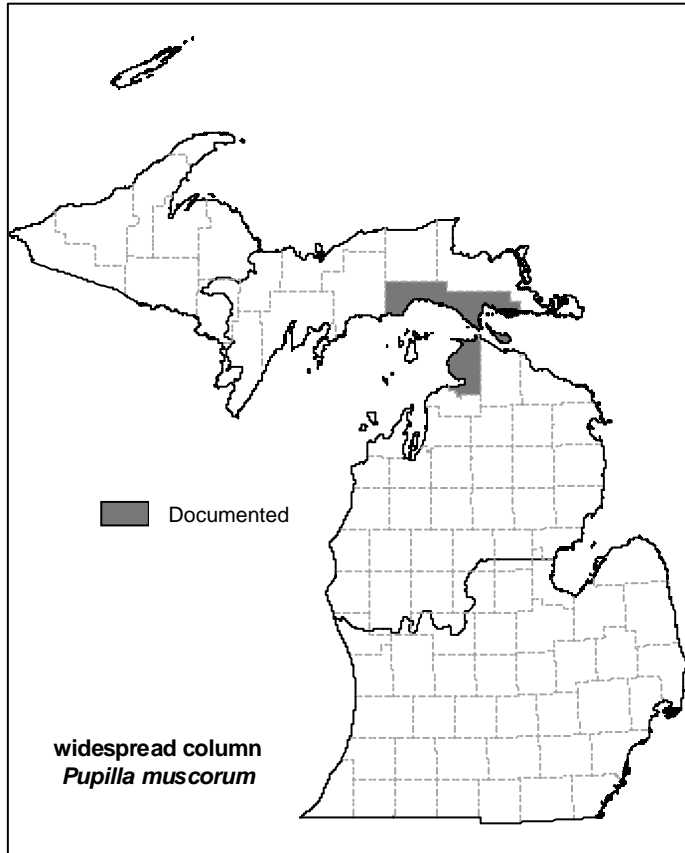
(*Gastrocopta holzingeri*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. Known from only 3 sites in the Upper Peninsula and from St. Clair County in the Lower Peninsula. It is considered critically imperiled in the State.

ASSOCIATED LANDSCAPE FEATURES: rock/cliff/ledge

ASSOCIATED THREATS: industrial/residential/recreational development; lack of scientific knowledge

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats.



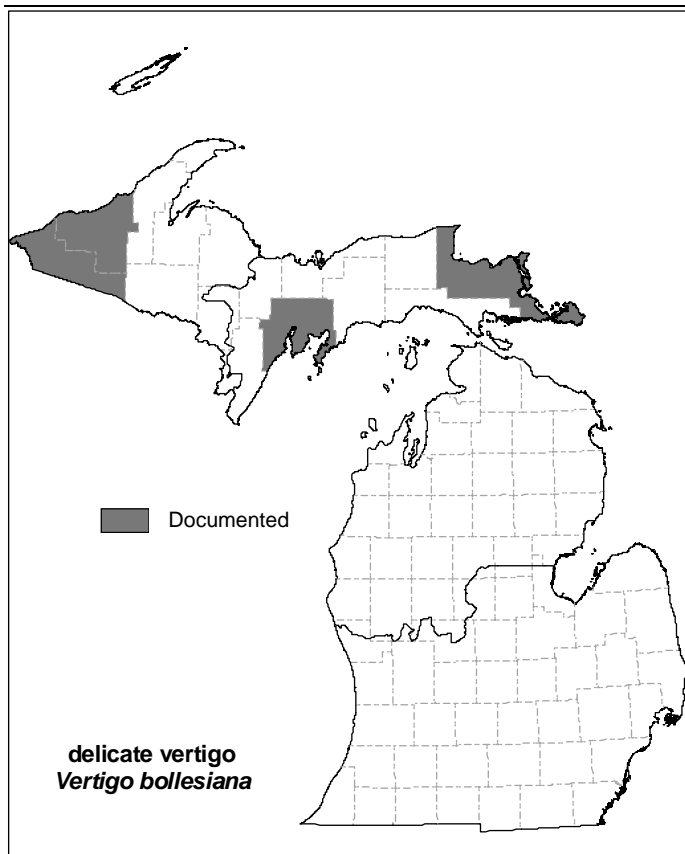
widespread column
(*Pupilla muscorum*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. It is known from only one location in the Upper Peninsula, but has been reported from several locations in the Lower Peninsula.

ASSOCIATED LANDSCAPE FEATURES: right-of-way; lowland hardwood; mesic hardwood; lowland conifer; mesic conifer; ephemeral wetland; swamp; inland rock/cliff/ledge

ASSOCIATED THREATS: conversion to agriculture lands; lack of scientific knowledge; forestry practices; other biological interactions (too many deer); wetland modifications

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats.



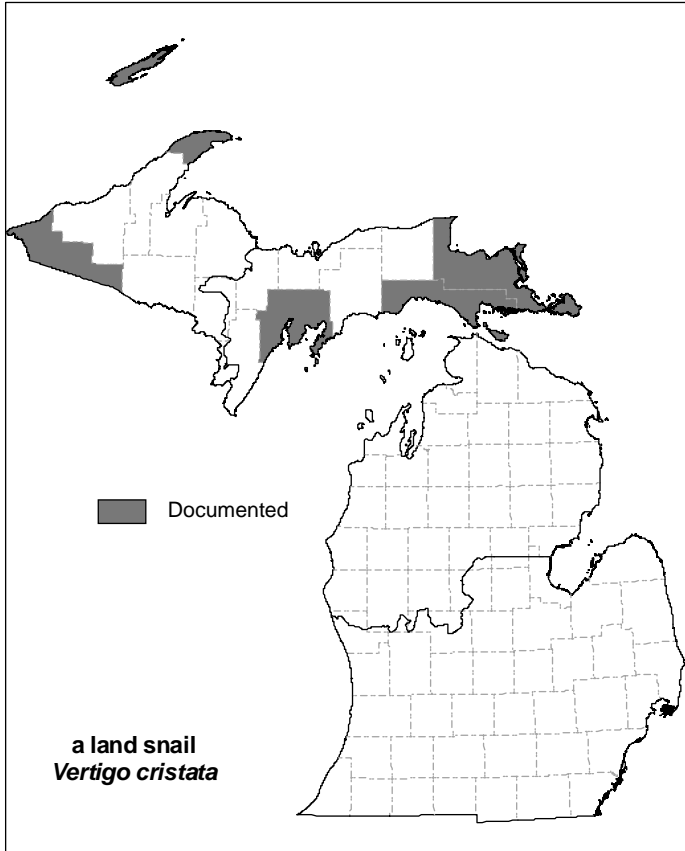
delicate vertigo
(*Vertigo bollesiana*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. Also known from a few locations in southeastern Michigan and 13 locations in the Upper Peninsula. Surveys resulted in fewer than 10 individuals at most locations. This species is considered imperiled in Michigan and very rare globally.

ASSOCIATED LANDSCAPE FEATURES: lowland hardwood; mesic hardwood; lowland conifer; mesic conifer; inland emergent wetland; alvar/rock; inland rock/cliff/ledge

ASSOCIATED THREATS: grazing & mowing patterns; non-consumptive recreation; pesticides & herbicides; removal of non-timber flora; wetland modifications

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats. Rock climbing has caused at least one extirpation; rock climbing should be directed away from imperiled snail populations. The filling of upland sinks with trash or soil can alter microhabitat conditions. Grazing may pose a serious threat at some locations.



a land snail

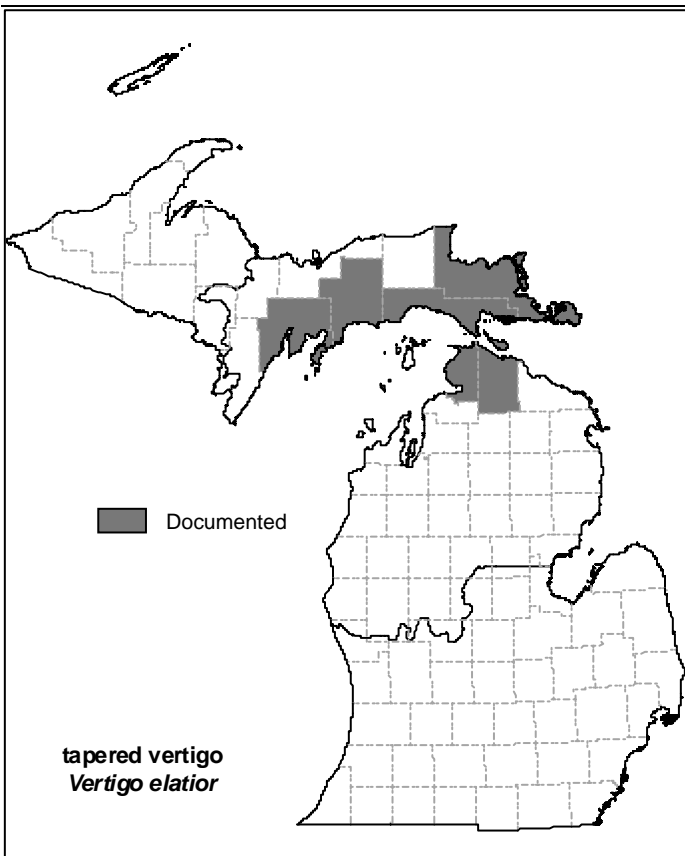
(*Vertigo cristata*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. Known from 19 sites in the Upper Peninsula. Surveys resulted in fewer than 10 individuals at these locations, except in the Keweenaw Peninsula where it was more abundant. It is currently considered very rare in Michigan.

ASSOCIATED LANDSCAPE FEATURES: alvar/rock; inland rock/cliff/ledge

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution, particularly in the Lower Peninsula; need basic life history information; need to identify threats.



tapered vertigo

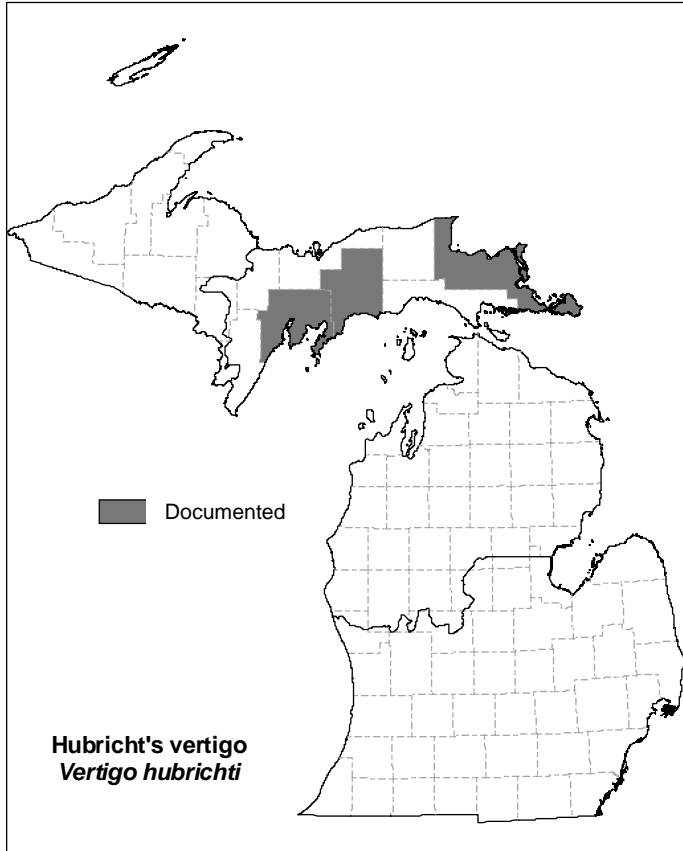
(*Vertigo elatior*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. Known from numerous sites in the upper Peninsula. Records also exist for the Lower Peninsula, but many of these are from old records, so a status determination for the Lower Peninsula is dependent upon additional surveys. It was identified from 14 sites in recent surveys in the Upper Peninsula in 1998. This species is currently considered very rare in Michigan.

ASSOCIATED LANDSCAPE FEATURES: lowland conifer; bog; ephemeral wetland; fen; swamp; alvar/rock; coastal dune/beach

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution, particularly in the Lower Peninsula; need basic life history information; need to identify threats.



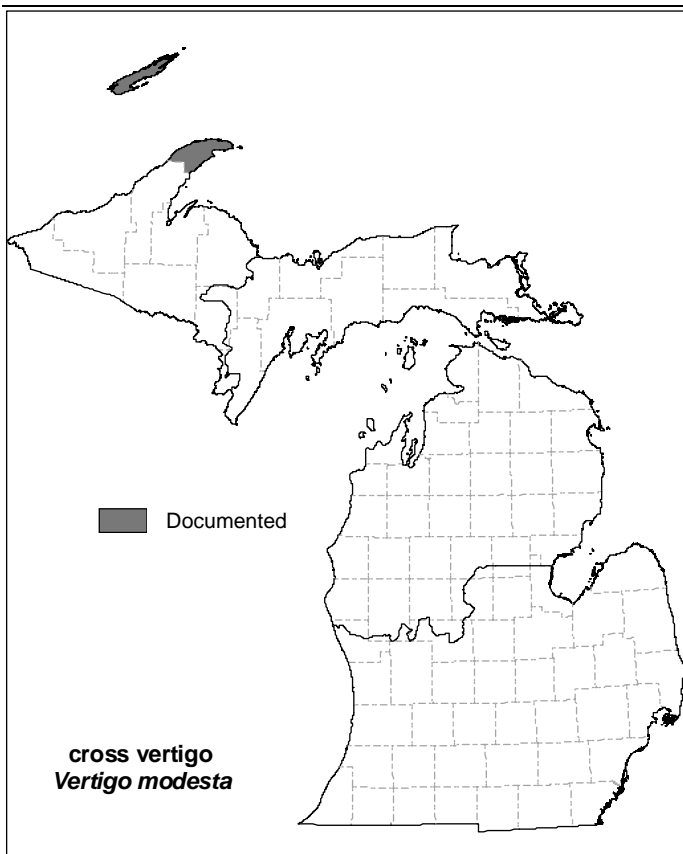
Hubricht's vertigo
(Vertigo hubrichti)

DISTRIBUTION & ABUNDANCE: State listed as special concern. This species is known from 14 locations in the Upper Peninsula. It is considered imperiled in Michigan and very rare globally.

ASSOCIATED LANDSCAPE FEATURES: rock/cliff/ledge

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats



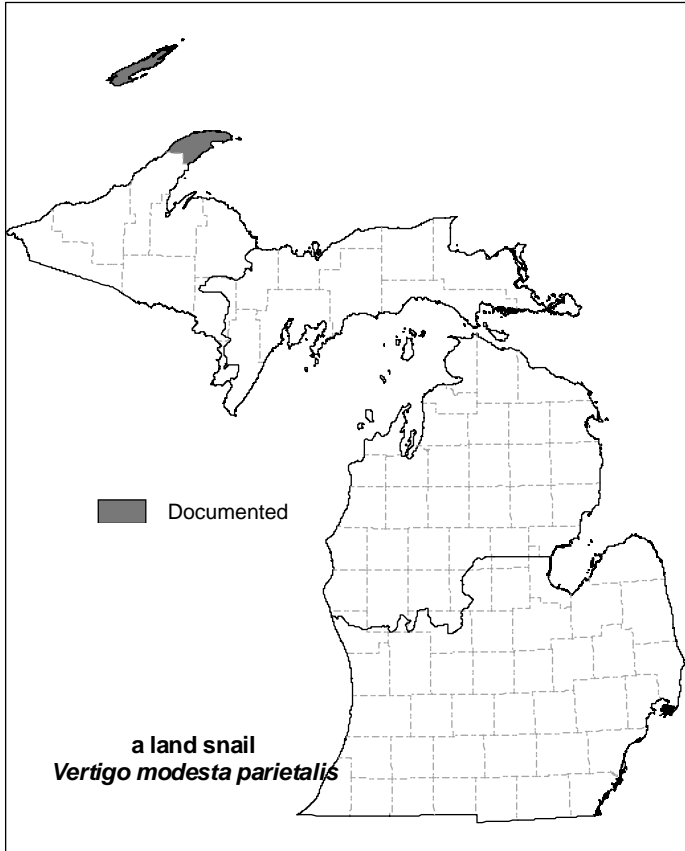
cross vertigo
(Vertigo modesta)

DISTRIBUTION & ABUNDANCE: State listed as special concern. This species is known from only two locations in the Upper Peninsula. These represent the only known populations for the species in the eastern U.S. It is considered critically imperiled in Michigan.

ASSOCIATED LANDSCAPE FEATURES: rock/cliff/ledge

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats.



a land snail

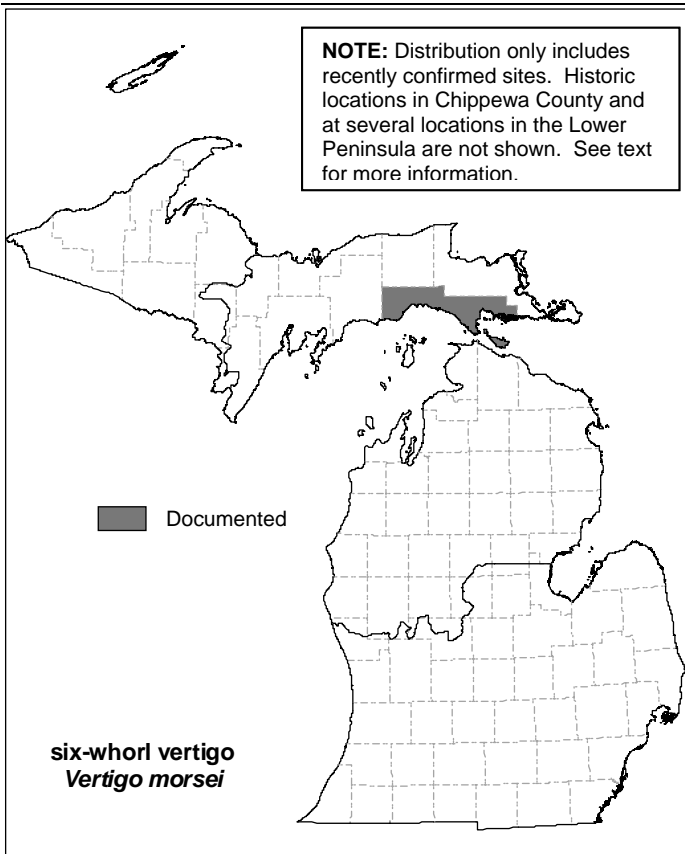
(*Vertigo modesta parietalis*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. This subspecies of the cross vertigo is known from only one location in Michigan. It is considered critically imperiled in the State.

ASSOCIATED LANDSCAPE FEATURES: rock/cliff/ledge

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats.



six-whorl vertigo

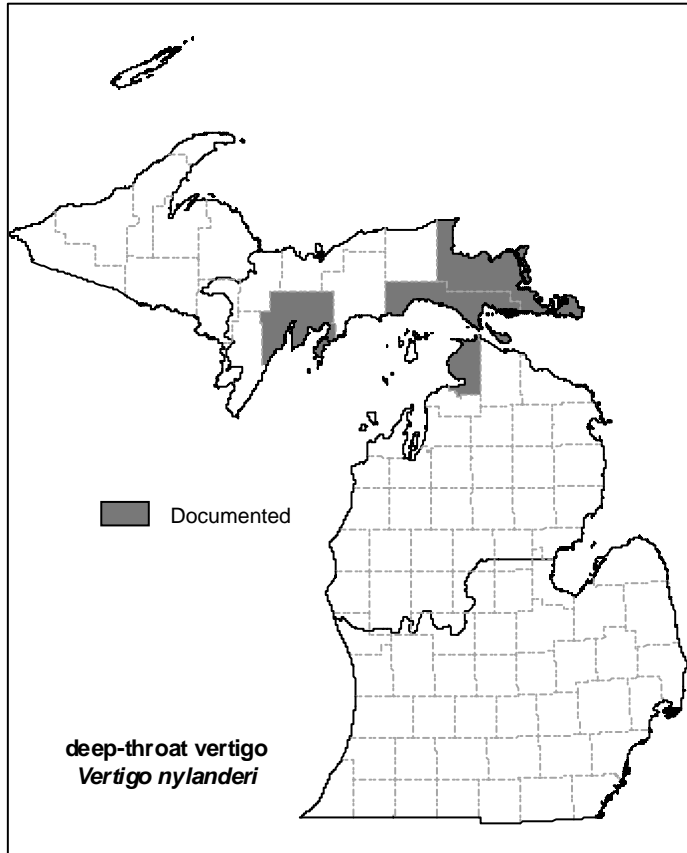
(*Vertigo morsei*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. Two populations in Mackinac County are currently known in the Upper Peninsula. The status of an old recorded population in Chippewa County is unknown. The status of the species at several sites in the Lower Peninsula is also unknown, but these populations may not be extant, due to changes in land use and development. Their status needs to be determined through additional surveys. This species is currently considered imperiled in Michigan.

ASSOCIATED LANDSCAPE FEATURES: inland emergent wetland; fen; pond; river/stream/riparian/floodplain corridor

ASSOCIATED THREATS: conversion to agriculture lands; altered hydrologic regimes; incompatible natural resource mgmt; industrial/residential/recreational development; forestry practices; non-consumptive recreation

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats. Require cool, moist conditions; canopy removal will result in dryer microhabitat conditions unsuitable for this species.



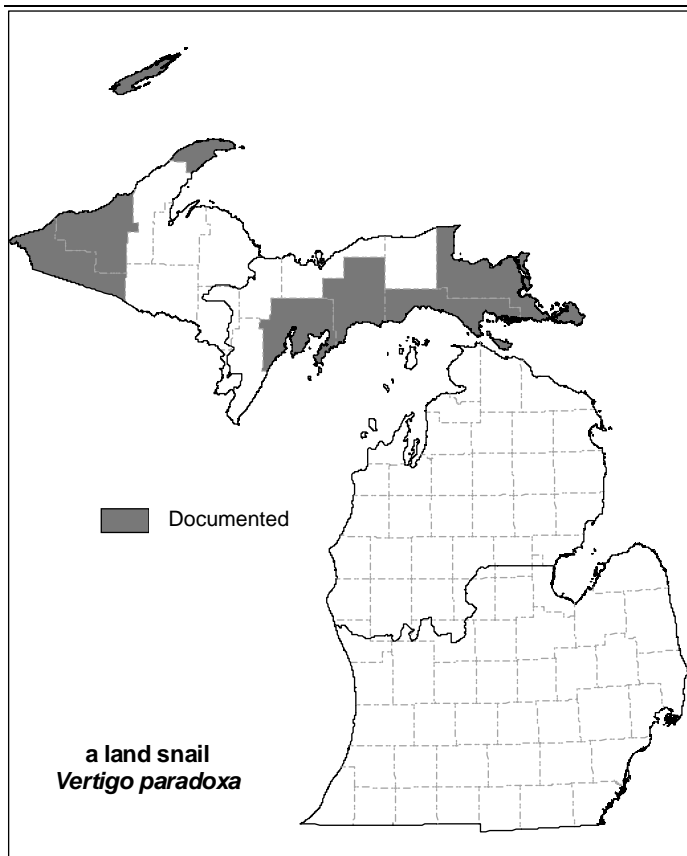
deep-throat vertigo
(*Vertigo nylanderii*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. There are four populations in the Upper Peninsula and each population is extremely small and restricted. This species is considered critically imperiled in Michigan and across its range.

ASSOCIATED LANDSCAPE FEATURES: lowland conifer; bog; swamp; alvar/rock; coastal dune/beach

ASSOCIATED THREATS: altered fire regime; lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats. This is the rarest *Vertigo* species in North America. The extremely small population sizes at each site makes occurrences of this species extremely susceptible to catastrophic disturbance, like fire. Nekola (1998) noted that this species (tamarack wetlands) is limited to the same habitat that mammoth populations were limited to at the end of the last ice age.



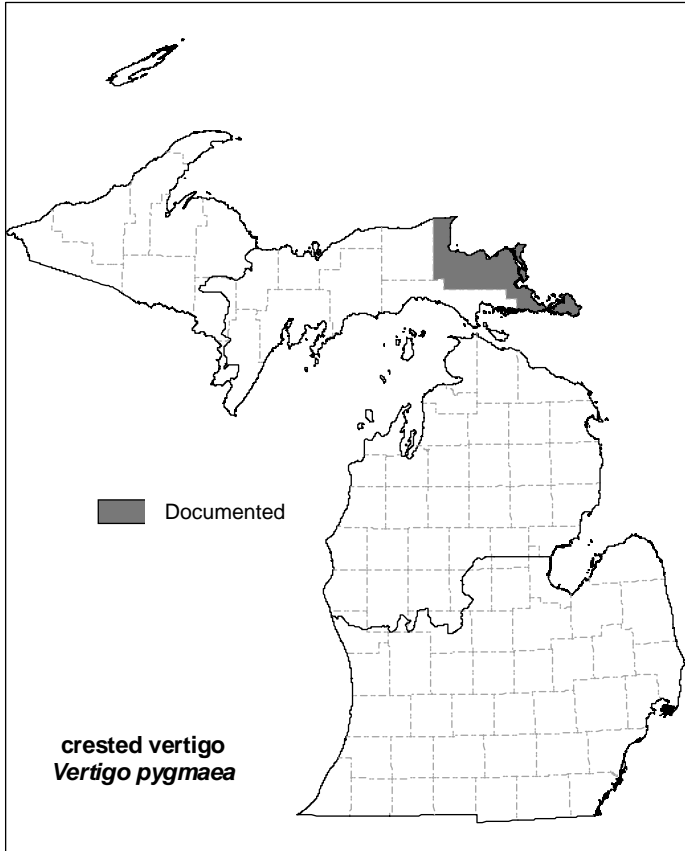
a land snail
(*Vertigo paradoxa*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. Known from 21 sites in the Upper Peninsula. Most of the U.S. populations of this species are in the Upper Peninsula. This species is considered very rare in Michigan and is probably very rare globally.

ASSOCIATED LANDSCAPE FEATURES: lowland hardwood; mesic hardwood; lowland conifer; mesic conifer; inland rock/cliff/ledge

ASSOCIATED THREATS: dredging & channelization; altered fire regime; grazing & mowing patterns; industrial/residential/recreational development; forestry practices; non-consumptive recreation; pesticides & herbicides; urban, municipal, and industrial pollution

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats. Require cool, moist conditions; canopy removal will result in dryer microhabitat conditions unsuitable for this species. Locations of this species in Michigan are susceptible to residential or recreational development and road construction. ORV and foot traffic should be redirected around occupied areas. Rock climbing should be directed away from imperiled snail populations. Acid rain may also pose a threat to this species.



crested vertigo

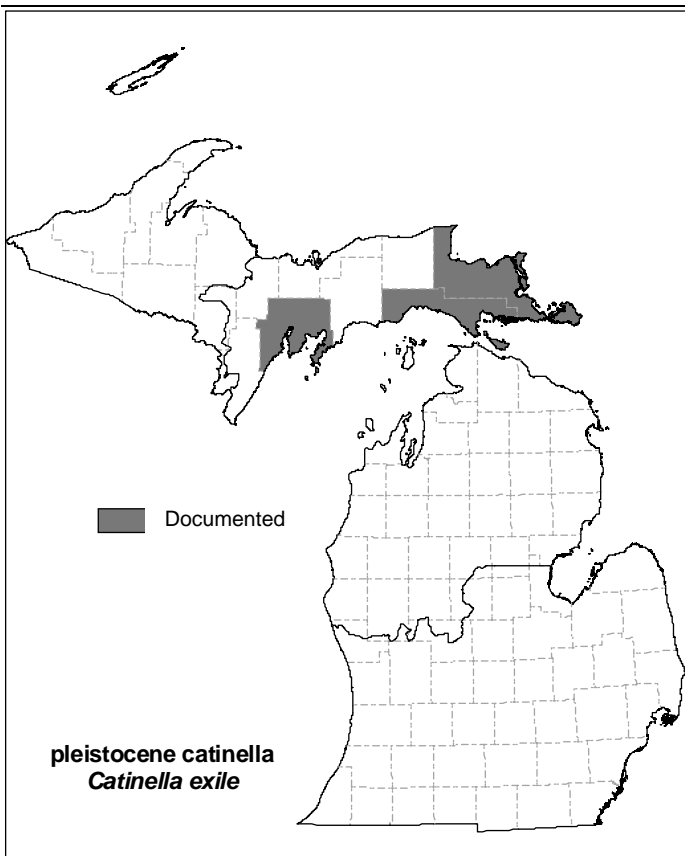
(*Vertigo pygmaea*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. Known from a single site in the Upper Peninsula. Its status in the State is currently undetermined, but it is clearly extremely rare.

ASSOCIATED LANDSCAPE FEATURES: fen

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; including the Detroit area since this species is known from other Great Lakes metropolitan areas. Need basic life history information; need to identify threats.



pleistocene catinella

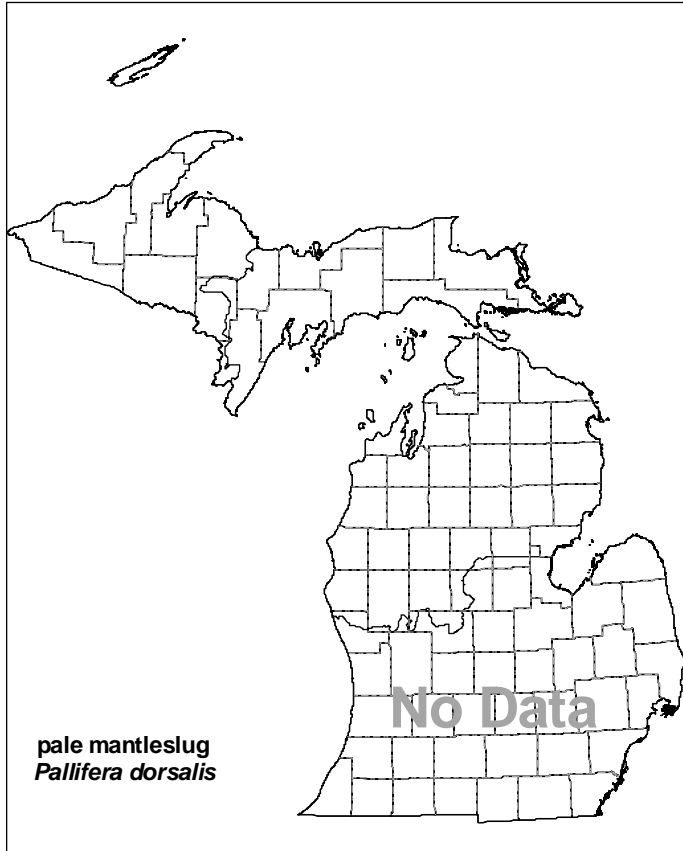
(*Catinella exile*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. It is currently known from only three sites in the Upper Peninsula. This species is globally imperiled.

ASSOCIATED LANDSCAPE FEATURES: fen; coastal dune/beach; alvar/rock

ASSOCIATED THREATS: conversion to agriculture lands; altered hydrologic regimes; incompatible natural resource mgmt; industrial/residential/recreational development; forestry practices; urban, municipal, and industrial pollution

COMMENTS: Need surveys to assess abundance and distribution—particularly at rich fen sites in the Lower Peninsula; need basic life history information; need to identify threats. In occupied sites, forest clearing, road construction and other development should be avoided. Acid rain may be a threat to this species.



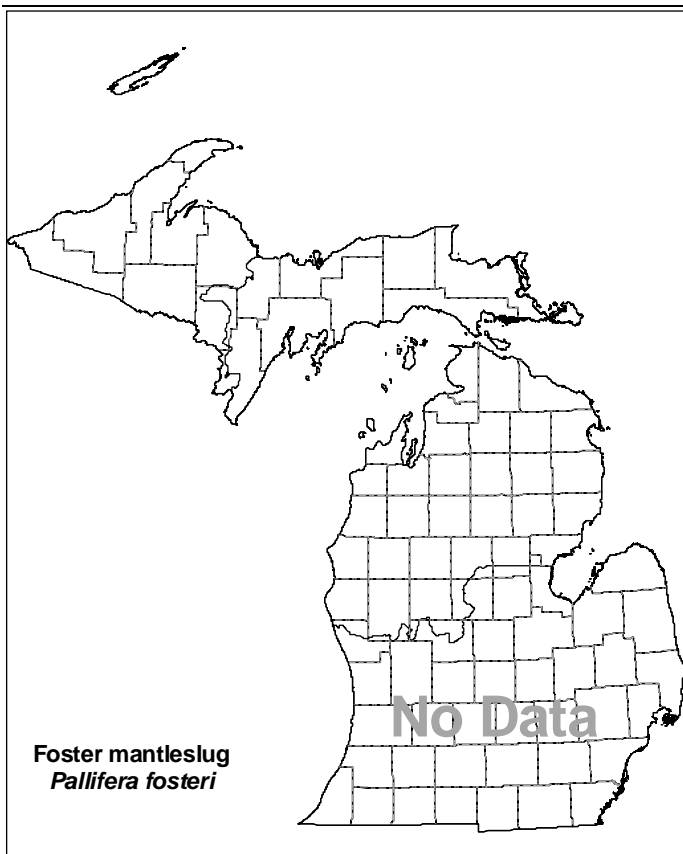
pale mantleslug
(*Pallifera dorsalis*)

DISTRIBUTION & ABUNDANCE: The status and abundance of this species is currently unknown, though recent survey efforts suggest this species may be more widely distributed than previously believed.

ASSOCIATED LANDSCAPE FEATURES: unknown

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need to identify habitat; need basic life history information; need to identify threats. If this species is demonstrated to be well distributed with a stable population, it will be removed from the set of SGCN.



Foster mantleslug
(*Pallifera fosteri*)

DISTRIBUTION & ABUNDANCE: The status and abundance of this species is currently unknown. Recent efforts to locate this species have been unsuccessful.

ASSOCIATED LANDSCAPE FEATURES: right-of-way; lowland hardwood; lowland conifer; ephemeral wetland; inland lake

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats.



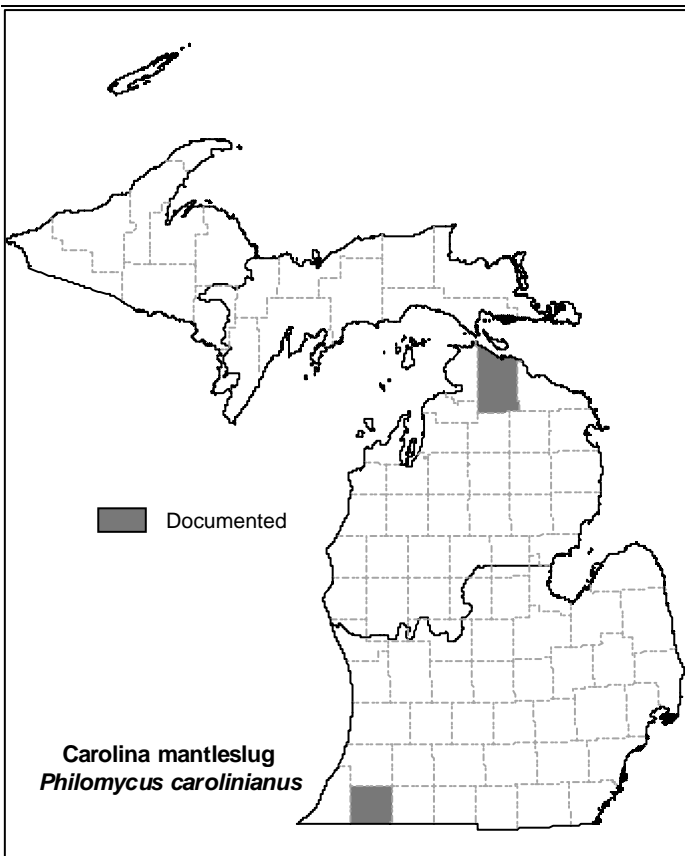
redfoot manteslug
(*Pallifera ohioensis*)

DISTRIBUTION & ABUNDANCE: The status and abundance of this species is currently unknown, though recent survey efforts suggest this species may be more widely distributed than previously believed.

ASSOCIATED LANDSCAPE FEATURES: unknown

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need to identify habitat; need basic life history information; need to identify threats. If this species is demonstrated to be well distributed with a stable population, it will be removed from the set of SGCN.



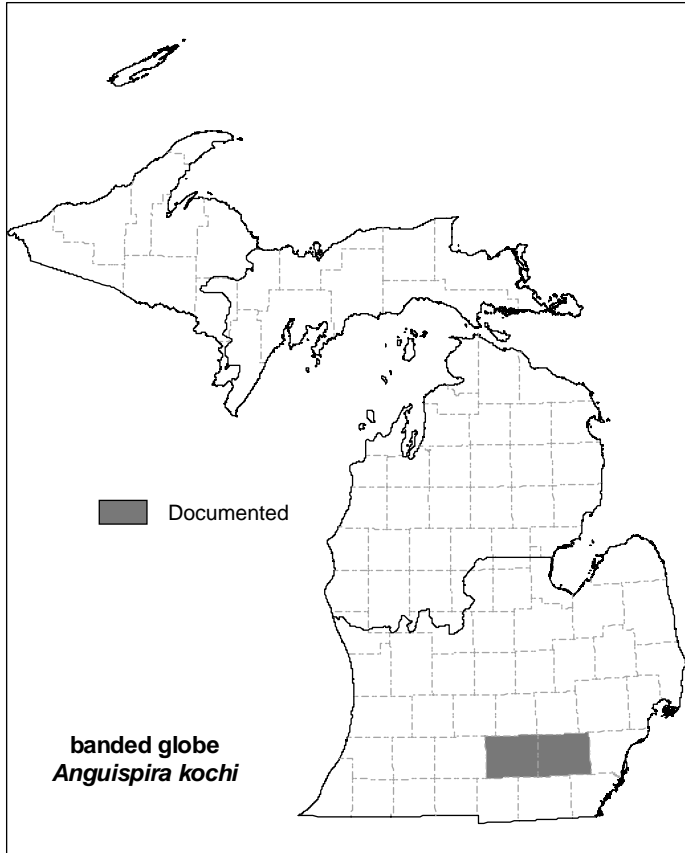
Carolina manteslug
(*Philomycus carolinianus*)

DISTRIBUTION & ABUNDANCE: State listed as special concern.

ASSOCIATED LANDSCAPE FEATURES: right-of-way; lowland hardwood; lowland conifer; ephemeral wetland; inland lake

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats.



banded globe

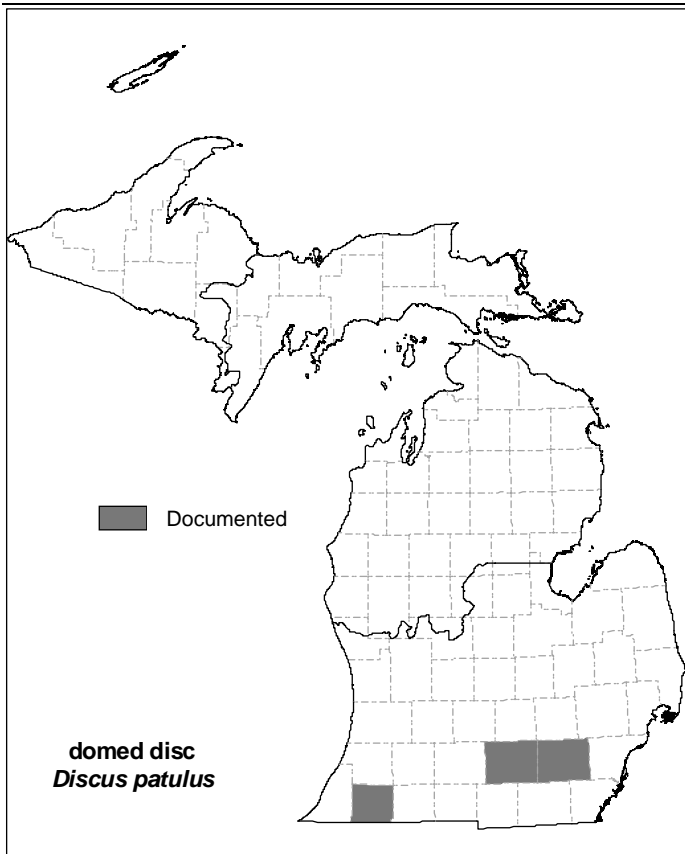
(Anguispira kochi)

DISTRIBUTION & ABUNDANCE: State listed as special concern.

ASSOCIATED LANDSCAPE FEATURES: unknown

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats.



domed disc

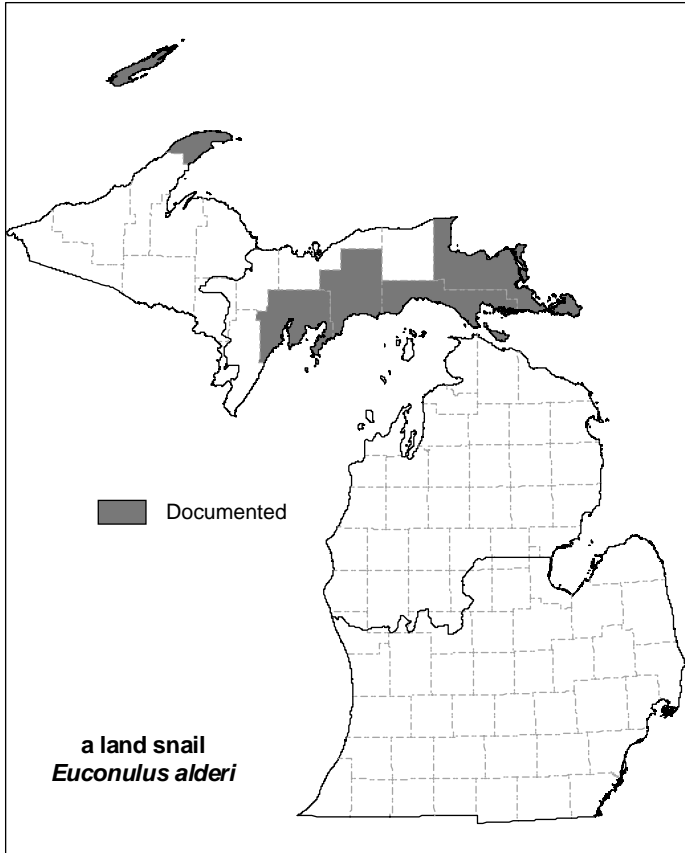
(Discus patulus)

DISTRIBUTION & ABUNDANCE: State listed as special concern.

ASSOCIATED LANDSCAPE FEATURES: unknown

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need basic life history information; need to identify threats.



a land snail

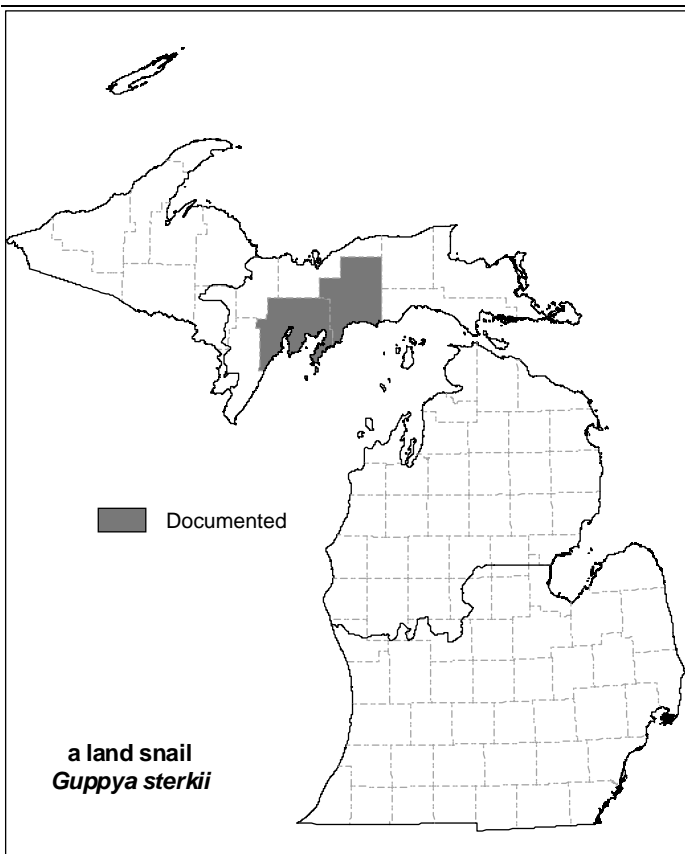
(*Euconulus alderi*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. This species is known from 10 locations in the Upper Peninsula. It is very rare in Michigan and across its range.

ASSOCIATED LANDSCAPE FEATURES: lowland conifer; bog; fen; swamp; coastal dune/beach

ASSOCIATED THREATS: conversion to agriculture lands; incompatible natural resource mgmt; industrial/residential/recreational development; forestry practices; urban, municipal, and industrial pollution

COMMENTS: Need surveys to further assess abundance and distribution; need basic life history information; need to identify threats. Require cool, moist conditions; canopy removal heats and dries the soil making conditions unsuitable for this species. Acid rain may pose a problem for this species.



a land snail

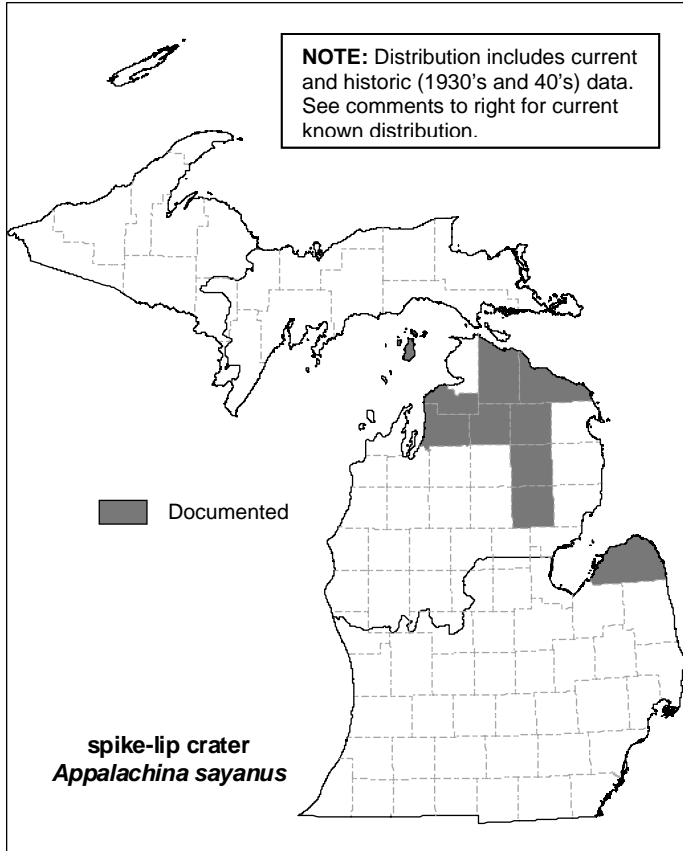
(*Guppya sterkii*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. This species is known from only one location on the Delta-Schoolcraft county line in the Upper Peninsula. It is considered critically imperiled in the State.

ASSOCIATED LANDSCAPE FEATURES: mesic hardwood; mesic conifer; inland rock/cliff/ledge

ASSOCIATED THREATS: industrial/residential/recreational development; forestry practices; social attitudes

COMMENTS: Need surveys to assess abundance and distribution; need basic life history information; need to identify threats. Require cool, moist conditions; canopy removal heats and dries the soil making conditions unsuitable for this species. At the only known occurrence in Michigan, landowners are throwing yard debris over the slope where the population occurs.



spike-lip crater

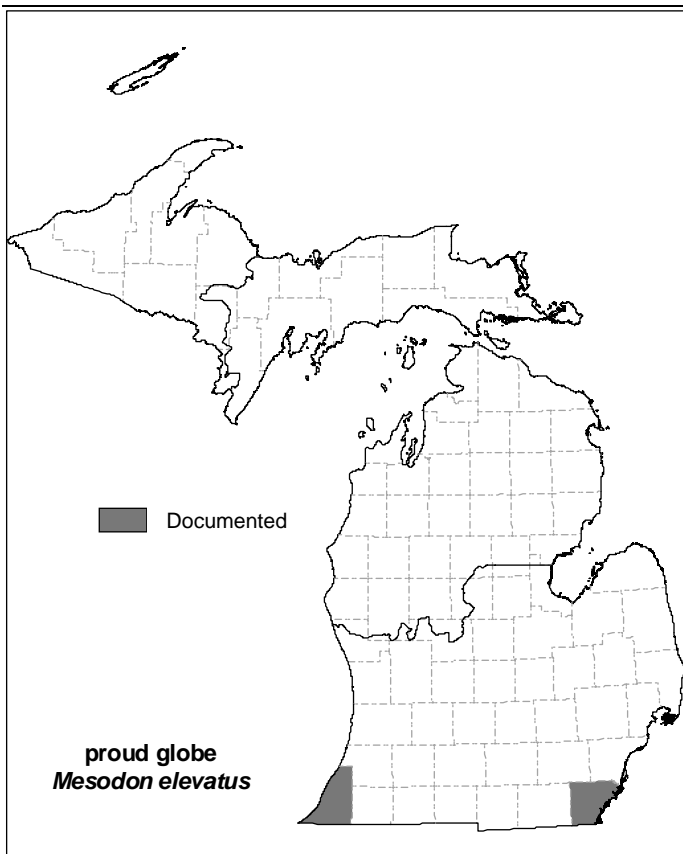
(*Appalachina sayana*)

DISTRIBUTION & ABUNDANCE: State listed as special concern. The status and abundance of this species is undetermined. It is currently known to be extant at 2 sites in Michigan. It was much more broadly distributed in the early 20th century, so this species appears to have experienced considerable decline.

ASSOCIATED LANDSCAPE FEATURES: lowland hardwood; mesic hardwood; lowland conifer; bog; swamp; river/stream/riparian/floodplain corridor; inland rock/cliff/ledge; down woody debris

ASSOCIATED THREATS: incompatible natural resource mgmt; industrial/residential/recreational development; lack of scientific knowledge; forestry practices

COMMENTS: Need surveys to assess abundance and distribution; need basic life history information; need to identify threats. Where this species occurs, a forest canopy should be maintained; canopy reduction results in the warming and drying of soil conditions unfavorable to this species. This species may also be known by the names *Appalachina sayanus* and *Mesodon sayanus*.



proud globe

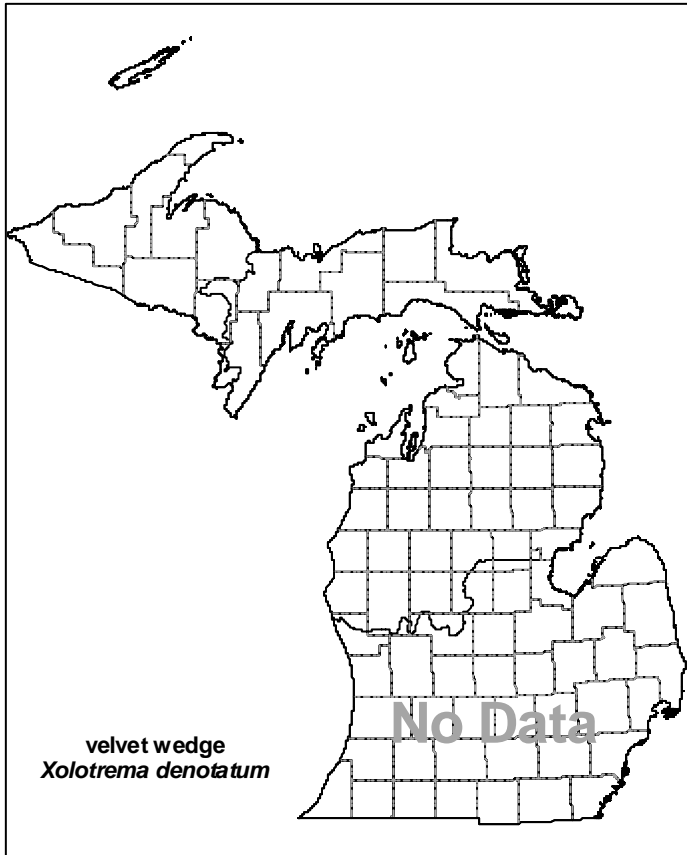
(*Mesodon elevatus*)

DISTRIBUTION & ABUNDANCE: State listed as special concern.

ASSOCIATED LANDSCAPE FEATURES: unknown

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need to identify habitat; need basic life history information; need to identify threats.



velvet wedge

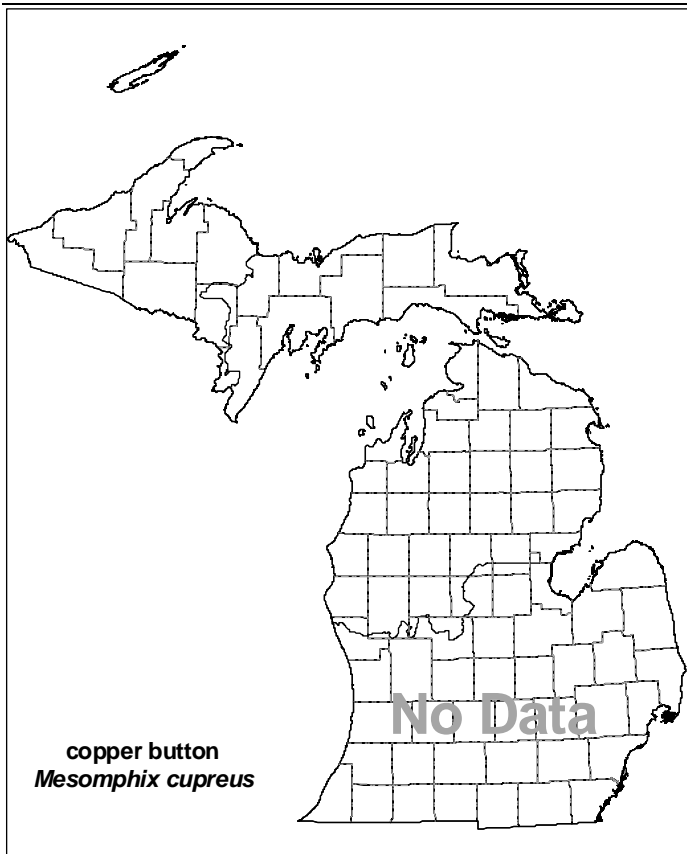
(*Xolotrema denotatum*)

DISTRIBUTION & ABUNDANCE: State listed as special concern.

ASSOCIATED LANDSCAPE FEATURES: unknown

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need to identify habitat; need basic life history information; need to identify threats. This species may also be known by the name *Xolotrema denotata* and *Triodopsis denotata*.



copper button

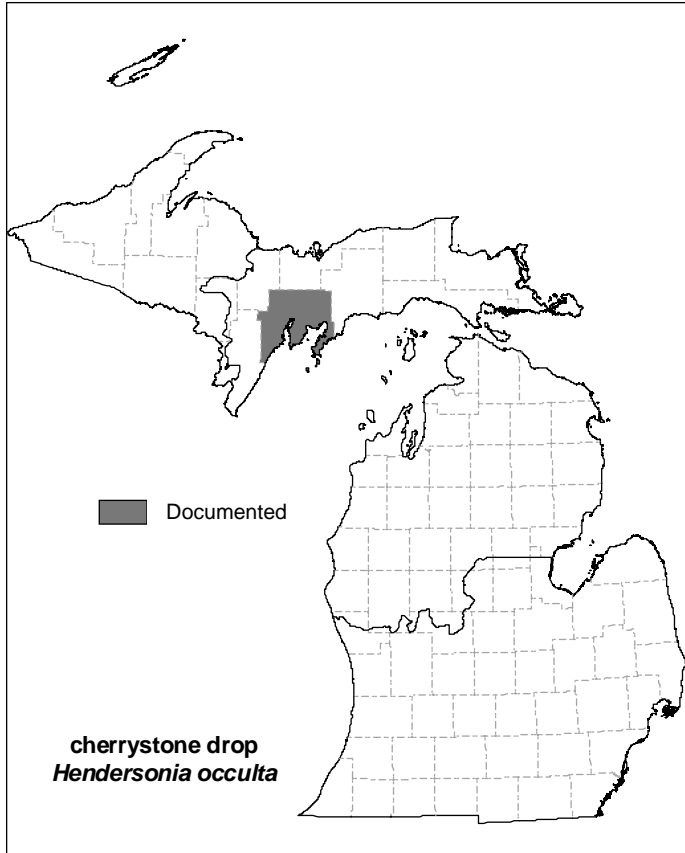
(*Mesomphix cupreus*)

DISTRIBUTION & ABUNDANCE: State listed as special concern.

ASSOCIATED LANDSCAPE FEATURES: unknown

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need additional surveys to assess abundance and distribution; need to identify habitat; need basic life history information; need to identify threats.



cherrystone drop

(*Hendersonia occulta*)

DISTRIBUTION & ABUNDANCE: Known from only two sites in Michigan. It is considered critically imperiled in the State and is State-listed as threatened.

ASSOCIATED LANDSCAPE FEATURES: lowland hardwood; lowland conifer; river/stream/riparian/floodplain corridor; alvar/rock; inland rock/cliff/ledge; unknown

ASSOCIATED THREATS: lack of scientific knowledge; unknown

COMMENTS: Need surveys to assess abundance and distribution; need basic life history information; need to identify threats.