

Land mollusks
of
Northeastern United States
and Southeastern Canada

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Introduction

The terrestrial molluscan fauna of Northeastern United States and Southeastern Canada is relatively depauperate in comparison to elsewhere in eastern North America. There are approximately 75 species of land snails and slugs native to the region. Another 20 species have been introduced by human activities, some of which have become abundant in natural habitats (Chichester & Getz, 1971, 1973).

The terrestrial molluscan fauna of the Eastern North America is most abundant and diverse in the southern Appalachian Mountains. In excess of 200 species are native to that region. The southern Appalachians were not subjected to glaciation during the Pleistocene Epoch, as was much of the region to the north and northwest, and thus served as a refugium for terrestrial snails, as well as for other groups of plants and animals.

The extreme elevational gradients and dissected topography of the southern Appalachians allowed for differentiation and survival of species with varying physiological and ecological requirements. The great diversity of vegetation types, including trees, shrubs, and herbaceous species (Whittaker, 1956) and the prevalence of bedrock rich in calcium carbonate (Clark, 2001), an essential component of snail shells (Hotopp, 2002; Skeldon, 2007), contributed to the abundance of species of terrestrial snails and slugs in the southern Appalachians. Herbaceous vegetation and leaf litter form the primary source of food for mollusks (Mason, 1970); dead leaves and especially the associated fungal growth provide an abundant source of food for mollusks (Burch, 1955, 1956). The diversity of snails in the southern Appalachians is closely correlated with diversity of tree species (Getz & Uetz, 1994).

Following release of the northern Appalachians from glacial ice approximately 15,000 years ago, species of plants and animals dispersed outward from the southern Appalachian refugium. Less vagile species, such as terrestrial mollusks, have been slow in moving northward to northeastern United States and southeastern Canada. Not only are postglacial factors involved in the lesser diversity of the terrestrial mollusk fauna of the northern Appalachians, but geology of the region is also a factor. The bedrock of much of the northeast is low in calcium carbonate, which contributes to the paucity of the terrestrial snail fauna of the region. Tree species are also less diverse than in the southern Appalachians, providing fewer food niches for snails.

The only key to identification of species of terrestrial mollusks of the Northeast is Burch's (1962) out-of-print *"How To Know The Eastern Land Snails."* Because Burch's key covers all of eastern North America, including the southern Appalachians, use of the key to identify snails of the Northeast involves eliminating species found only in the more southern regions, thus adding difficulty to the identification process. By restricting coverage to the species found only in the six New England states (Connecticut, Massachusetts, Rhode Island, Maine, New Hampshire, and Vermont), as well as extreme north-eastern New York and south-eastern Canada, we greatly simplify the identification process.

We have included in our key only native species and introduced species that have become "naturalized", i.e., commonly found in natural habitats. We do not include species found primarily associated with glass ("green") houses or nursery farms. The keys in this handbook are based on collections made at over 700 localities in the New England states. The snail specimens were deposited in the mollusk collections of the University of Michigan Museum of Zoology and

the slug specimens were deposited in the Natural History Museum of the University of Connecticut.

Most species of snails of the Northeast are very small; few of the larger species found further south occur in this region. Collecting small species requires concerted effort and searching in specific sites. The most productive place to search for small species is under the loose bark of decaying fallen trees. Such fallen trees should be in the stage of decay where the bark will lift off easily, exposing the wood of the log and the underside of the slabs of bark. The exposed wood of the log and the underside of the slabs of bark are usually rich in fungal growth. This is the microhabitat of many small species. Scraping away the leaf litter from the base of tree trunks, stumps, and around stone walls will expose both small and large species. The underside of large rocks and small fallen limbs that are loosely embedded in the soil and leaf litter also may harbor small species. Most introduced slugs and snails are associated with disturbed habitats, i.e., roadsides, cemeteries, campsites, lawns, flower beds, gardens, and places where debris has been dumped. Observations of slime trails across patio blocks and sidewalks will provide an indication as to where to search for slugs at night.

Taxonomic trends

There have been number of recent taxonomic revisions at the family, genus and species levels. These revisions have been based upon anatomical studies, especially those involving the digestive system and the fine structure of the reproductive system, and molecular studies such as those involving mitochondrial DNA analyses.

Because the characteristics upon which most of these revisions are based are not externally observable, the unequivocal identification of some species is difficult or impossible without dissection. This is particularly true for the majority of introduced European slugs. Descriptions and diagrams of the reproductive systems of some of the slugs are available in Chichester & Getz (1973, and on web site <http://hdl.handle.net/2142/8773>).

It is beyond the scope of this key to incorporate the defining characters for these recent changes or to provide for the precise identification of sibling (cryptic) species. Some relevant papers are referenced for those interested in pursuing the classification in more detail.

The genus *Deroceras* (including the two species found in the Northeast, *Deroceras leave* and *Deroceras reticulatum*) is removed by some from the family Limacidae and placed into its own family, Agriolimacidae (Watson & Dallwitz, 2005). Configuration of the digestive track is the primary means of distinguishing between the two families. The intestine of Agriolimacidae (*Deroceras*) has four folds, with two backwardly directed loops, whereas that of Limacidae has six folds, with three backwardly directed loops (Pilsbry, 1948). To differentiate between the two families, therefore, requires dissection. Because *Deroceras* is readily distinguished from the other genera of Limacidae solely on external traits, we leave *Deroceras* in Limacidae.

The family Succineidae is complex with a large number of described species for each of the genera (Pilsbry, 1948; Hoagland & Davis, 1987). The systematics of the three genera found in the Northeast (*Succinea*, *Oxyloma*, and *Catinella*) have yet to be analyzed using modern DNA tools. We therefore relegate all individuals of each genus to the most characteristic species of each.

Although there are a number of species of *Philomycus* and *Pallifera* (Philomycidae) in North America, only two species of each genus appear to be present in the Northeast (Branson, 1968; Hubricht, 1953; Fairbanks, 1989; Martin, 2000).

Two cryptic species of the introduced *Arion subfuscus* complex (*A. subfuscus* and *A. fuscus*) have been identified in Europe (Pinceel *et al.*, 2004). Mitochondrial DNA analyses have suggested the former may be subdivided into five divergent mtDNA lineages (*A. subfuscus* S1-S5; Pinceel *et al.*, 2005a, b). These authors further showed that *A. subfuscus* S-1 is the lineage that has become established in Northeastern United States. Because of the potential for multiple introductions, however, DNA analyses will be necessary to clarify the taxonomic status of the morphologically diverse North American populations.

Allozyme analyses of populations of the introduced *Arion fasciatus* complex first concluded that *Arion fasciatus*, *A. circumscriptus*, and *A. silvaticus* in North America were monomorphic species. More recent analyses of the complex in Europe suggested that each “species” consists of a number of genotypes (strains), that regularly co-occur and which raises the question about the validity of the three described “species” (Backeljau *et al.*, 1997; Jordaens *et al.*, 2000). That the three species seem to be easily distinguished in North America may be a result of founder effects. DNA analyses will be necessary to determine the true taxonomic status of North American populations.

The introduced *Arion intermedius* has been found to display considerable variation in Europe, with the potential for interbreeding with other species of *Arion* (Backeljau *et al.*, 1992; Quinteiro *et al.*, 2005; Reise *et al.*, 2001). The taxonomic implications for North American populations has not been investigated, however.

The introduced *Arion hortensis* also is a complex that includes cryptic species (Iglesias & Speiser, 2001) and other variants. Some of these have been reported from North America (Davies, 1977, 1979; Pearce & Bayne, 2003; Forsyth, 2004; Hotopp & Pearce, 2006). As is true for the other introduced *Arion*, analyses of North American populations are needed to determine the taxonomic status of the species complex.

Acknowledgements

We thank Ms Stephani Schaefer (SS) for making most of the drawings in this key. Her skills in depicting the key characters of the snails and slugs were an invaluable contribution to this work. Other drawings were taken from Burch, 1962 [JB]; a few were drawn by Art Cushing [AC]; three were taken from Baker [FB] (1939) and one was rendered by Lyle Chichester [LC]. The field work upon which the key is based was supported in part by NSF Grant GB 4306X (LLG) and a NASA Fellowship (LFC).

Classification and list of species (after Burch and Jung, 1988)

Subclass Pulmonata Cuvier 1817

Order Acetophila Férussac [Basommatophora Keferstein in part]

Superfamily Auriculoidea Férussac 1821

Family Carychiidae Jeffreys 1829

Genus *Carychium* Müller 1774 (*Carychium minimum* Müller)

C. exiguum (Say 1822)

Order Geophilia Férussac 1812 (= Stylommatophora Schmidt 1856)

Suborder Orthurethra Pilsbry 1900

Superfamily Cochlicopoidea Pilsbry 1900

Family Cochlicopidae Pilsbry 1900 [Cionellidae Clessin 1879]

Genus *Cochlicopa* Férussac 1821 [= *Cionella* Jeffreys 1829] (*Helix lubricus* Müller)

C. lubrica (Müller 1774)

Superfamily Pupilloidea Turton 1831

Family Vallonidae Morse 1864

Genus *Planogyra* Morse 1864 (*Helix asteriscus* Morse)

P. asteriscus (Morse 1857)

Genus *Vallonia* Risso 1826 (*Vallonia rosalia* Risso = *Helix costata* Müller)

V. costata (Müller 1774)

V. pulchella (Müller 1774)

Genus *Zoogenetes* Morse 1864 (*Helix harpa* Say)

Z. harpa (Say 1824)

Family Pupillidae Turton 1831

Subfamily Pupillinae s.s

Genus *Pupilla* Leach (in Fleming) 1828 (*Pupa marginata* Draparnaud = *Turbo muscorum* Linnaeus)

P. muscorum (Linnaeus 1758)

Genus *Pupoides* Pfeiffer 1854

P. albilabris (Adams 1841)

Subfamily Gastrocoptinae Pilsbry 1918

Genus *Gastrocopta* Wollaston 1878 (*Pupa acarus* Benson)

G. armifera (Say 1821)

G. contracta (Say 1822)

G. pentodon (Say 1821)

G. tappaniana ("Ward" C.B. Adams 1842)

G. corticaria (Say 1816)

Subfamily Vertigininae Pilsbry 1918

Genus *Columella* Westerlund 1878 (*Pupa inornata* Michaud)

C. edentula (Draparnaud 1805)

Genus *Vertigo* Müller 1774 (*Vergio pusilla* Müller)

V. bollesiana (Morse 1865)

V. elatior Sterki 1894

V. gouldi (Binney 1843)

V. nylanderi Sterki 1909

V. modesta (Say 1824)

V. morsei Sterki 894

V. ovata Say 1822

V. perryi Sterki 1905

V. pygmaea (Draparnaud 1801)

V. tridentata Wolf 1870

V. ventricosa (Morse 1865)

Family Strobilopsidae Pilsbry 1918

Genus *Strobilops* Pilsbry 1893 (*Helix labyrinthica* Say)

S. aenea Pilsbry 1893

S. affinis Pilsbry 1893

S. labyrinthica (Say 1817)

Suborder Heterurethra Pilsbry 1900

Superfamily Succinoidea Beck 1837

Family Succineidae Beck 1837

Genus *Catinella* Pease 1871

C. avara (Say 1824)

Genus *Oxyloma* Westerlund 1885 (*Succinea hungarica* Hazay)

O. retusa (Lea 1834)

Genus *Succinea* Draparnaud 1801 (*Helix putris* Linnaeus)

S. ovalis (Say 1817)

Suborder Sigmurethra Pilsbry 1900

Infraorder Holopodopes H.B. Baker 1962

Superfamily Rhytidoidea Pilsbry 1895

Family Haplotrematidae Baker 1925

Genus *Haplotrema* Ancey 1881 (*Selenites durante* Newcomb)

H. concavum (Say 1821)

Infraorder Aulacopoda Pilsbry 1896

Superfamily Arionoidea Gray (in Turton) 1840

Family Punctidae Morse 1864 (Endodontidae auct.)

Subfamily Punctinae Morse 1864

Genus *Punctum* Morse 1864 (*Helix minutissimum* Lea)

P. minutissimum (Lea 1841)

Subfamily Discinae Thiele 1931

Genus *Anguispira* Morse 1864 (*Helix alternata* Say)

A. alternata (Say 1817)

Genus *Discus* Fitzinger 1833 (*Helix ruderatus* Férussac)

D. cronkhitei (Newcomb 1865)

D. patulus (Deshayes 1830)

D. rotundatus (Müller 1774)

Subfamily Helicodiscinae “Pilsbry” Baker 1927

Genus *Helicodiscus* Morse 1864 (*Helix lineata* Say = *Planorbis parallellus* Say)

H. parallelus (Say 1821)

Family Philomycidae Gray 1847

Genus *Pallifera* Morse 1864 (*Philomycus dorsalis* Binney)

P. dorsalis (Binney 1842)

P. ohioensis (Sterki 1908)

Genus *Philomycus* Rafinesque 1820 (*Philomycus flexuolaris* Rafinesque 1820)

P. flexuolaris Rafinesque 1820

P. carolinianus (Bosc 1802)

Family Arionidae Gray (in Turton) 1844

Subfamily Arioninae Binney 1864

Genus *Arion* Férussac 1819 (*Limax ater* Linnaeus)

A. subfuscus (Draparnaud 1805)

A. intermedius (Normad 1852)

A. ater (Linnaeus 1858)

A. hortensis Férussac 1819

A. fasciatus complex

A. fasciatus (Nilsson 1822)

A. circumscriptus Johnston
1828

A. silvaticus Lohmander 1937

Superfamily Limacoidea Rafinesque 1815

Family Limacidae Rafinesque 1815

Subfamily Limacinae Lamarck 1801

Genus *Limax* Linnaeus 1758

L. maximus Linnaeus 1758

L. flavus Linnaeus 1758

Genus *Lehmannia* Heynemann 1861

L. valentiana (Férussac 1823)

Genus *Deroceras* Rafinesque 1820 (*Limax gracilis* Rafinesque = *Limax leavus* Müller)

D. leave (Müller 1774)

D. reticulatum (Müller 1774)

Superfamily Oleacinoidea Adams 1855

Family Vitrinidae Fitzinger 1833 (Zonitidae Mörch 1864)

Subfamily Vitrininae s.s. Fitzinger 1833

Genus *Vitrina* Draparnaud 1801 (*Heix pellucida* Müller)

V. limpida Gould 1850

Subfamily Gastrodontinae Tyron 1866

Genus *Striatura* Morse 1864 (*Helix milium* Morse)

S. milium (Morse 1859)

S. ferrea Morse 1864

S. exigua (Stimpson 1850)

Genus *Zonitoides* Lehmann 1862 (*Helix nitidus* Müller)

Z. arboreus (Say 1817)

Z. nitidus (Müller 1774)

Subfamily Zonitinae Mörch 1864

Genus *Glyphyalinia* Martens 1892 (*Helix indentata* Say)

G. indentata (Say 1823)

G. rhoadsi (Pilsbry 1899)

G. burringtoni (Pilsbry 1928)

Genus *Nesovitrea* Cooke, 1921

N. binneyana (Morse 1864)

N. electrina (Gould 1841)

Genus *Mesomphix* Rafinesque 1819

M. inornatus (Say 1921)

M. cupreus (Rafinesque 1831)

Genus *Hawaiiia* Gude 1911 (*Helix kawaiensis* Pfeiffer = *Helix minuscula* Binney)

H. minuscula (Binney 1840)

Genus *Oxychilus* Fitzinger 1833 (*Helix cellarius* Müller)

O. cellarius (Müller 1774)

O. draparnaldi (Beck 1837)

O. alliarius (Miller 1822)

Genus *Paravitrea* Pilsbry 1898 (*Helix capsella* Gould)

P. multidentata (Binney 1840)

Family Euconulidae Clessin 1879 (Helicarionidae Bourguignat 1883, emend.)

Subfamily Euconulinae Baker 1928

Genus *Euconulus* Reinhardt 1883 (*Helix fulva* Müller)

E. chersinus (Say 1821)

E. fulvus (Müller 1774)

Subfamily Gastrodontinae Tryon 1866

Genus *Ventridens* Binney 1863

V. intertexus (Binney 1841)

V. ligera (Say 1821)

V. suppressus (Say 1829)

Infraorder Holopoda Pilsbry 1896

Superfamily Mesodontoidea Tryon 1866

Family Mesodontidae Tryon 1866 (Polygyridae Pilsbry 1895)

Subfamily Mesodontinae s.s.

Genus *Mesodon* Rafinesque (in Férussac) 1821 (*Helix thyroidus* Say)

M. sayanus (Pilsbry 1906)

M. thyroidus (Say 1817)

M. zaletus (Binney 1837)

Genus *Stenotrema* Rafinesque 1819 (*Stenotrema convexa* Rafinesque = *Helix stenotrema* Pfeiffer)

S. fraternum (Say 1824)

S. leai (Binney 1840)

S. hirsutum (Say 1817)

Subfamily Triodopsinae Pilsbry 1940

Genus *Neohelix* Von Ihering 1892

N. albolabris (Say 1817)

Genus *Triodopsis* Rafinesque 1819
(*Triodopsis lunula* Rafinesque = *Helix tridentata* Say)

T. dentifera (Binney 1837)

T. denotata (Férussac 1821)

T. tridentata (Say 1816)

Genus *Allogona* Pilsbry 1939

A. profunda (Say 1821)

Family Hygromiidae Tryon 1866 (= Helicellidae Wenz 1923)

Subfamily Hygromiinae Tryon 1866

Genus *Trichia* Reuter 1876

T. hispida (Linnaeus 1758)

T. striolata (Pfeiffer 1828)

Family Helicidae Rafinesque 1815

Genus *Cepaea* Held 1837

C. hortensis (Müller 1774)

C. nemoralis (Linnaeus 1758)

Key characters

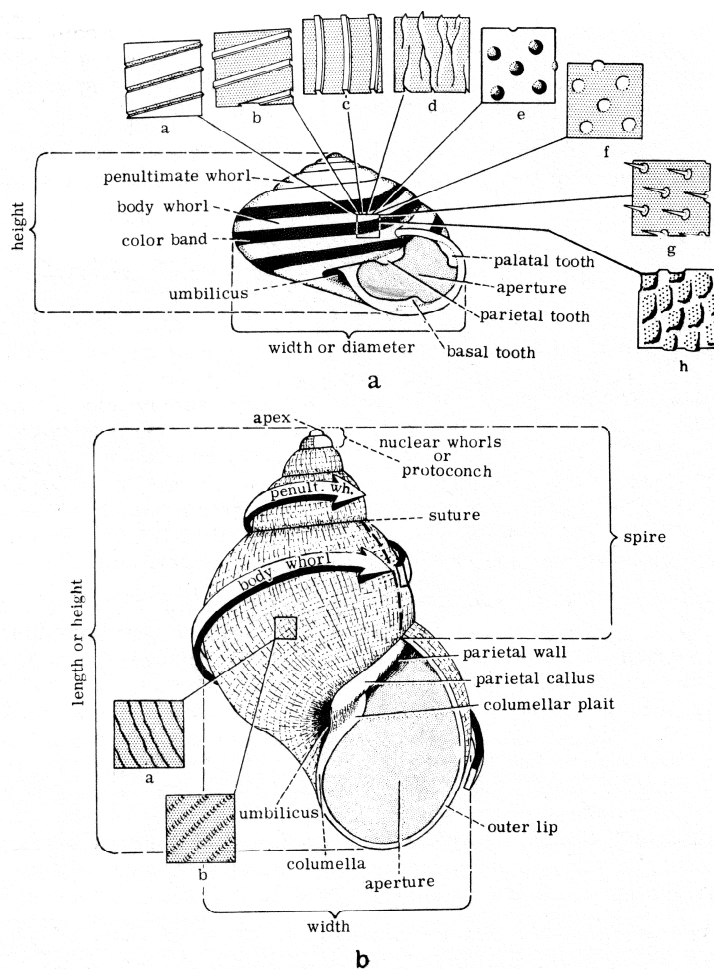


Fig. 1. Shell terminology and surface sculpture. Above (a): a, striae (indented spiral lines); b, lirae (raised spiral lines); c, ribs, riblets (raised transverse lines); d, wrinkles; e, puncta or pits; f, papillae or granules. Below (b): a, transverse or growth lines; b, spiral lines or striae. (From Burch 1962).

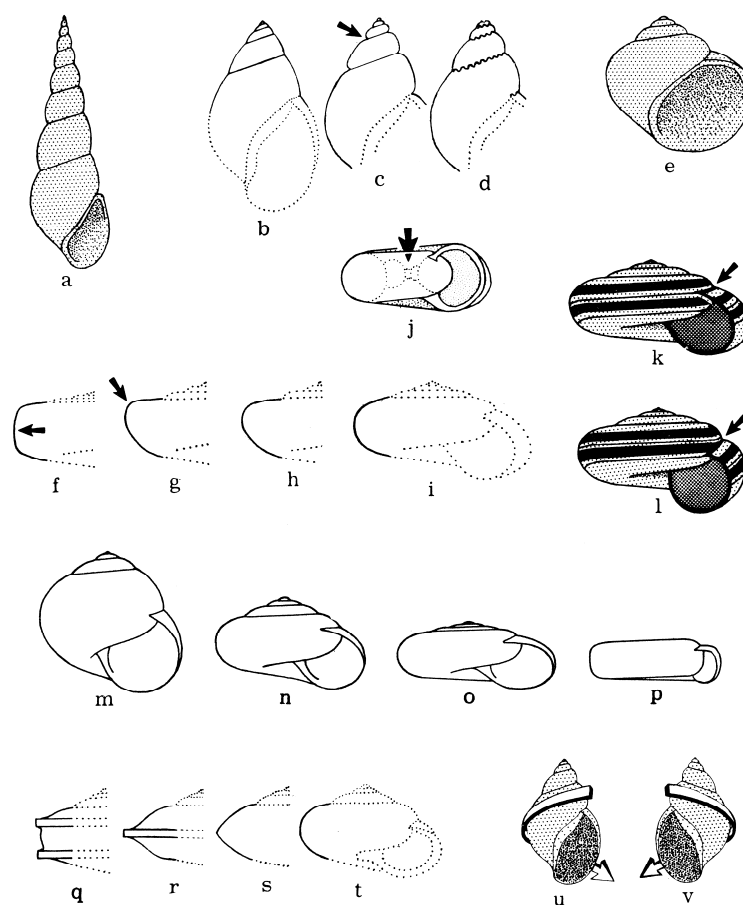


Fig. 2. Shell terminology: a, shell with whorls increasing gradually in size; b, sutures slightly indented; c, sutures strongly indented; d, crenulate sutures; e., whorls rapidly increasing in size; f, flattened whorl; g, shouldered whorl; h, moderately shouldered whorl; i, rounded whorl; j, sunken spire; k, last whorl not descending in front, i.e., not deflected; l, last whorl descending in front, i.e., deflected; m, globose shell; n, depressed shell; o, strongly depressed shell; p, discoidal shell; q, doubly carinate periphery; r, carinate periphery; s, angular periphery; t, round periphery; u, dextrally (to the right) whorled shell; v, sinistraly (to the left) whorled shell. (From Burch 1962)

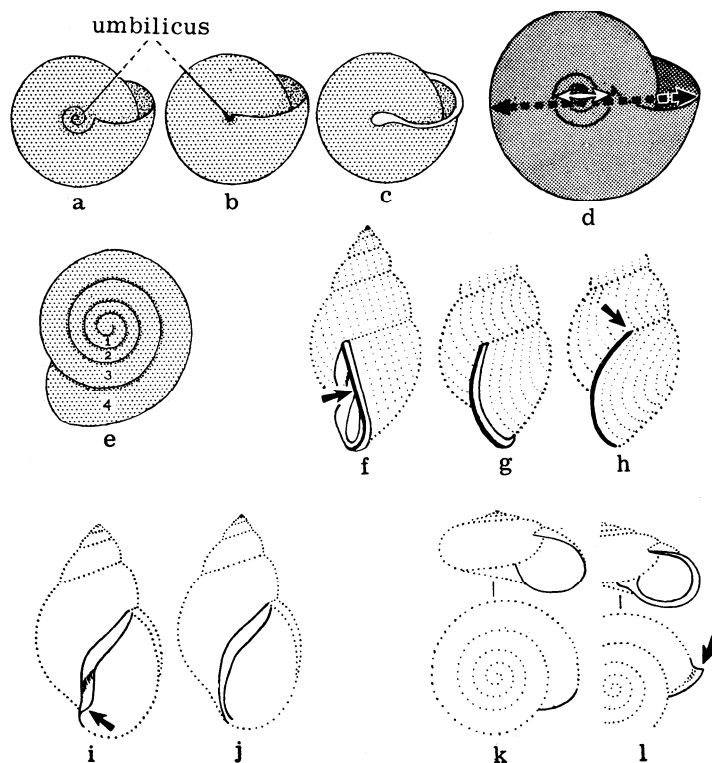


Fig. 3. Shell terminology: a, umbilicate shell; b, perforate shell; c, imperforate shell; d, method of measuring shell and umbilicus diameters; e, method of counting whorls; f, straight outer lip; g, curved outer lip; h, lip retracted to the suture; i, truncate columella; j, straight columella; k, straight (not reflected) lip; l, reflected lip. (From Burch 1962)

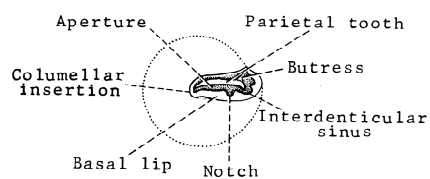


Fig. 4. Apertural terminology for *Stenotrema*. (From Burch 1962)

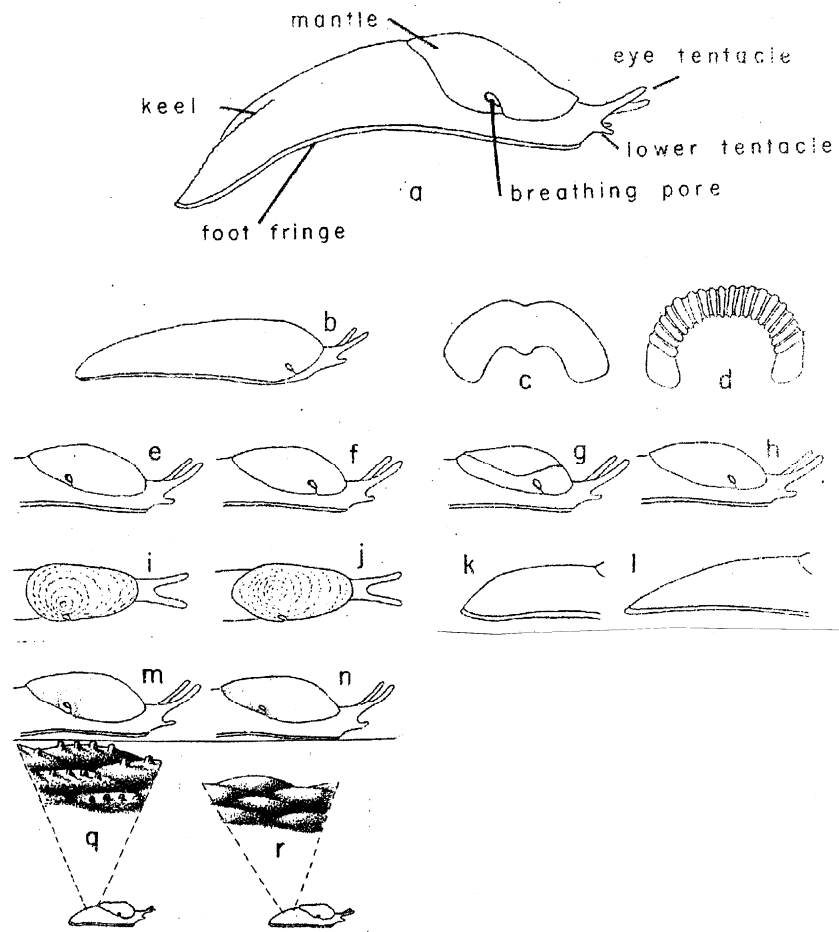


Fig. 5. Diagnostic characters of slugs: a, generalized slug; b-r, see key. (From Chichester & Getz, 1973).

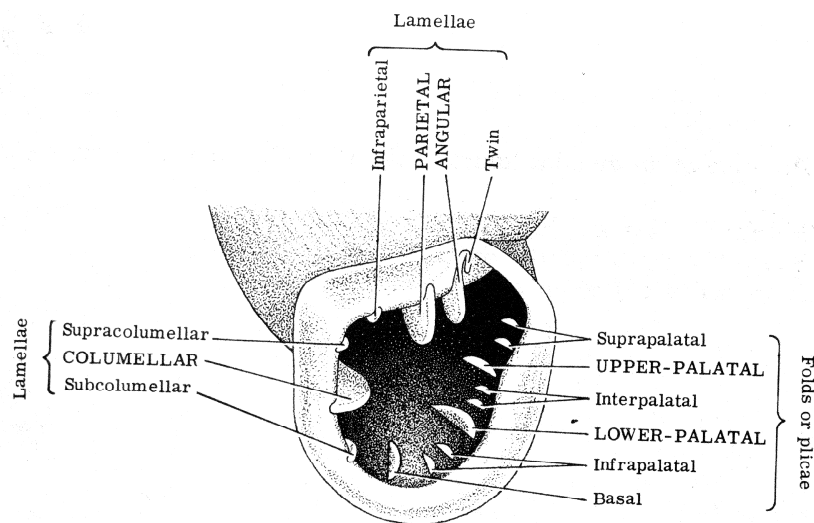


Fig. 6. Terminology of Pupillid teeth (From Burch 1962, after Pilsbry).

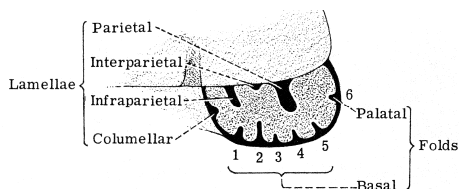


Fig. 7. Terminology of Strobilopsid teeth (From Burch 1962, after Pilsbry).

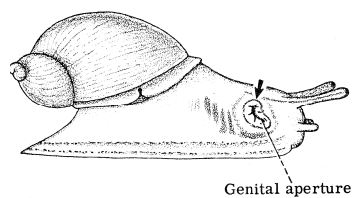


Fig. 8. Genital aperture (*Succinea ovalis*) (From Burch 1962).

Key to Families

- 1a. Shell present 2
- 1b. Shell absent 20

- 2a. Shell succiniform. SUCCINEIDAE
- 2b. Shell not succiniform. 3

- 3a. Shell dome or beehive shaped 4
- 3b. Shell not dome or beehive shaped 6

- 4a. Shell diameter greater than 8 mm VITRINIDAE (*Ventridens*)
- 4b. Shell diameter less than 8 mm 5

- 5a. Lip reflected STROBILOPSIDAE
- 5b. Lip not reflected EUCONULIDAE (*Euconulus*)

- 6a. Shell pupilliform 7
- 6b. Shell not pupilliform 8

- 7a. Lip reflected, thickened *and* shell length less than 2.5 mm CARYCHIIDAE
- 7b. Lip not thickened or if thickened, shell length greater than 4 mm PUPILLIDAE

- 8a. Shell fusiform or spindle-shaped COCHLICOPIDAE
- 8b. Shell heliciform 9

- 9a. Shell diameter greater than 5 mm *and* lip reflected 10
- 9b. Shell diameter less than 5 mm or if greater than 5 mm, lip not reflected 11

- 10a. Lip not thickened; normally banded shell HELICIDAE
- 10b. Lip thickened; shell not banded (except *Allogona*). MESODONTIDAE

- 11a. Shell diameter greater than 13 mm 12
- 11b. Shell diameter less than 13 mm 14

- 12a. Shell with reddish splotches PUNCTIDAE (*Aguispira*)
- 12b. Shell without reddish splotches 13

- 13a. Umbilicus width greater than 1/5 shell diameter HAPLOTREMATIDAE
- 13b. Umbilicus width less than 1/5 shell diameter VITRINIDAE (in part)

- 14a. Shell globose, or if flattened with a reflected lip; shell diameter less than 3 mm VALLONIDAE
- 14b. Shell flattened, lip not reflected; size variable 15

- 15a. Shell with spiral lirae or riblets 16
- 15b. Shell without spiral lirae or riblets 18

- 16a. Shell diameter greater than 3 mm PUNCTIDAE (in part)
- 16b. Shell diameter less than 3 mm 17

- 17a. Spire depressed VITRINIDAE (in part)
- 17b. Spire slightly elevated PUNCTIDAE (*Punctum*)

- 18a. Umbilicus width greater than 1/5 shell diameter HAPLOTREMATIDAE
- 18b. Umbilicus width less than 1/5 shell diameter. 19

- 19a. Columellar margin reflected; shell diameter greater than 7 mm
. HYGROMIIDAE
- 19b. Columellar margin not reflected; shell diameter variable . . . VITRINIDAE(in part)

- 20a. Mantle covers more than 2/3 of the back PHILOMYCIDAE
- 20b. Mantle covers less than 1/2 of the back 21

- 21a. Breathing pore in posterior half of mantle LIMACIDAE
- 21b. Breathing pore in anterior half of mantle ARIONIDAE

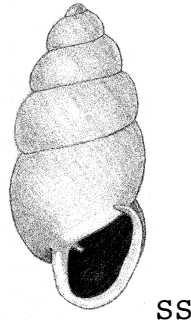
Key to Species

FAMILY CARYCHIIDAE

Carychium exiguum is the only member of the family to occur in the northeast.

Length, 1.8-2.0 mm; about 4.5 whorls. Shell transparent, whitish; two lamellae which extend spirally upward along the collumellar axis as an ascending shelf, one large and conspicuous at the aperture, one small and less conspicuous, revolving below the large lamella. Animal whitish, almost translucent.

Southeastern Canada and New England, south to Alabama, west to Colorado and southwestern New Mexico.



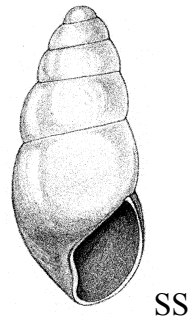
Carychium exiguum (Say)

FAMILY COCHLICOPIDAE

Cochlocopa lubrica is the only member of this family in the northeast.

Length, 5.0-7.5 mm; 5.5-6.0 whorls. Very smooth, glossy, almost translucent shell. Lip not reflected, thickened on inside the aperture. No teeth. Aperture subvertical, normally ovate.

Southeastern Canada and New England south to South Carolina, west to Iowa, Alaska and southern Arizona.



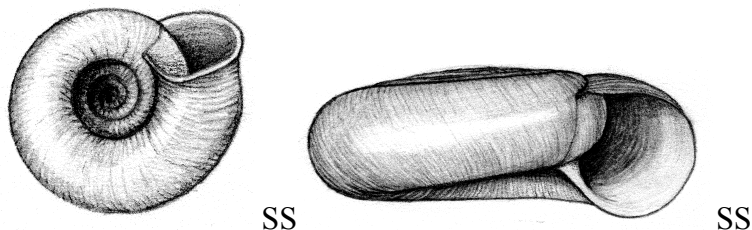
Cochlocopa lubrica (Müller)

FAMILY HAPLOTREMATIDAE

Haplotrema concavum is the only member of this family in the northeast.

Shell very depressed. Glossy, greenish-yellow to white. Very fine spiral lines. Umbilicus deep and widely open. Aperture almost round or slightly elliptical, the upper margin flat or slightly depressed. Carnivorous, feeding on other snails.

Southeastern Canada and New England south to Florida, west to Iowa, Missouri and Arkansas.



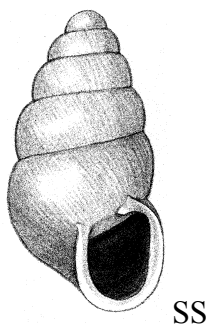
Haplotrema concavum (Say)

FAMILY PUPILLIDAE

1a. Lip strongly reflected and thickened *Pupoides albilabris*

Length, 4.2-5.0 mm; 6-6.5 whorls. Dark cinnamon. Shell elongate, tapering to apex; often coated with dirt. Minutely perforate; aperture oval. Angular lamella in form of a callus in outer angle of aperture; no other aperture teeth. Lip thickened and widely reflected.

Southeastern Canada and New England, south to the Gulf States, west to North Dakota and Arizona.



Pupoides albilabris (Adams)

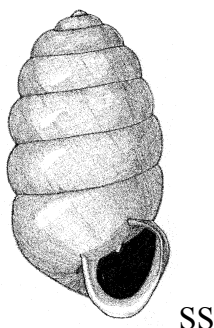
1b. Lip only slightly reflected or not at all; lip not thickened 2

2a. Aperture without teeth 3

2b. Aperture with at least one tooth 4

3a. Lip slightly reflected *Pupilla muscorum*

Length, 3.2-4.0 mm; 5.5-7.5 whorls. Shell perforate. Aperture normally toothless, but may have one or more teeth. Palatial fold is small in shells with teeth. Lip slightly reflected.
New England south to New Jersey, west to Oregon, Alaska, Texas and Northern Arizona.



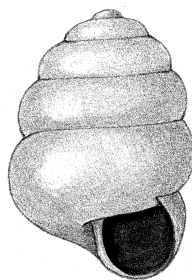
SS

***Pupilla muscorum* (Linnaeus)**

3b. Lip not reflected *Columella edentata*

Length, 1.7-2.5 mm; 5.5-6.5 whorls. Dark cinnamon, sometimes with whitish streaks. Cylindrical shell, tapering slightly towards apex. Shell perforate; aperture obliquely rounded, usually no teeth. Lip not reflected.

Southern Canada from Labrador to British Columbia, south to, Alabama, west to Iowa and Oregon.



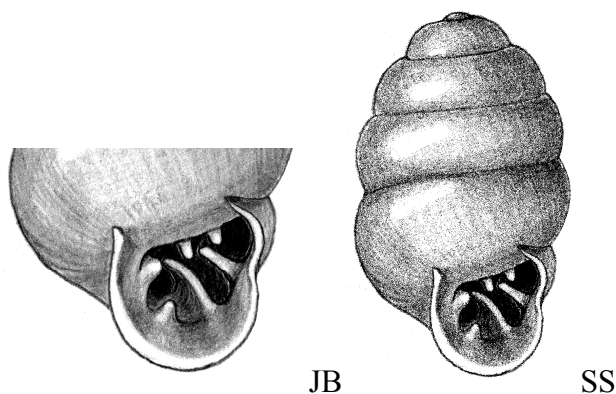
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***Columella edentata* (Draparnaud)**

- 4a. Notch on outer margin of lip (genus *Vertigo*) 5
4b. Outer margin of lip without a notch 17

- 5a. Lower palatal fold very long, extending far back into shell *Vertigo milium*

Length, 1.4-1.8 mm; 4.5-5.0 whorls. Dark amber-chestnut. Weakly striated. Lower palatal fold exceptionally longer, extending far back into shell. Aperture with six teeth. Southeastern Canada, south to the Florida Keys, west to South Dakota and Arizona.



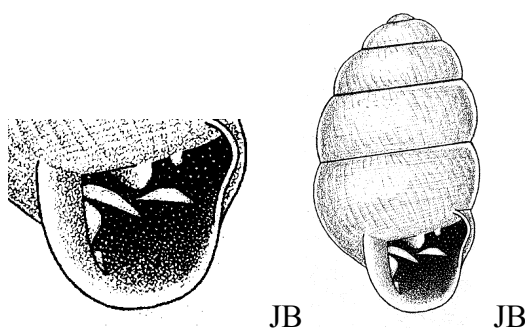
***Vertigo milium* (Gould)**

- 5b. Lower palatal fold short 6

- 6a. Lower palatal folds far back in aperture, emerging only to inner end of upper palatal fold; deep impressions in back of shell over the palatal folds *Vertigo nylanderi*

Length, 1.6-1.7 mm; 4.5-5.0 whorls. Acute apex. Angular and subcollumellar lamellae poorly developed. Aperture with six teeth. Lower palatal lamella located deep within aperture; deeper immersion of long lower palatal fold than in *V. gouldi* and *V. bollesiana*.

Southeastern Canada and northern New England.



***Vertigo nylanderi* Sterki**

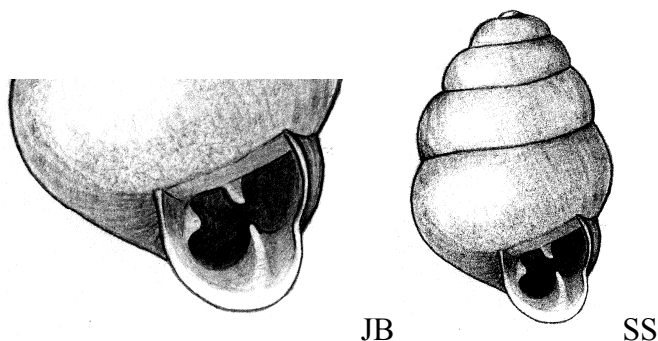
- 6b. Lower palatal folds not deep-seated; no deep impression on back of shell 7

- 7a. Three distinct teeth 8
7b. Four or more teeth 10

8a. Teeth well-developed *Vertigo tridentata*

Length 1.8-2.3 mm; about 5 whorls. Ovate to tapering oblong. Aperture narrow. Three white teeth. Absence of basal and angular teeth distinguishes it from other *Vertigo* species.

Southeastern Canada and New England, south to West Virginia, west to Minnesota and Texas.



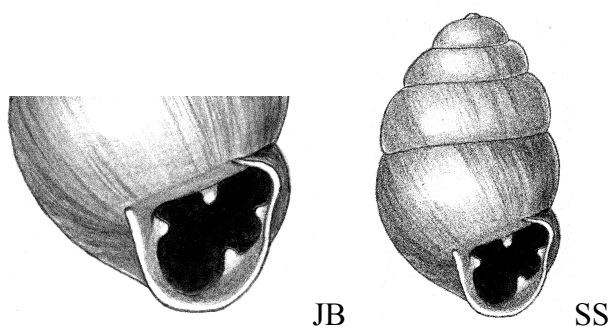
***Vertigo tridentata* Wolf**

8b. Teeth reduced 9

9a. Shell height more than 2 mm *Vertigo modesta*

Length, 2.2-2.7 mm; 4.5-5.5 whorls. Dark olive-brown. Distinct growth lines on middle whorls, weak on others. Typically four teeth in aperture, in form of a cross; sometimes only three and other times five teeth. Teeth white.

Southeastern Canada and New England, west to California and Arizona.

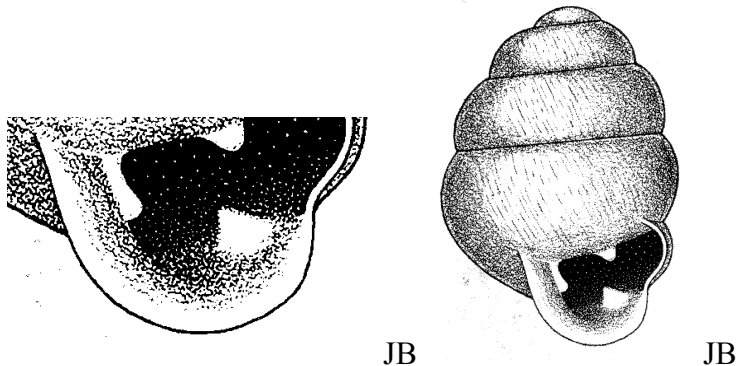


***Vertigo modesta* (Say)**

9b. Shell height 1.5-1.6 mm *Vertigo perryi*

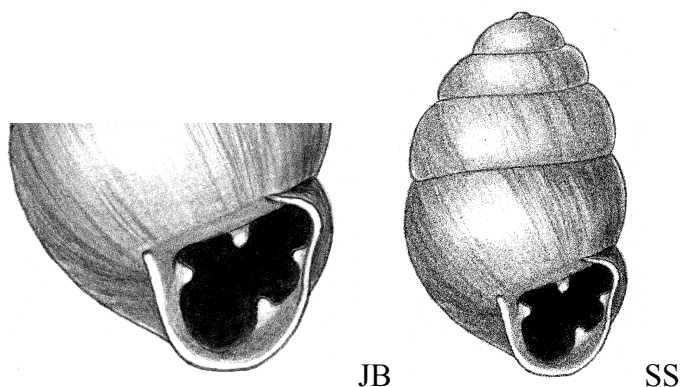
Length, 1.5-1.6 mm; about 4.5 whorls. Dark olive-buff. Ovate shell. Three (infrequently 4) brownish teeth.

Southern New England.



Vertigo perryi Sterki

10a. Four teeth form a cross in aperture (palatal tooth very small) *Vertigo modesta*



Vertigo modesta (Say)

10b. Teeth do not form a cross in aperture 11

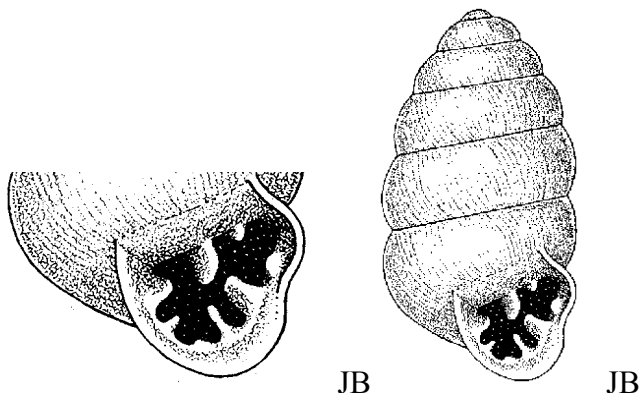
11a. Six or more teeth 12

11b. Fewer than six teeth 13

12a. Shell more than 2.5 mm long *Vertigo morsei*

Length, 2.7-3.0 mm (largest species of genus); 6.0-6.5 whorls. Auburn to chestnut-brown. Shell cylindrical. More whorls (6) than *V. ovata* (5). Whorls slowly increase in size. Aperture small and rounded, with 8-9 teeth. Middle of outer lip deeply indented.

Southeastern Canada and New England, south to Florida Keys, west to Alaska, Oregon, and Arizona.

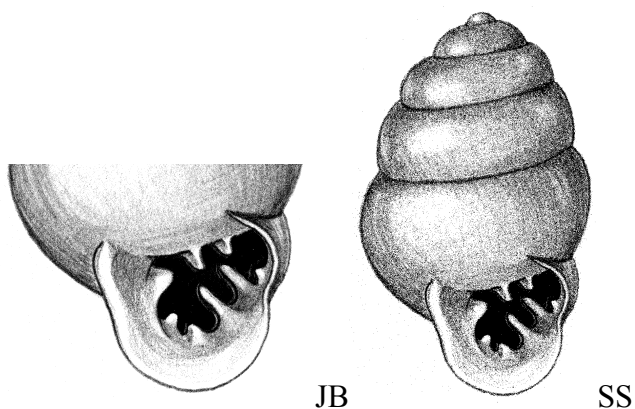


Vertigo morsei Sterki

12b. Shell less than 2.5 mm long *Vertigo ovata*

Length, 2.2-2.3 mm; 4.5-5.0 whorls. Auburn to dark brown. Last whorl relatively large. Palatal folds, columellar or lamellae, well-developed. Smaller than *V. morsei*.

Southeastern Canada and New England, south to Florida Keys, west to Washington and Arizona.

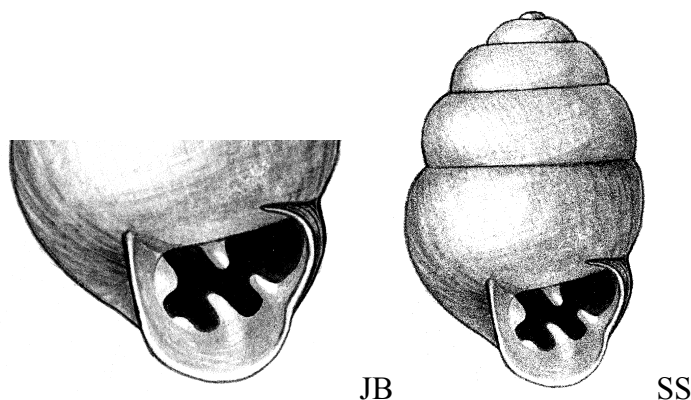


Vertigo ovata Say

- 13a. Distinct crest behind lip *Vertigo pygmaea*

Length, 1.8-2.0 mm; 5 whorls, the last whorl with a strong, light-colored crest a short distance behind the lip. Auburn-chestnut brown (darker than *V. gouldi*). Aperture truncate basally.

Southeastern Canada and New England south to Virginia, west to Ohio.



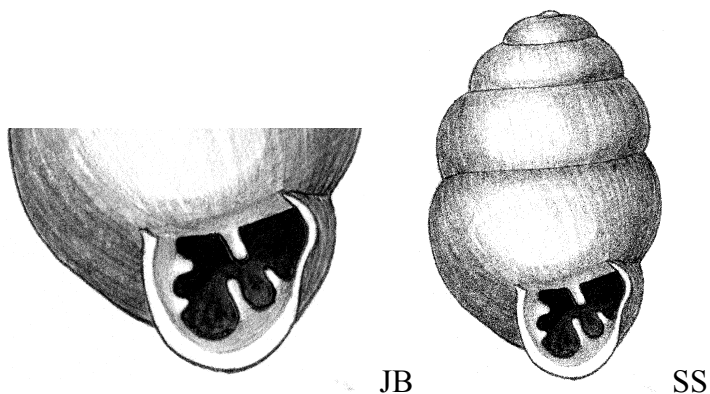
Vertigo pygmaea (Draparnaud)

- 13b. No crest behind lip 14

- 14a. Parietal lamella significantly larger than other teeth *Vertigo ventricosa*

Length 1.7-2.0 mm; 4.0-4.5 whorls. Aperture semi-circular, with 4-5 poorly developed teeth. Differs from *V. ovata* by smaller size and absence of angular lamella.

Southeastern Canada and New England, west to Michigan and Illinois.



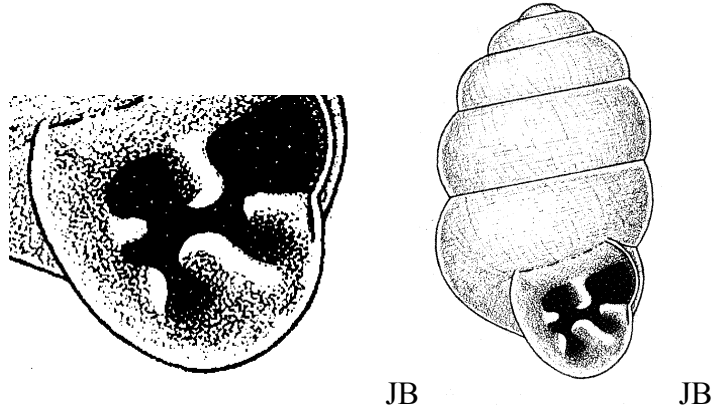
Vertigo ventricosa (Morse)

- 14b. Parietal lamella not significantly larger than other teeth 15

- 15a. Striae well-developed *Vertigo gouldi*

Length, 1.5-2.1 mm; 4.5-5.5 whorls. Light-brown to chestnut brown. Well-developed striae (distinguishes from other species of *Vertigo*). Growth lines prominent, especially on next to last whorl. Crest behind lip, but less strong than in *V. pygmaea*. Parietal lamella and palatal folds well-developed.

Southeastern Canada and New England, west to Michigan, southern Illinois, Colorado and Arizona.



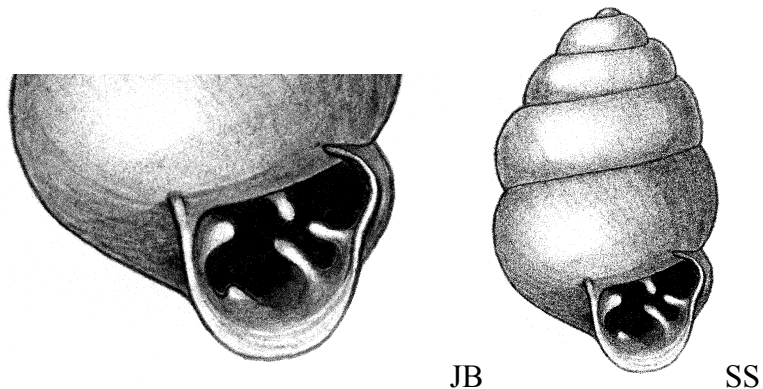
Vertigo gouldi (Binney)

- 15b. Striae weak 16

- 16a. Shell tapering, with an acute apex; shell 2.1-2.2 mm long *Vertigo elatior*

Length, 2.1-2.2 mm; about 5 whorls. Shell tapered from apex to body whorl. Five well-developed teeth in aperture. Larger and more elevated than *V. ventricosa*.

Southern Canada and northern New England west to Montana.

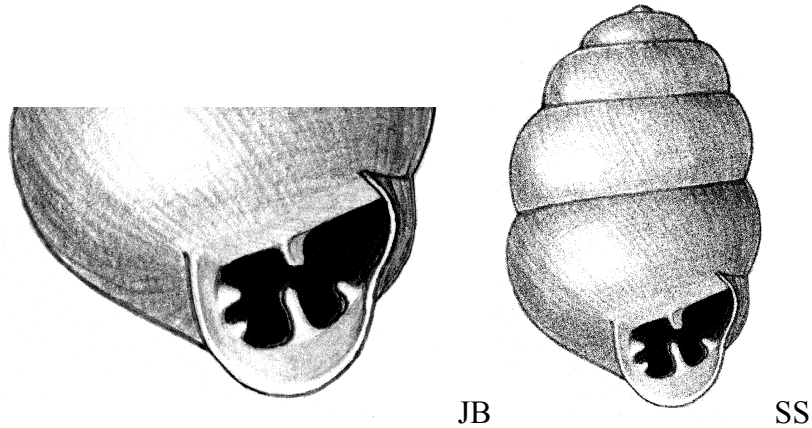


Vertigo elatior Sterki

- 16b. Shell ovate, apex obtuse; shell 1.5 mm long *Vertigo bollesiana*

Length, 1.5 mm; 4.5-5.0 whorls. Amber-brown to cinnamon color. Apex obtuse. Weak striae (distinguishes from *V. gouldi*). Growth lines prominent. Shell minutely perforate. Aperture with five teeth.

Southeastern Canada and New England, south to Virginia, west to Indiana and Michigan.



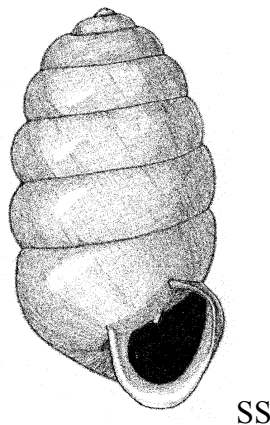
Vertigo bollesiana (Morse)

- 17a. Shell large, 3.0-4.8 mm long 18
 17b. Shell less than 2.5 mm long 19

- 18a. Single, small parietal tooth *Pupilla muscorum*

Length, 2.8-4.0 mm; 5.5-7.5 whorls. Shell perforate. Aperture normally toothless, but may have one or more teeth. Palatal fold small and tubercular. Lip slightly reflected.

New England south to New Jersey, west to Oregon and northern Arizona.

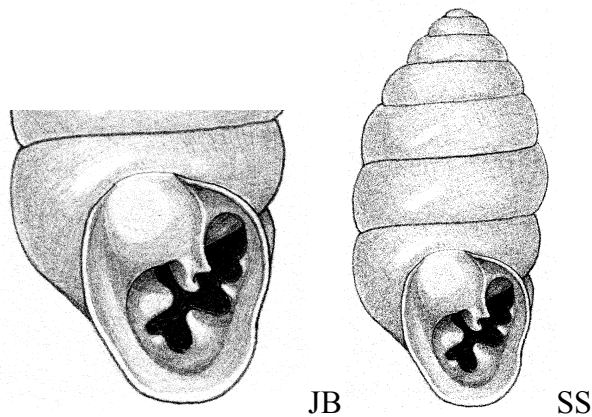


Pupilla muscorum (Linnaeus)

18b. Several large teeth in aperture *Gastrocopta armifera*

Length, 3.0-4.8 mm; 6.5-7.5 whorls. Shell paraffin-white. Shell oblong-shaped. Faint irregular growth lines. Perforate. Lip thin (in contrast to *G. contracta*), weakly reflected. Teeth large.

Southeastern Canada and New England, south to Florida, west to Colorado and New Mexico.



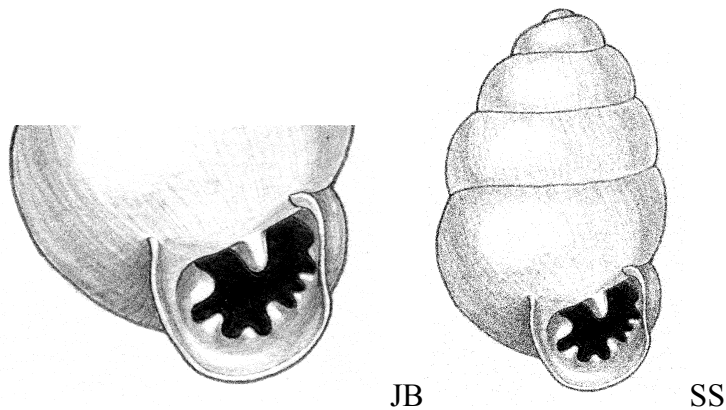
Gastrocopta armifera (Say)

19a. Seven to nine teeth in aperture 20
19b. Fewer than five teeth in aperture 21

20a. Shell ovate-conic *Gastrocopta tappaniana*

Length, 1.6-2.0 mm; 4-5 whorls. Clear corneous, whitish or gray. Spire more oval than in *G. pentodon*. Numerous very small aperture teeth (differ from others); only one tooth on the parietal wall. Larger and more oval than *G. pentodon*.

Southeastern Canada and New England, south to Georgia and Alabama, west to South Dakota and Arizona.

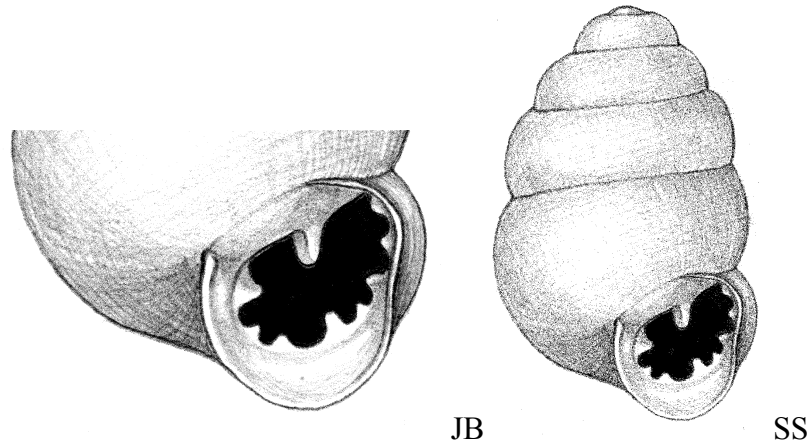


Gastrocopta tappaniana (Adams)

20b. Shell elongate-conic *Gastrocopta pentodon*

Length, 1.5-1.8 mm; about 5 whorls. Transparent whitish or corneous. Spire more tapered than *G. tappaniana*. Numerous very small aperture teeth; usually six on the columellar, basal, and other margins; one simple parietal tooth. Lower-palatal fold usually not as long as that in *G. tappaniana*. Lip teeth on a white callous rim.

Eastern Canada and New England south to central Florida, west to Colorado, Texas and Arizona.

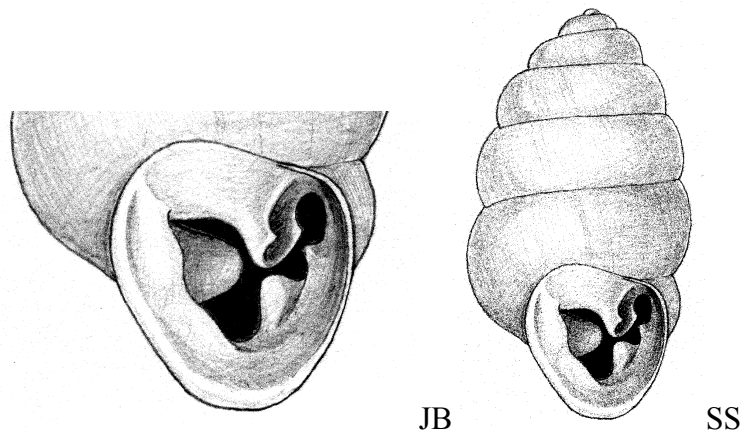


Gastrocopta pentodon (Say)

21a. Aperture almost filled with large teeth *Gastrocopta contracta*

Length, 2.2-2.5 mm; about 5.5 whorls. Conical form. Spire tapering, with irregular growth lines. Aperture triangular. Very large lamella that nearly fill the aperture. Angulo-parietal lamella joins the outer lip. Lip thickened (in contrast to *G. armifera*).

Southeastern Canada and New England, south to southern Florida, west to South Dakota and Texas.

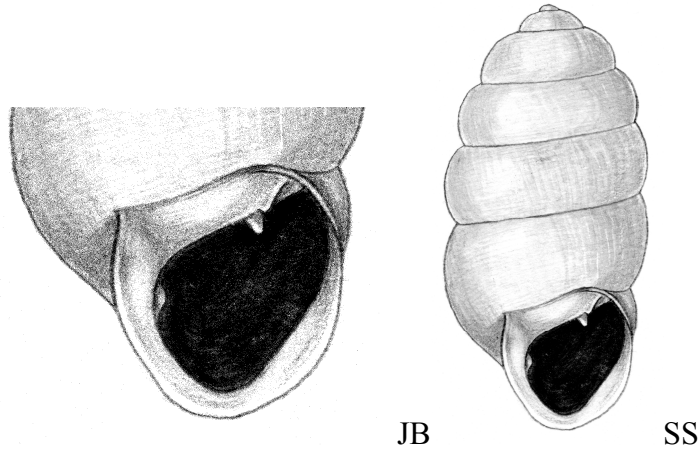


Gastrocopta contracta (Say)

- 21b. Only two small teeth in aperture *Gastrocopta corticaria*

Length, 2.5 mm; 5.5 whorls. Translucent white. Very reduced, barely developed aperture teeth; only two very small teeth (angulo-parietal and columellar lamella).

Southeastern Canada and New England, south to central Florida, west to Minnesota and Louisiana.



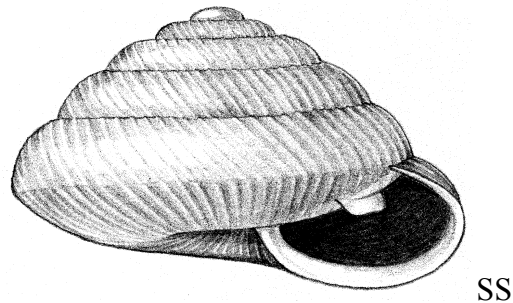
Gastrocopta corticaria (Say)

FAMILY STROBILOPSIDAE

- 1a. Outer edge of body whorl angular; spire slightly depressed *Strobilops aenea*

Width, 2.4-2.8 mm; about 5.5 whorls. Light to dark brown. Periphery of body whorl angular; base flattened below periphery. Ribs well-developed. Narrowly umbilicate. Two parietal lamellae.

Southern New England, south to central Florida, west to Michigan, Missouri and Arkansas.



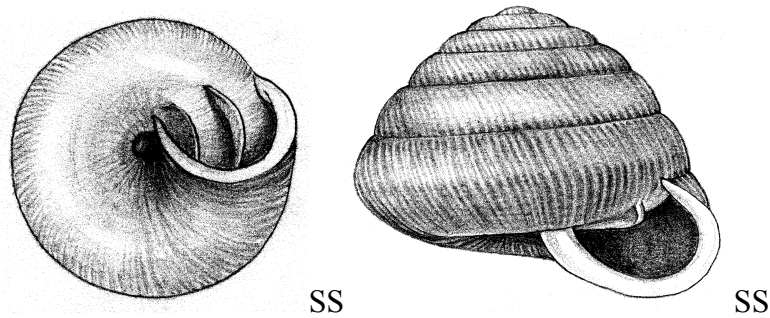
Strobilops aenea Pilsbry

- 1b. Outer edge of body whorl rounded; spire more elevated 2

2a. Ribs poorly developed on base of shell *Strobilops labyrinthica*

Width, 2.3-2.5 mm; about 5.5 whorls. Chestnut-brown. Periphery of body whorl rounded. Small umbilicus. Two parietal lamellae visible in aperture; do not form an uniform curve as in *S. affinis*. Lip reflected.

Southeastern Canada and New England, south to Georgia and Alabama, west to Minnesota and Arkansas.

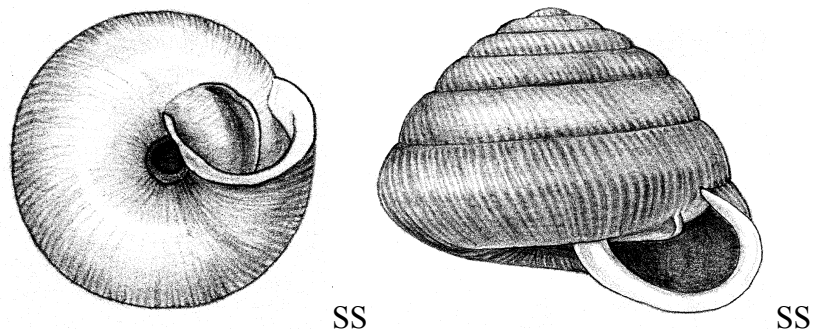


Strobilops labyrinthica (Say)

2b. Ribs well-developed on base of shell *Strobilops affinis*

Width, 2.7-2.8 mm; about 6.0 whorls. Periphery of body whorl rounded. Wider umbilicus than in *S. anena* and *S. labyrinthica*. Larger with spire somewhat less convex than *S. labyrinthica*. Only one parietal lamella (forms an uniform curve) emerges from the shell.

Southern New England, south to Alabama, west to Ohio, Illinois and Oklahoma.



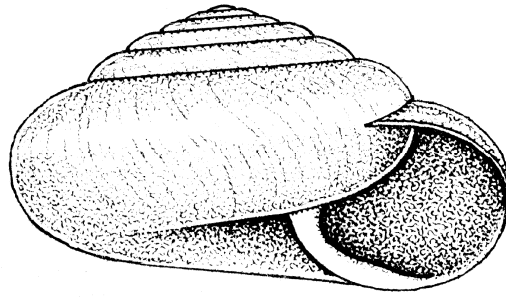
Strobilops affinis Pilsbry

FAMILY HYGROMIIDAE

- 1a. Outer edge of body whorl rounded; fine hairs often present in adults . . . *Trichia hispida*

Width, 7-9 mm; 5.0-6.0 whorls. Shell pale cinnamon-brown. Rounded whorls. Shell hirsute, often retained as adults. Slightly smaller than *H. striolata*. Aperture rounded.

Introduced from Europe; found in scattered localities in southeastern Canada and eastern New England.



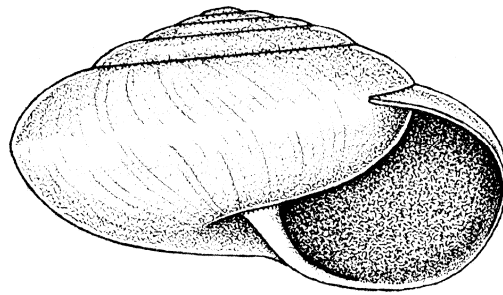
JB

***Trichia hispida* (Linnaeus)**

- 1b. Outer edge of body whorl slightly angular; fine hairs normally present only in young animals *Trichia striolata*

Width, 10-11 mm; 5-6 whorls. Tawny-olive or brownish-olive buff, often with pale band at the obtusely angular periphery. Hirsute as young, but loses hairs as adults. Aperture obtuse.

Introduced from central Europe; found locally in southeastern Canada and New England.



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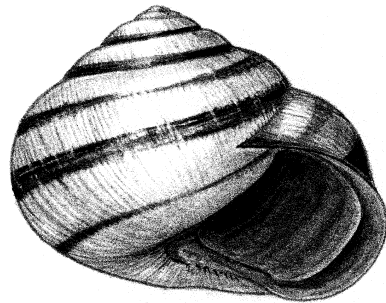
***Trichia striolata* (Pfeiffer)**

FAMILY HELICIDAE

1a. Lip dark *Cepaea nemoralis*

Width, 22-34 mm; about 5 whorls. Yellow, olive-red with 1-5 reddish-brown bands. Whorls rounded. Aperture ovate-lunate. Lip reflected; lip dark brown to almost black. Larger than *C. hortensis*.

Introduced from central and western Europe; found in scattered localities throughout North America.



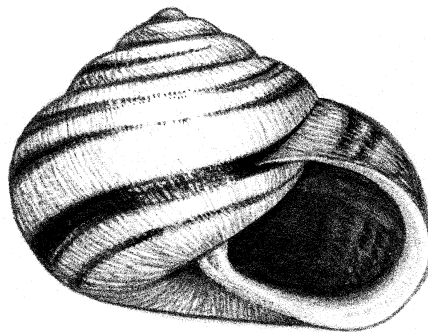
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Cepaea nemoralis (Linnaeus)

1b. Lip white *Cepaea hortensis*

Width, 16-21 mm; about 5 whorls. Yellow with 1-5 reddish-brown bands. Lip whitish. Smaller than *C. nemoralis*.

Introduced from central and northern Europe; found in scattered sites in southeastern Canada and northern New England.

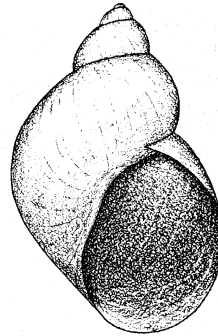


SS

Cepaea hortensis (Müller)

FAMILY SUCCINEIDAE

- 1a. Shell spire about as long as shell aperture *Catinella avara* (= *C. vermata*)
 Length 7-13 mm; 2.5-3.5 whorls. Pale yellow-olive. Very thin shell. Aperture elongate-ovate. Sharp lip.
 Southern Canada from Newfoundland to British Columbia south to the Gulf States and Arizona.

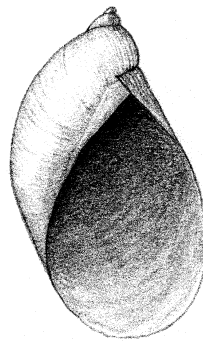


JB

Catinella avara (Say)

- 1b. Shell spire much shorter than shell aperture 2
 2a. Shell aperture broadly oval; margin of genital aperture conspicuously swollen
 *Succinea ovalis*

Length, 6-26 mm; 2.5-4.5 whorls. Shell pale horn, gray, greenish-yellow to polished white. Lip sharp. Aperture ovate, less narrow than in *Oxyloma retusa*.
 Southeastern Canada and New England, south to Alabama, west to North Dakota and Louisiana.



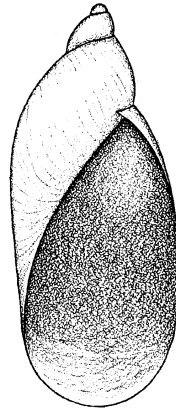
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Succinea ovalis Say

- 2b. Shell aperture narrowly oval; margin of genital aperture not swollen *Oxyloma retusa*

Length, 7.5-20 mm; 2.5-4.5 whorls. Pale horn, yellow to reddish yellow. Shell very thin. Aperture narrowly ovate, much longer than in *Succenia ovalis*.

Western New England, south to southern Pennsylvania, west to Montana and Ohio.



JB

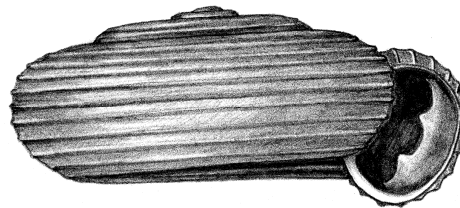
Oxyloma retusa (Lea)

FAMILY PUNCTIDAE

- 1a. Shell with spiral lirae; shell diameter less than 4 mm *Helicodiscus parallelus*

Width, 3.2-3.5 mm; 4.0-4.5.0 whorls. Pale yellow with a pale greenish cast. Upper surface flat or only slightly convex. Numerous well-developed spiral lirae. Broadly umbilicate. Typically two pairs of small conical teeth in the outer and basal walls (sometimes one pair, rarely three pairs or none). One pair usually visible in the aperture.

Southeastern Canada and New England, south to Alabama, west to Michigan, Iowa and Arkansas.



SS

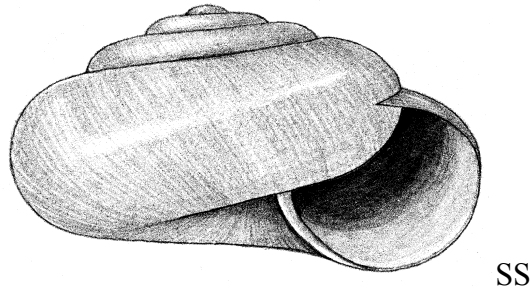
Helicodiscus parallelus (Say)

- 1b. Shell without spiral lirae; shell diameter variable 2

- 2a. Shell diameter less than 2 mm *Punctum minutissimum*

Width, 1.1-1.3 mm; 3.5-4.5 whorls. Pale brown to corneous. Minute. Delicate spiral striae. Umbilicate, 1/4-1/3 diameter of shell.

Southeastern Canada and New England, south to Florida, west to Oregon and New Mexico.



SS

***Punctum minutissimum* (Lea)**

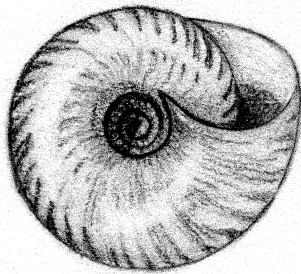
- 2b. Shell diameter greater than 2 mm 3

- 3a. Shell diameter less than 8 mm 4

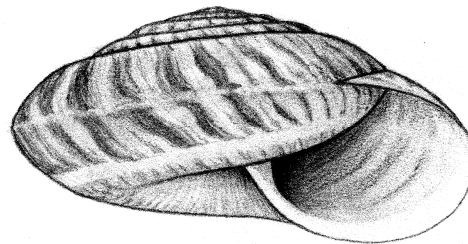
- 3b. Shell diameter greater than 8 mm *Anguispira alternata*

Width, 15-30 mm; 4.5-6.5 whorls. Shell horn-colored with numerous dark reddish-brown blotches. Large shell (18-30 mm). Well-developed rib-like striae. Deep umbilicus, about 1/5-1/4 diameter of shell.

Southeastern Canada and New England, south to Alabama, west to South Dakota and Kansas.



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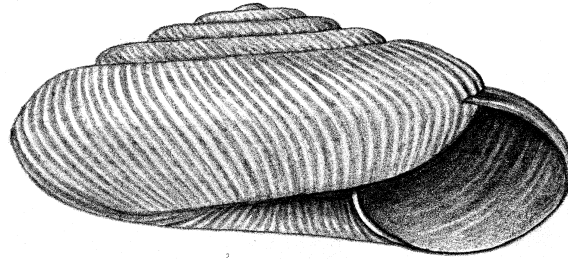


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***Anguispira alternata* (Say)**

- 4a. Shell with dark brown or reddish brown splotches *Discus rotundatus*

Width, 6 mm; 6 whorls. Yellowish-brown with distinct reddish blotches (other two *Discus* species have uniform color). Umbilicus very wide and deep, but smaller than *D. patulus*. Periphery of last whorl sometimes subangular and slightly shouldered. Well-developed riblets. Introduced from Europe; occurs throughout New England.



SS

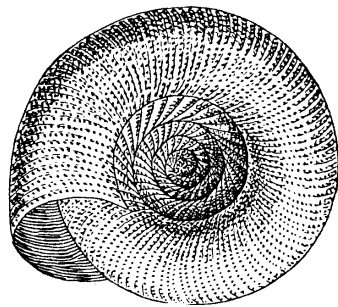
***Discus rotundatus* (Müller)**

- 4b. Shell without splotches 5

- 5a. Umbilicus over 1/2 shell diameter; shell with coarse ribs *Discus patulus*

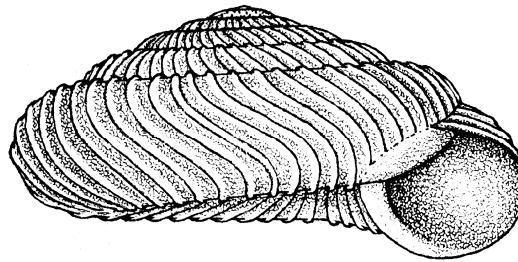
Width, 7-8 mm; about 5.5 whorls. Shell uniform cinnamon-brown color. Shell depressed. Well-developed riblets. Broadly umbilicate (more than 1/2 shell diameter) and deeply concave on underside, wider than other *Discus* species.

Southeastern Canada and New England, south to Florida and Alabama, west to Michigan, Iowa and Arkansas.



FB

***Discus patulus* (Deshayes)**

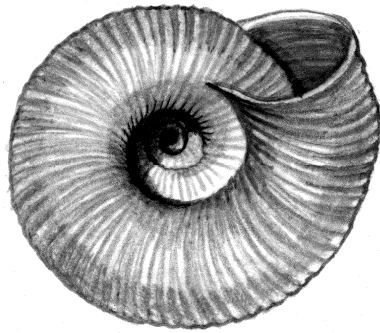


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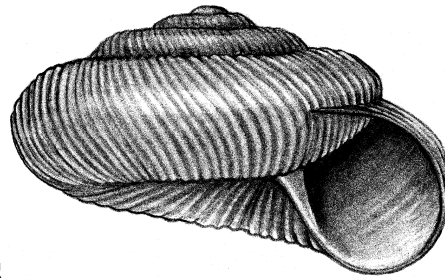
- 5b. Umbilicus 1/3 shell diameter; shell with fine ribs *Discus cronkhitei*

Width, 5-7 mm; 3.5-4.5 whorls. Color uniform light-tannish-brown; differs from *D. rotundatus* in this character. Spire depressed. Smaller than *D. patulus*. Well-developed riblets. Umbilicus about 1/3 width of shell.

Throughout northern North America, southeastern Canada and New England, south to Maryland, west to British Columbia, Washington and northern California.



SS



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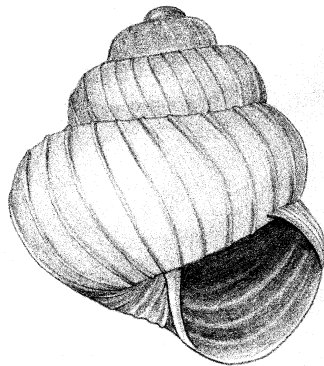
Discus cronkhitei (Newcomb)

FAMILY VALLONIDAE

- 1a. Shell globose *Zoogenetes harpa*

Width, 2.5 mm; about 4 whorls. Color olive-green. Ovate, conical shell (globose). First whorls smooth; last two with widely spaced thin cuticular ribs. Lip thin, not reflected. Narrowly umbilicate. Aperture oblique, ovate. No teeth.

Southeastern Canada and New England, west to Alaska and Colorado.



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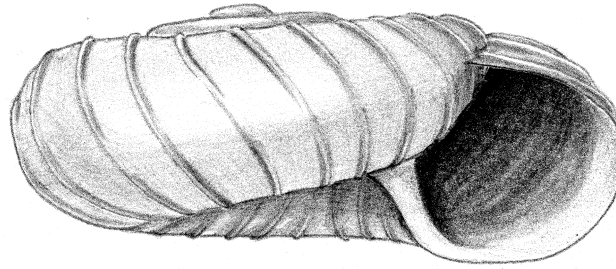
Zoogenetes harpa (Say)

- 1b. Shell flattened 2

- 2a. Lip not thickened and reflected *Planogyrus asteriscus*

Width, 1.7-2.0 mm; about 3.5 whorls. Color light to dark brown. Very flat low spire. First whorls smooth; sharp ribs on last whorl (differs from all other species by these three traits). Wide umbilicus, 1/3 diameter of shell. Prominent, rounded aperture. Lip not reflected.

Southeastern Canada and New England, west to Michigan.



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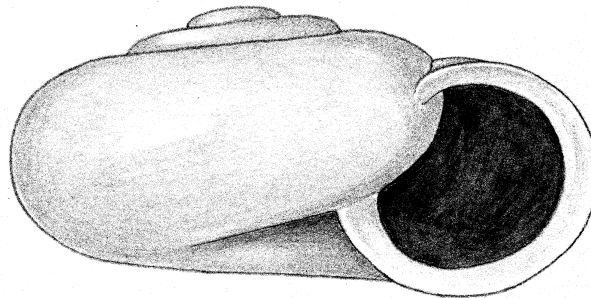
***Planogyrus asteriscus* (Morse)**

- 2b. Lip thickened and reflected 3

- 3a. Shell smooth *Vallonia pulchella*

Width, 2.0-2.5 mm; 3.0-3.5 whorls. Shell smooth. Glassy white shell. Body whorl not angled downward at aperture. Umbilicus 1/4 diameter of shell. Lip reflected and thickened.

Southern Canada and New England, south to Missouri and Kentucky, west to the Rockies.



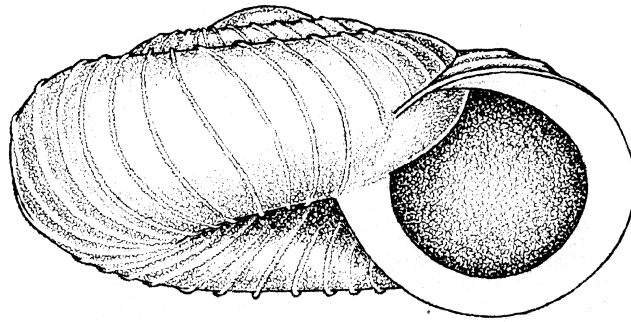
SS

***Vallonia pulchella* (Müller)**

- 3b. Shell ribbed *Vallonia costata*

Width, 2.5 mm; about 3.5 whorls. Color gray or pale yellow-corneous. Smaller than *Planogyra*. Shell with distinct ribs on the last whorls. Lip reflected and thickened. Umbilicate. Body whorl angles downward at aperture.

Southeastern Canada and New England, south to Virginia, west to Michigan, Ohio and northern Illinois.



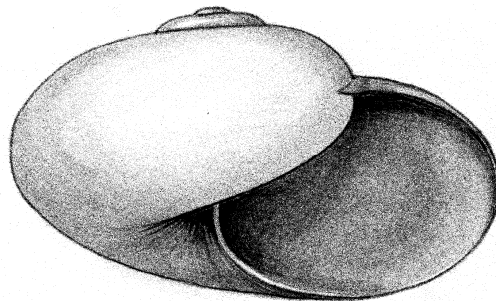
Vallonia costata (Müller)

FAMILY VITRINIDAE

- 1a. Shell with less than three whorls; whorls increase in size very rapidly; shell very thin
 *Vitrina limpida*

Shell very thin, fragile and transparent; 2-3 rapidly increasing whorls, first whorl with barely perceptible spiral pits. Very large aperture, larger than rest of shell in side view. Body of animal large in respect to shell; cannot completely withdraw into shell. Shell very narrowly perforate or imperforate.

Southeastern Canada and New England, south to Pennsylvania, west to Michigan.



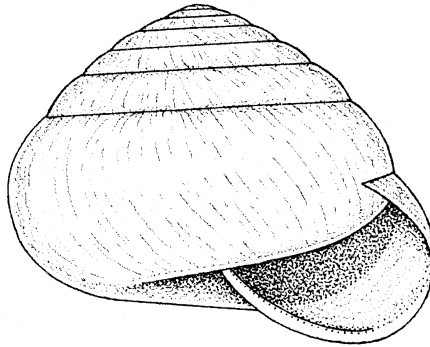
Vitrina limpida Gould

- 1b. Shell with more than three whorls; whorls increase in size more slowly; shell thicker 2
- 2a. Shell cone-shaped 3
- 2b. Shell not cone-shaped; more flattened 4

3a. Shell surface glossy *Ventridens ligera*

Width, 11.0-15.6 mm; 6-7 whorls. Pale yellowish-horn colored. Shell with poorly developed striae; surface glossy. Without apertural teeth.

New York and western Vermont and Massachusetts, south to Florida, west to Michigan and Oklahoma.



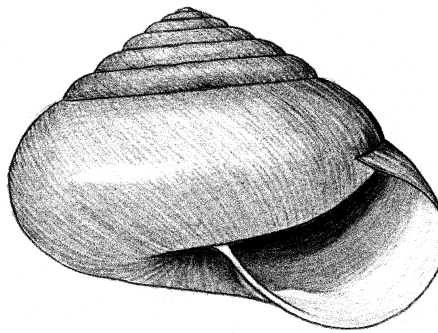
JB

***Ventridens ligera* (Say)**

3b. Shell surface dull *Ventridens intertextus*

Width, 8-20 mm; 5.0-6.5 whorls. Yellowish-horn to olive buff colored; base whiter than rest of shell. Shell with well-developed spiral striae. Without apertural teeth. Umbilicus small, 1 mm or almost closed.

New York and western New England, south to Florida, west to Michigan and Texas.



SS

***Ventridens intertextus* (Binney)**

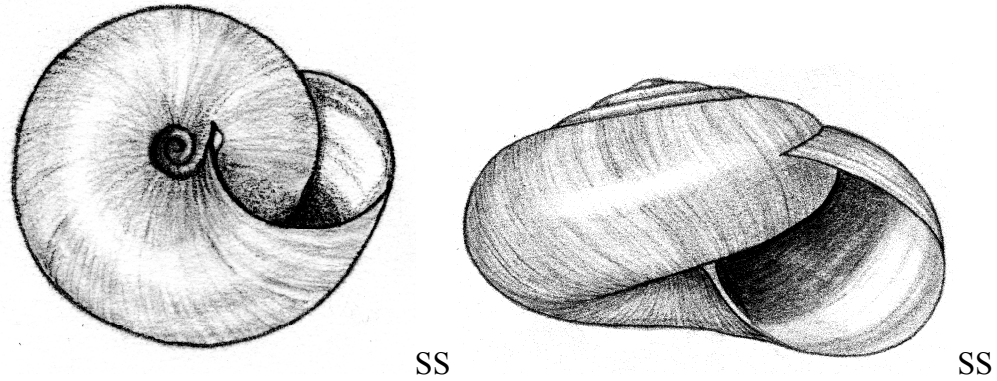
4a. Shell diameter greater than 16 mm 5

4b. Shell diameter less than 16 mm 6

- 5a. Spire elevated *Mesomphix cupreus*

Width, 22.0-28.5 mm; 4.5-5.0 whorls. Tan-olive to honey-yellow colored. Umbilicus distinct, wider than that of *M. inornatus*.

New England, south to Georgia and Alabama, west to Illinois and Arkansas.

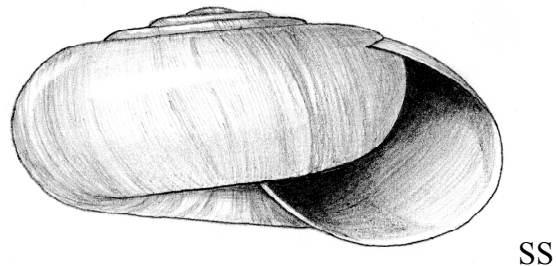


Mesomphix cupreus (Rafinesque)

- 5b. Spire depressed *Mesomphix inornatus*

Width, 16.5-21.0 mm; 5 whorls. Perforate. Smaller umbilicus than *M. cupreus*.

New England, west to Indiana and Kentucky.



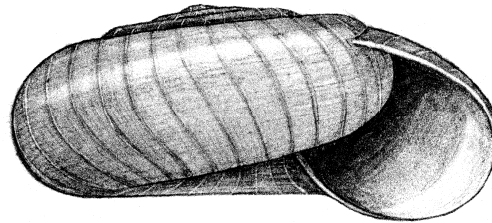
Mesomphix inornatus (Say)

- 6a. Whorls distinctly increasing in size; last whorl distinctly larger than the penultimate whorl 7
- 6b. Whorls increasing in size very slowly; only last whorl larger than penultimate whorl 14

7a. Perforate (umbilicus almost invisible) *Glyphyalinia indentata*

Width, 4.7-7.1 mm; 4.5-5.0 whorls. Shell corneous, highly polished, with distinct, widely and equally spaced, radiating lines. No umbilicus, but the umbilical region deeply indented.

Southeastern Canada and New England, through middle states, west to Washington and Arizona.



SS

Glyphyalinia indentata (Say)

7b. Umbilicate 8

8a. Shell with radiating indented lines 9

8b. Shell without radiating indented lines 12

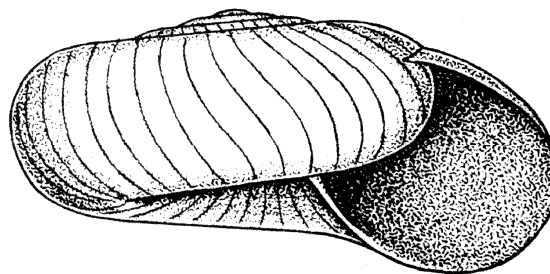
9a. Shell diameter 4.5 mm or more 10

9b. Shell diameter less than 4.4 mm 11

10a. Axial grooves many, closely spaced; umbilicus less than 1/5 the shell diameter
 *Glyphyalinia rhoadsi*

Width, 4.5-5.3 mm; 4.0-5.0 whorls. Radiating lines similar to *G. indentata*; differs from other *Glyphyalinia* (especially *G. electrina*) by having distinct lines. Differs from *G. indentata* by having a well-developed umbilicus.

Maine, south to North Carolina, west to Michigan.



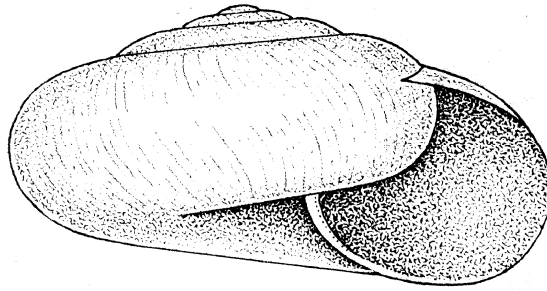
JB

Glyphyalinia rhoadsi (Pilsbry)

- 10b. Axial grooves few, widely spaced; umbilicus 1/4 the shell diameter
 *Nesovitrea electrina*

Width, 4.6-5.2 mm; 3.5-4.5 whorls. Shell faint yellowish or pale greenish. No spiral striae. Larger than *G. binneyana*. Differs from *G. burrington* and *G. rhoadsi* by having a round, wide, and deep umbilicus.

Eastern Canada and throughout the United States.



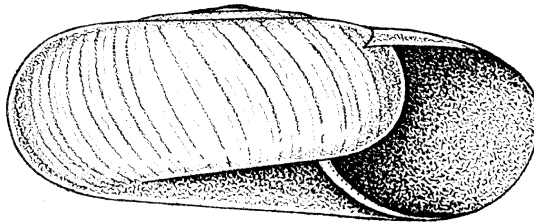
JB

***Nesovitrea electrina* (Gould)**

- 11a. Spiral striae beaded; shell buff *Glyphyalinia burringtoni*

Width, 3.9-4.0 mm; about 4.5 whorls. Buffy, glossy semi-translucent. Radial grooves not as widely spaced as in *G. rhoadsi*. Umbilicate.

Southern New England, New York, and Pennsylvania, south to West Virginia.



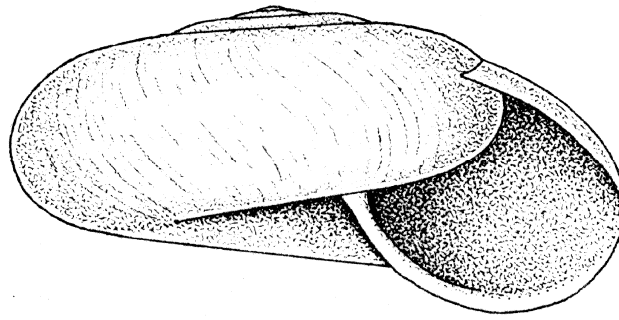
JB

***Glyphyalinia burringtoni* (Pilsbry)**

- 11b. Spiral striae unbeaded; shell white with greenish tinge
 *Nesovitrea binneyana*

Width, 3.5-4.3 mm; 3.5-4.0 whorls. Shell nearly colorless with greenish tinge. Smaller than *G. electina*. Differs from *G. rhoadsi* in having radial grooves less widely spaced.

Southeastern Canada and New England, south to Pennsylvania, west to Washington and California.



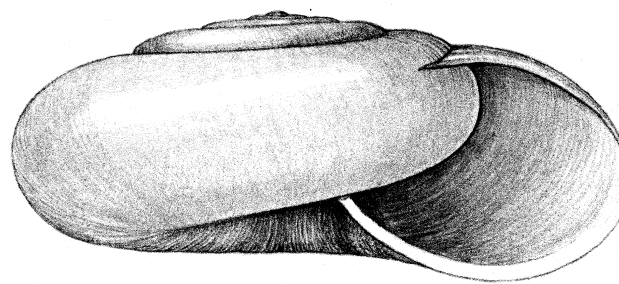
JB

Nesovitrea binneyana (Morse)

- 12a. Shell diameter more than 12 mm *Oxychilus draparnaldi*

Width, 12.0-16.5 mm; 5.0-5.5 whorls. Shell highly polished, semi-translucent amber or pale yellowish; animal dark blue-black or blue-gray. Much larger than *O. cellarius* and *O. allarius*. More openly umbilicate than *O. cellarius* and *O. allarius*. Whorls rounded at periphery. Fine, irregular growth lines. Carnivorous, feeding on immature insects, among other small invertebrates.

Introduced from Europe; occurs throughout North America.



SS

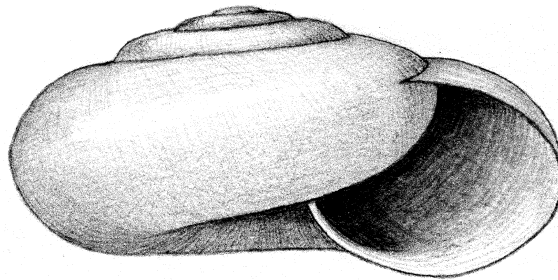
Oxychilus draparnaldi (Beck)

- 12b. Shell diameter less than 12 mm 13

13a. Animal blackish-gray; shell less than 7 mm; with garlic odor *Oxychilus alliarius*

Width, 6.0-7.0 mm; 4.0-4.5 whorls. Amber or pale yellowish; animal darkly pigmented. Shell transparent, dark body shows through. Spire depressed, discoidal appearance. Gives off a distinct garlic odor when handled.

Introduced from Europe; occurs throughout North America.



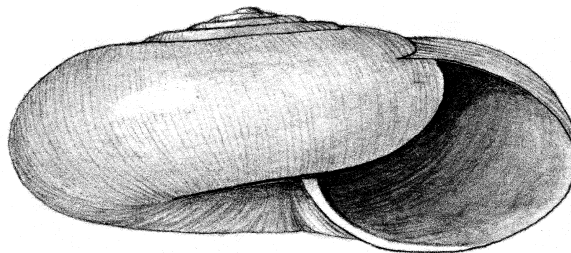
SS

***Oxychilus alliarius* (Müller)**

13b. Animal pale gray in color; shell diameter more than 8 mm; without garlic odor
 *Oxychilus cellarius*

Width, 9 mm; 5 whorls. Animal light gray colored, darker above with a pale foot sole (differs from *O. alliarius*). Broadly lunate aperture, more so than the other two *Oxychilus* species.

Introduced from Europe; occurs throughout North America.



SS

***Oxychilus cellarius* (Müller)**

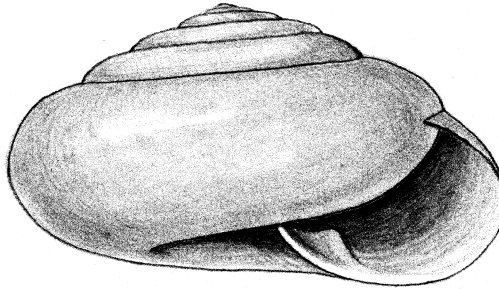
14a. Shell diameter greater than 4 mm, 15

14b. Shell diameter less than 4 mm 18

- 15a. Tooth present in aperture (of adults) *Ventridens suppressus*

Width, 5.4-7.8 mm; 5.5-7.0 whorls. Shell depressed. Narrowly umbilicate (1/9-1/8th shell diameter). Apertural teeth.

New York and western New England, south to Virginia, west to Michigan and Kentucky.



SS

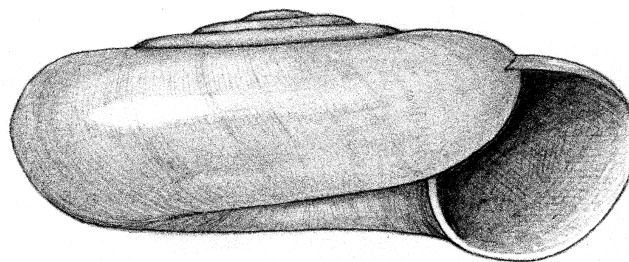
Ventridens suppressus (Say)

- 15b. No tooth in aperture 16

- 16a. Shell dull, with coarse striae *Zonitoides limatulus*

Width, 4.3-5.0 mm; about 4.5 whorls. Greenish-white shell, not transparent. Shell greatly depressed. Conspicuous parallel surface sculpture, especially on top of shell (differs from *Z. arboreus* and *Z. nitidus*). Very wide (1/4–1/3 shell diameter), shallow umbilicus.

Eastern New York, south to Pennsylvania, west to Illinois and Missouri.



SS

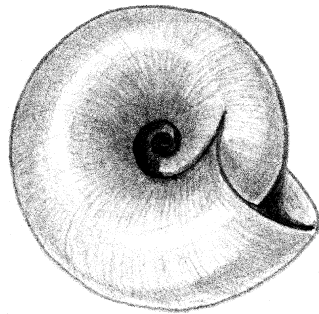
Zonitoides limatulus (Binney)

- 16b. Shell glossy, weak sculpture 17

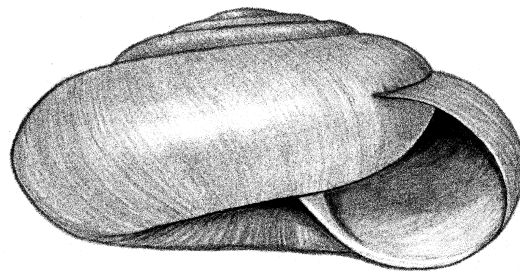
17a. Shell diameter less than 6 mm; animal pinkish *Zonitoides arboreus*

Width, 5-6 mm; 4.5-5.0 whorls. Yellowish-horn-colored shell; translucent. Differs from *Z. nitidus* in being smaller, having a more depressed spire, a flatter base of shell, spiral striae more faint, a smaller umbilicus, and a more oval aperture.

Throughout North America, south through Mexico, into Central America.



SS



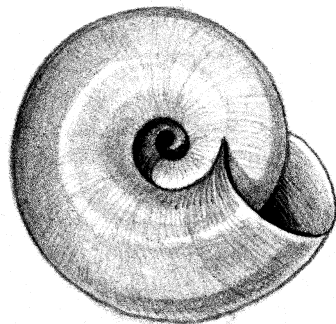
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***Zonitoides arboreus* (Say)**

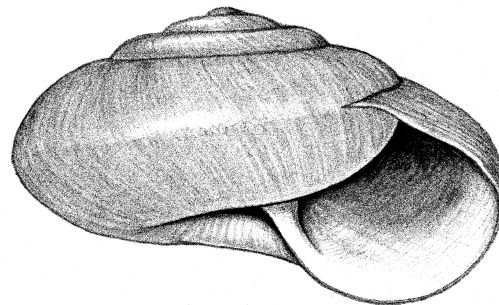
17b. Shell diameter greater than 6 mm; animal black *Zonitoides nitidus*

Width, 6-7 mm; 4.5-5.0 whorls. Very shiny semi-transparent olive-yellowish colored shell; animal black. Gradually widening whorls. Surface sculpture absent. Base of shell rounded. Aperture rounded to ovate. Large deep umbilicus.

New England across the northern tier of states to South Dakota, Washington and California.



SS



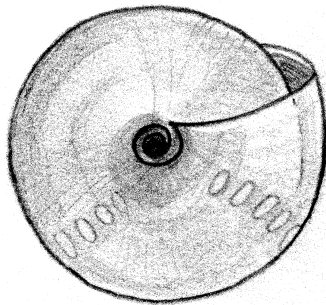
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***Zonitoides nitidus* (Müller)**

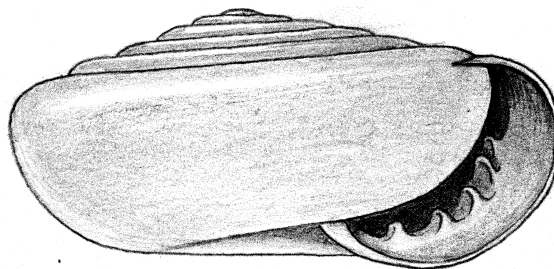
- 18a. Teeth present in aperture (may be far back in shell, visible through bottom of shell)
 *Paravitrea multidentata*

Width, 2.5-3.0 mm; 6 whorls. Corneous smooth glossy. Shell depressed. Very small, rounded umbilicus. Two to four rows of very small whitish teeth radiating from the umbilicus (can be seen through the shell) within the base of the last whorl.

Maine, south to North Carolina, west to Michigan and Arkansas.



SS



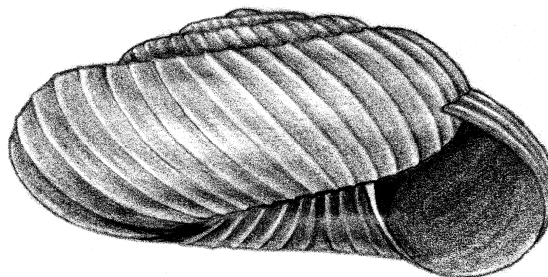
SS

***Paravitrea multidentata* (Binney)**

- 18b. No teeth in aperture 19
- 19a. Shell smooth 21
- 19b. Shell with riblets 20
- 20a. Riblets widely spaced and high; shell diameter greater than 2 mm *Striatura exigua*

Width, 2.2-2.4 mm; about 3.5 whorls. Corneous to greenish. Depressed shell; distinct spiral and conspicuous, widely spaced riblets. Widely open umbilicus (greater than 1/3 of shell diameter).

Southeastern Canada and New England, south to Pennsylvania, west to Minnesota.



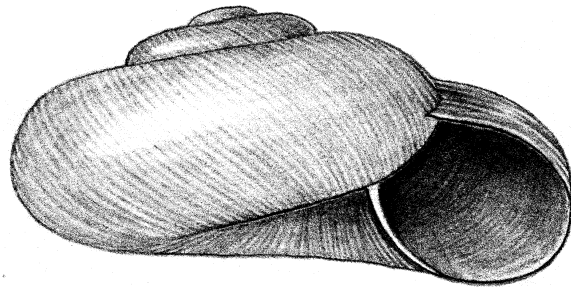
SS

***Striatura exigua* (Stimpson)**

20b. Riblets closely spaced and low; shell diameter less than 1.5 mm *Striatura milium*

Width, 1.5 mm; 3.0-3.5 whorls. Shell corneous yellow to gray; animal white, with dark spots on head and tentacles. Broadly umbilicate (1/3 diameter of shell). Riblets less distinct and closer (almost run together) than in *S. exigua*.

Southeastern Canada and New England, south to West Virginia, west to Michigan and Kentucky.



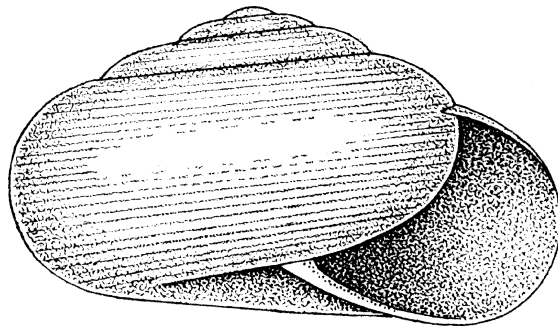
SS

***Striatura milium* (Morse)**

21a. Shell imperforate *Guppya sterkii*

Width, 1.2-1.3 mm; 3.5-4.0 whorls. Very small, adults barely 1 mm in diameter. Yellowish-translucent. Spire more depressed than in *Euconulus*; base of shell flattened. Periphery rounded. Minute spiral striae. Imperforate.

New York, south to Florida, west to Ohio and Louisiana.



JB

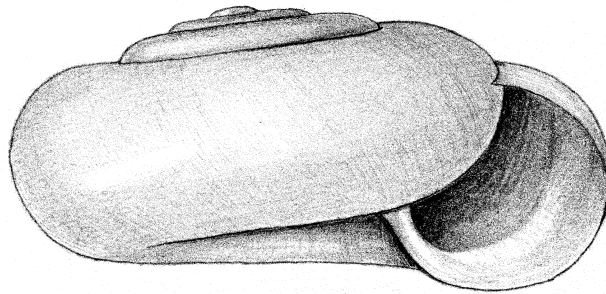
***Guppya sterkii* (Dall)**

21b. Shell perforate 22

22a. Shell white, opaque; umbilicus 1/3 shell diameter *Hawaiiia miniscula*

Width, 2.0-2.8 mm; 3.5-4.5 whorls. Very small, 1 mm. Shell pale gray whitish. Spire depressed, base flattened. Shell smooth; very close growth lines gives shell a silky appearance. Umbilicate; umbilicus 1/3 diameter of shell. Aperture round.

Throughout North America, including Canada, Alaska and the Aleutian Islands.



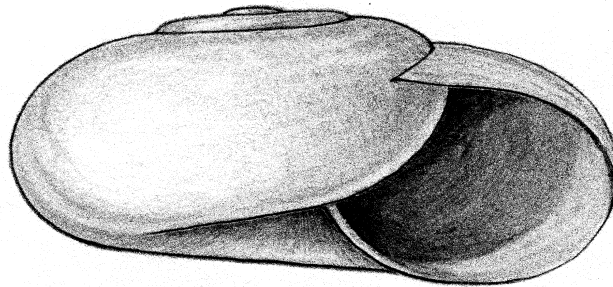
SS

***Hawaiiia miniscula* (Binney)**

22b. Shell corneous, translucent; umbilicus 1/5 shell diameter *Striatura ferrea*

Width, 2.5-3.4 mm; 3.5-4.0 whorls. Shell grayish translucent; animal dark blue or black. Outer whorl enlarges rapidly. Striae and riblets lacking. Umbilicus small.

Southeastern Canada and New England, south to North Carolina, west to Michigan and Kentucky.



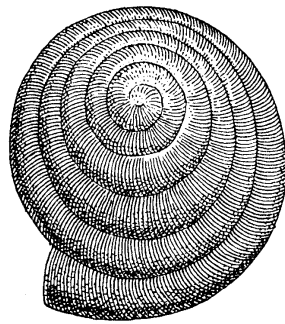
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***Striatura ferrera* Morse**

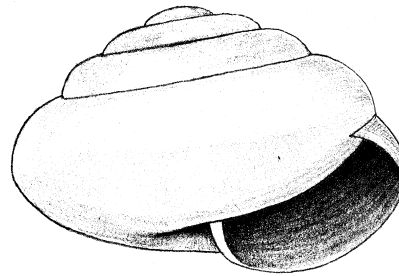
Family Euconulidae

- 1a. Four to six whorls; whorls large *Euconulus fulvus*

Width, 3.1-3.4 mm; 4.5-6.0 whorls. Cinnamon to pale brown. Glossy, thin fragile shell. Minutely perforate or imperforate. Lip thin, dilated at columellar margin. Throughout North America, north of North Carolina to Texas.



FB



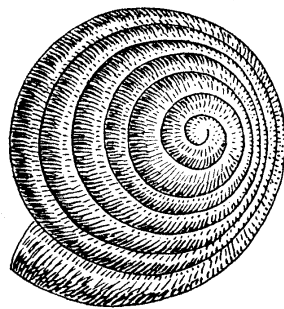
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Euconulus fulvus (Müller)

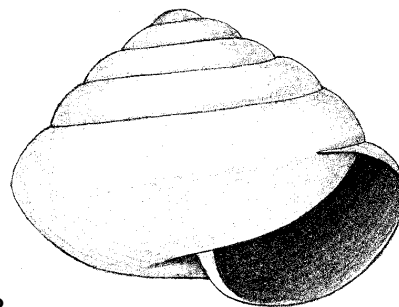
- 1b. Six to eight whorls; whorls small *Euconulus chersinus*

Width, 2.4-3.4 mm; 6.0-8.0 whorls. Differs from *E. fulvus* by having spire more elevated, being less glossy, and having more numerous and more narrow body whorls (6-8 vs 4-6); finer striae on last whorl; more narrow aperture.

Southern New England, south to southern Atlantic states, west to Illinois, Michigan and Texas.



FB



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Euconulus chersinus (Say)

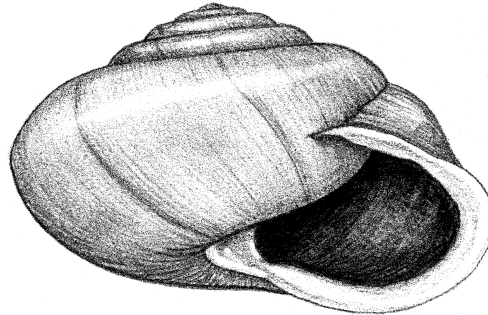
FAMILY MESODONTIDAE

- 1a. Umbilicus imperforate 2
1b. Perforate or open umbilicus 4

- 2a. Shell diameter less than 12 mm; aperture a long, narrow slit 11
 2b. Shell diameter greater than 12 mm; aperture oval 3
 3a. Parietal tooth absent *Neohelix albolabris*

Width, 17.6-45.3 mm; 5-6 whorls. Shell spire more depressed than *M. zaletus*. Parietal tooth absent or weakly developed. Lip widely reflected. Imperforate.

Southeastern Canada and New England, south to Georgia and Gulf States (in uplands, not coastal plain), west to Mississippi River and Oklahoma.



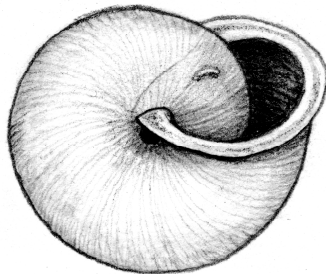
SS

Neohelix albolabris (Say)

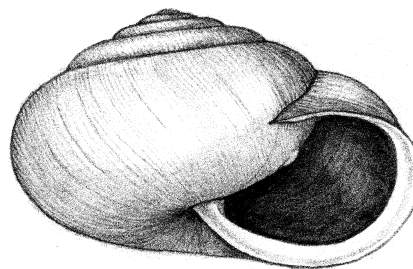
- 3b. Parietal tooth present 9
 4a. No teeth in aperture 10
 4b. At least one tooth present in aperture 5
 5a. Umbilicus perforate; one tooth (parietal) 6
 5b. Umbilicus widely open; more than one tooth 7
 6a. Shell diameter greater than 13 mm; parietal tooth short *Mesodon thyroides*

Width, 15-31 mm; 5.0-5.5 whorls. Shell yellowish-green; may be glossy. Variable in size. Parietal tooth present in most specimens, but varies in size from large and distinct to an indistinct bump, to completely absent. Umbilicus distinct, half covered by reflected columellar lip.

Southeastern Canada and New England, south to Gulf States, west to Minnesota, eastern Nebraska and eastern Texas.



SS



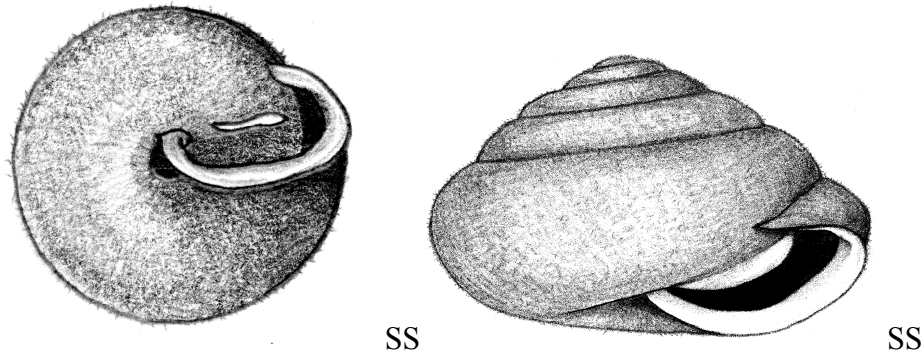
SS

Mesodon thyroides (Say)

- 6b. Shell diameter less than 13 mm; parietal tooth long *Stenotrema fraternum*

Width, 7.8-11.4 mm; 5-6 whorls. More loosely coiled than *S. leai*. Surface of shell rougher than that of *S. leai*. Last whorl may have short hair. Small umbilicus; imperforate or narrowly perforate. Aperture relatively open. Lip widely reflected and smooth; basal lip narrowly reflected.

Southeastern Canada and New England, south to Georgia, west to Minnesota, Missouri and Oklahoma.

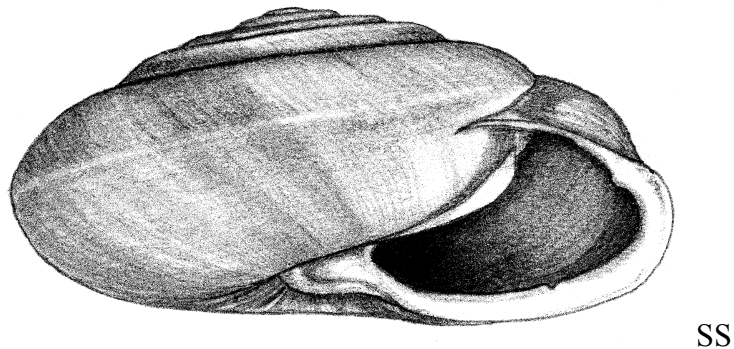


Stenotrema fraternum (Say)

- 7a. Lip with a long marginal lamina *Triodopsis denotata*

Width, 19.0-25.6 mm; about 5.5 whorls. Shell covered with short stiff hair. Parietal tooth long, almost length of aperture. Imperforate. Umbilical callus. Palatal tooth short. Basal margin thickened and blade-like.

Western New England, south to North Carolina, west to Michigan and Mississippi.



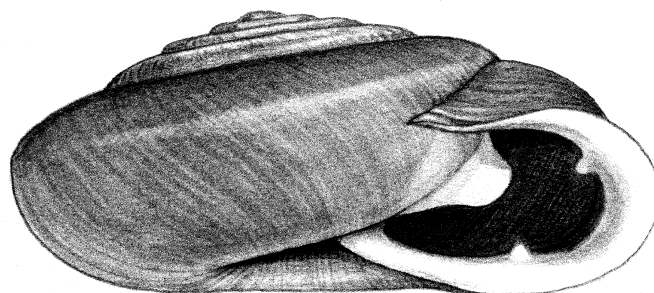
Triodopsis denotata (Férussac)

- 7b. Lip without a marginal lamina 9

- 8a. Three teeth; parietal tooth long and curved *Triodopsis tridentata*

Width, 11.7-25.3 mm; 5-6 whorls. Shell light green to pale cinnamon-buff. Spire depressed. Shell smooth; no hair. Shell twice as wide as high. Distinct umbilicus, 1/7 width of shell. Distinct, compact parietal tooth and two relatively small palatal and basal teeth on the peristome.

Southeastern Canada and New England, south to Georgia, west to Michigan, Illinois and Mississippi.



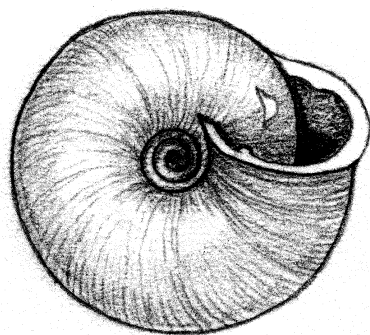
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***Triodopsis tridentata* (Say)**

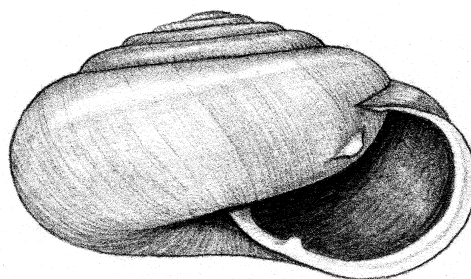
- 8b. Two teeth; parietal tooth short *Mesodon sayanus*

Width, 19.4-27.0 mm; about 5.5 whorls. Shell thin. Widely umbilicate, 1/7 diameter of shell. Distinct tooth on parietal wall; small tooth on the collumellar margin.

Southeastern Canada and New England, south to North Carolina, west to Michigan, Kentucky and Tennessee.



SS



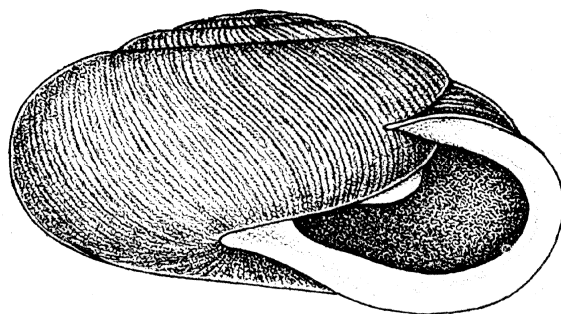
SS

***Mesodon sayanus* (Pilsbry)**

9a. Shell depressed *Tridopsis dentifera*

Width, 20.0-30.5 mm; 5.0-5.5 whorls. Pale olive. Shell depressed, more so than *T. albolabris* and *M. zaletus* (much more so than *M. zaletus*). Differs from *T. albolabris* by having a well-developed parietal tooth. Shell thinner than that of both *M. zaletus* and *T. albolabris*. Imperforate.

Southeastern Canada and New England, south to South Carolina, west to Pennsylvania.



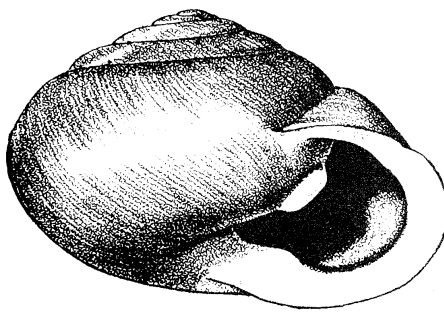
JB

Tridopsis dentifera (Binney)

9b. Shell globose *Mesodon zaletus*

Width, 19-31 mm; 5.5-6.0 whorls. Shell more globose (elevated) than *T. albolabris*. Very large, distinct parietal tooth, obliquely set; absent or very weakly developed in *T. albolabris*. Lip widely reflected. Imperforate.

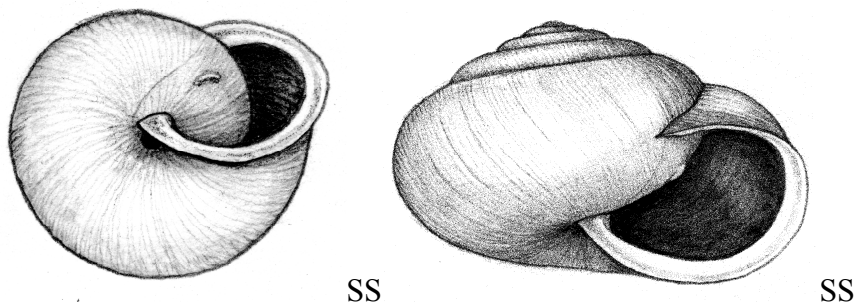
Southeastern Canada and New England, south to Alabama, west to Wisconsin, Oklahoma, and Arkansas.



AC

Mesodon zaletus (Binney)

- 10a. Shell unbanded *Mesodon thyroides*

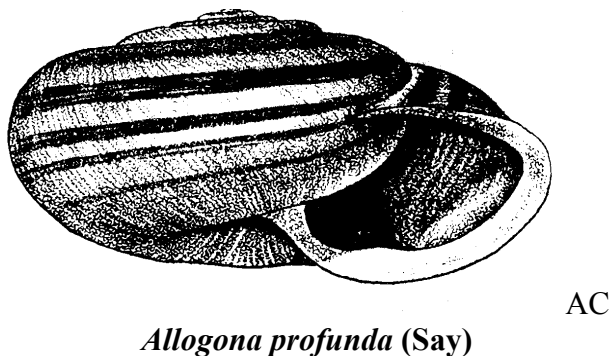


Mesodon thyroides (Say)

- 10b. Shell with reddish-brown bands *Allogona profunda*

Width, 19-34 mm; about 5.5 whorls. Shell heavy. Spire depressed. Typically with wide dark brownish-red horizontal bands; bands faded or absent in some specimens. Distinguished from all of the Mesodontids by deep open umbilicus, 1/5 diameter of shell. Distinct swelling on lower peristome, near umbilicus.

Southeastern Canada and New England, south to Alabama, west to Minnesota, Nebraska, Kansas and Mississippi.

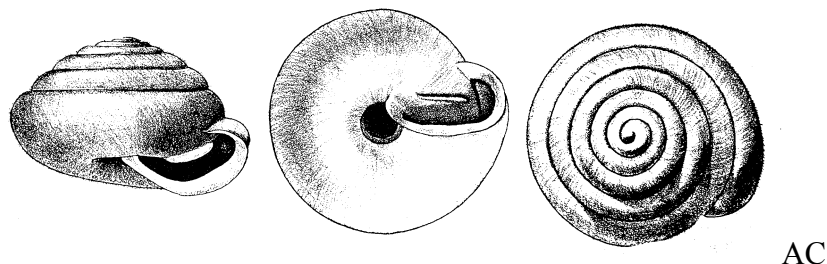


Allogona profunda (Say)

11a. Basal lip with a median notch; shell subglobose *Stenotrema leai*

Width, 6.1-9.4 mm; 5.5-6.5 whorls. Tannish-brown to cinnamon buff. More tightly coiled than *S. fraternum*. Shell smooth. Distinct umbilicus, much more open than that of *S. fraternum*. Lip widely reflected and smooth. Aperture relatively open. Basal lip narrowly reflected. Parietal tooth shorter than that of *S. fraternum*.

Western New England and New York, south to Virginia, west to South Dakota and Texas.

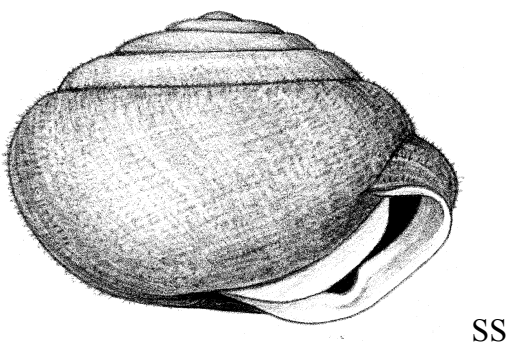


Stenotrema leai (Binney)

11b. Basal lip with a notch; shell depressed; covered with conspicuous hairs
 *Stenotrema hirsutum*

Width, 6.2-11.0 mm; 5.0-5.5 whorls. Tan to cinnamon buff. Shell with short hairs. Basal lip wide, with a small, distinct notch mid-way along its length. Parietal tooth long and wide, almost closing the aperture. Aperture a narrow slit.

Southeastern Canada and New England, south Alabama, west to Missouri, Kansas and Mississippi.



Stenotrema hirsutum (Say)

FAMILY PHILOMYCIDAE

- 1a. Head covered by anterior lip of mantle; slime milky when animal irritated; adults more than 35 mm long 2
 1b. Head not covered by anterior lip of mantle; slime clear when animal is irritated; adults less than 35 mm long 3

- 2a. Mantle with one or two longitudinal broken black or brown lines
 *Philomycus carolinianus*

Extended body length of adults, 70 mm to more than 100 mm. The mantle covers the entire body, including the head. Mantle ground color is tan. There are two longitudinal, mid-dorsal rows, or less commonly one row, of black or dark brown spots or blotches. Between the rows there frequently is a brown band, darker than the tan background color.

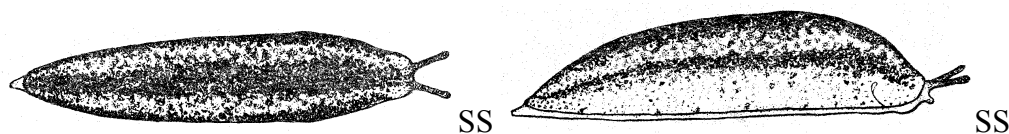
Widely distributed in eastern North American forests.



Philomycus carolinianus (Bosc)

- 2b. Mantle with three longitudinal broken black or brown lines
 *Philomycus flexuolaris*

This species is very similar to the *P. carolinianus* in size, appearance and distribution. Historically, it has been treated as a subspecies or variant of that species. Externally it is distinguished from that species by the presence of one dorsal and two lateral rows of black or dark brown spots or blotches

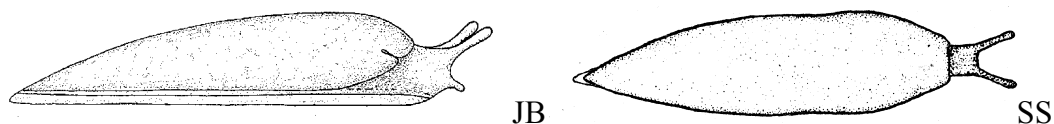


Philomycus flexuolaris Rafinesque

- 3a. Anterior margins of foot sole tinted with red. Mantle without black dotted line
 *Pallifera ohioensis*

Extended body length of adults less than 35 mm. The mantle is similar to that of *P. dorsalis* except the color is tan to light grey and there is no dorsal line of black spots. Margins of the sole are red at least anteriorly.

Widely distributed in forests of the northeast.



***Pallifera ohioensis* (Sterki)**

- 3b. Foot sole pale; mantle with mid-dorsal, longitudinal, black dotted line
 *Pallifera dorsalis*

Extended body length of adults less than 20 mm. The mantle covers all but the head of the animal. Mantle ground color is bluish grey, usually with a mid-dorsal line of dots extending over most of the mantle. Foot sole white.

Widely distributed in eastern North American forests.



***Pallifera dorsalis* (Binney)**

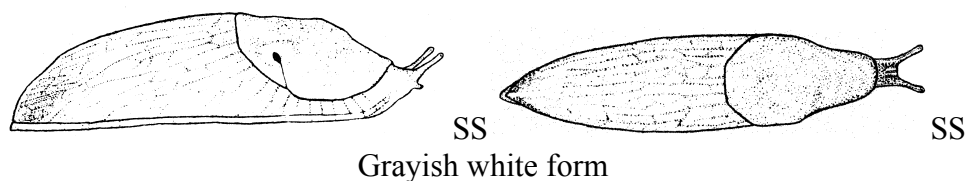
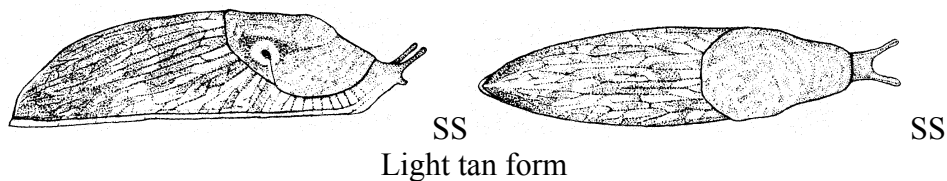
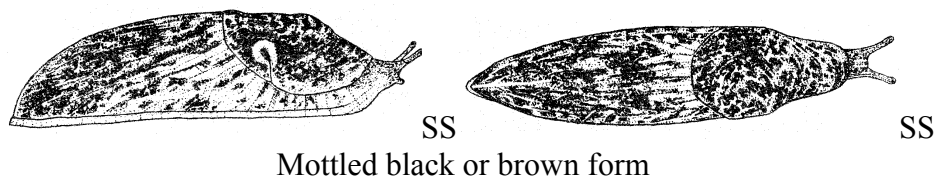
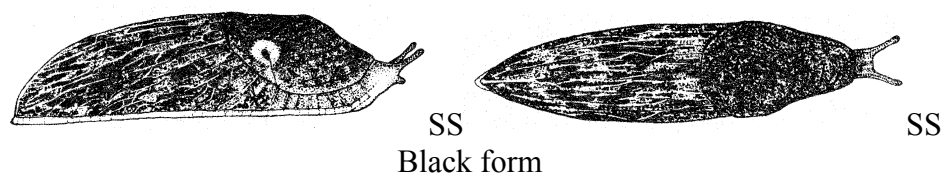
FAMILY LIMACIDAE

- 1a. "Tail" truncated when viewed from the side. Posterior margin of mantle rounded when viewed from above. Nucleus of concentric whorl of ridges centered on the right side of mantle 2
 1b. "Tail" pointed when viewed from the side. Posterior margin of mantle obtusely angular when viewed from above. Nucleus of concentric whorl of ridges on mantle centered on dorsal mid-line 3

2a. Slime milky when animal is disturbed. Breathing pore pale bordered. Extended length of adults more than 30 mm. *Deroceras reticulatum*

Extended body length of adults, 45-50 mm; body more robust than that of *Deroceras leakei*. Dorsal keel short, but distinct. Breathing pore surrounded by white border. Body color varies from almost solid black through mottled black or brown to light tan or grayish white. Black or brown pigment in the valleys between the tubercles. Sides normally paler than the dorsum. Mantle located more anteriorly in fully extended animals than in *Deroceras leakei*. Slime clear in undisturbed animals; milky white and very sticky in disturbed animals.

Introduced from Europe. Records from throughout Canada and United states.

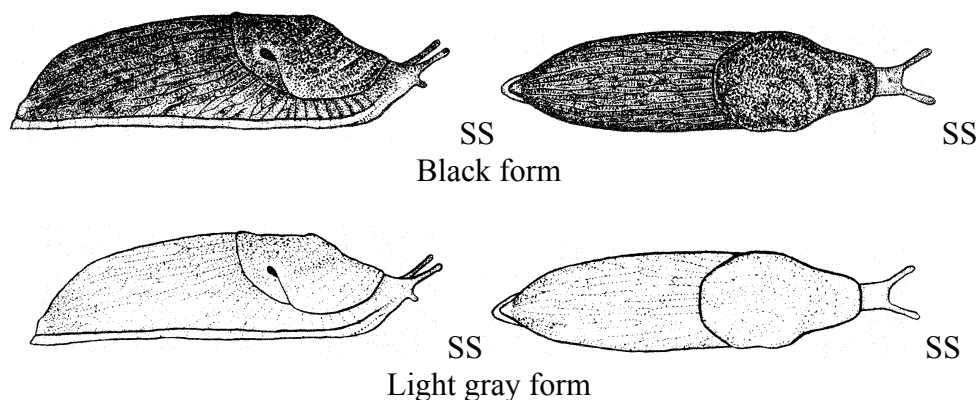


***Deroceras reticulatum* (Müller)**

2b. Slime clear at all times. Breathing pore not pale bordered, not differentiated from the general mantle pigmentation. Extended length of adults less than 30 mm *Deroceras leave*

Small slug, extended length of adults, 25 mm. Body color varies from light brown through light gray to black. Black, irregular spots or reticulations may be present on body. Border of breathing pore dark. When animal is extended, mantle appears almost centrally located; long neck. Slime clear and watery.

Native to most of North America, including Canada, United States, and Mexico. Also, introductions from Europe that are intermixed and most likely interbred with native slugs.



***Deroceras leave* (Müller)**

3a. Mantle bears at least one pair of dark longitudinal bands *Lehmannia valentiana*

Extended body length, 60 mm. Keel very weakly developed or absent. Breathing pore surrounded by a whitish area. Body color light brown dorsally, fading gradually to light tan laterally. Mantle with a pair of gray to black lateral bands and usually a single, less defined mid-dorsal band. Foot sole whitish. Slime is clear.

Native to Iberian Peninsula; introduced throughout Europe. Introductions in North America associated with greenhouses and in gardens and lawns (in Illinois).



***Lehmannia valentiana* (Férussac)**

3b. Mantle bears black or yellow spots or blotches or no markings at all 4

4a. Slime yellow. Mantle yellow spotted. Extended length of adults less than 100 mm *Limax flavus*

Extended body length of adults 70-100 mm. Body color varies from yellowish gray to green. In adults, the body has yellow spots or irregular blotches. Lateral lines absent. Tentacles blue. Foot sole pale yellowish. Slime is yellow.

Introduced from Europe. Recorded from scattered sites throughout North America.

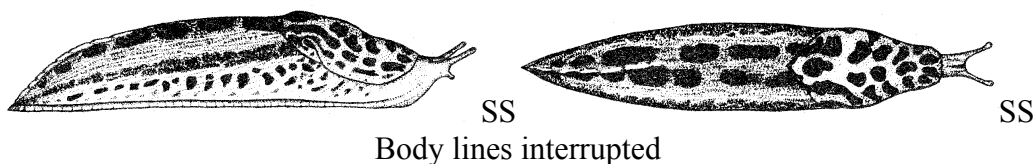


***Limax flavus* Linnaeus**

4b. Slime clear. Mantle with black blotches or spots or devoid of markings. Extended length of adults more than 100 mm *Limax maximus*

Very large slugs; extended body length of adults, 100-200 mm. Dorsal keel extends less than half the distance between the posterior margin of the mantle and the "tail." Keel slightly crenate. Body color is some shade of gray or brown; numerous dark spots, blotches, or stripes in a variable pattern; there are no regular mantle bands. Tentacles uniformly brown. Foot sole is whitish gray. Slime is clear.

Introduced from Europe. Populations recorded throughout most of North America.



Body lines interrupted



Body lines forming solid line

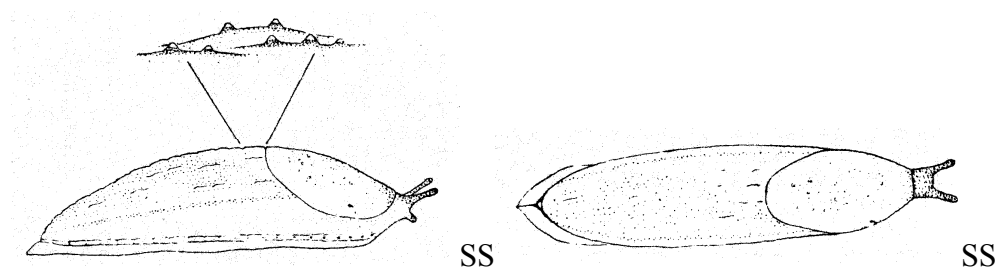
***Limax maximus* Linnaeus**

FAMILY ARIONIDAE

1a. Tubercles conically shaped with hyaline apices when animal contracts; adults less than 25 mm long when contracted *Arion intermedius*

Extended body length of adults less than 25 mm. When contracted, living animal has one to several conical, hyaline projections on each tubercular ridge. Lateral bands, if present, faint. Right mantle band surrounds the breathing pore. A row of black dots anteriorly, just above the foot fringe, is often present. Body color gray to yellowish gray. Foot sole yellow.

Introduced from Europe. In North America records from isolated sites from southeastern Canada south to Rhode Island, Connecticut, and New York. May be locally abundant.



Arion intermedius (Normand)

1b. Tubercles not conically shaped and without hyaline apices when animal contracts; adults more than 25 mm long when contracted 2

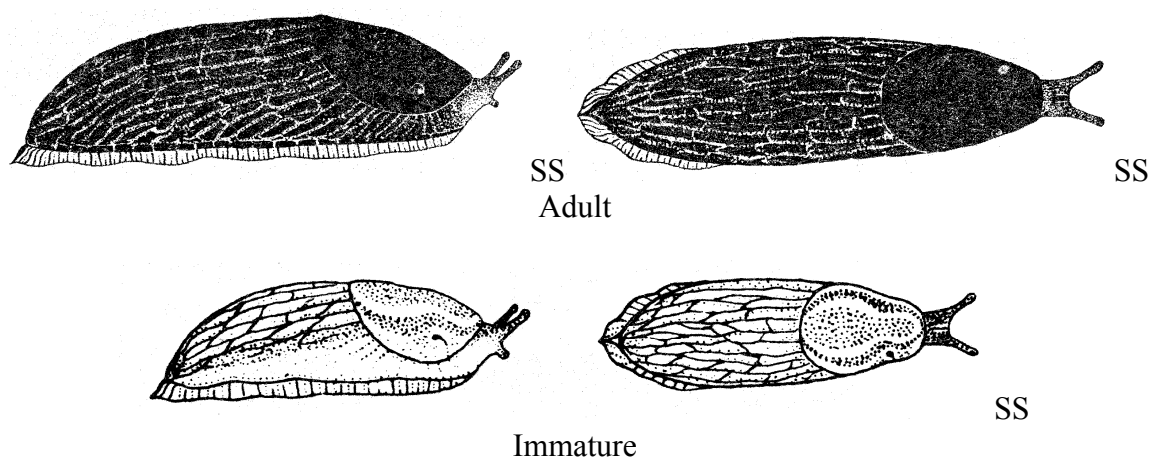
2a. Foot fringe wide and bears numerous dark vertical lines, at least posteriorly; lateral dark bands present or absent 3

2b. Foot fringe not conspicuously wide and without dark vertical lines; lateral dark bands always present 4

3a. Coarse, elongate tubercles on side and back; adults lack bands on mantle; slime usually clear *Arion ater*

Largest *Arion* species; extended body length of adults may exceed 150 mm. Adults lack lateral bands. When present in young, mantle bands located closer to the dorsal midline than in other species of *Arion*; right mantle band above the breathing pore. Tubercles elongate and prominent. Foot fringe wide; dark or brightly colored, with prominent vertical dark lines. Adult color varies from yellow to reddish brown to black. Foot sole is gray. Slime usually clear.

Introduced from Europe. Recorded from Newfoundland, Quebec, Maine, Connecticut, Michigan, Washington, and Oregon in North America. More abundant in northwestern than northeastern United States.



***Arion ater* (Linnaeus)**

3b. Tubercles not conspicuously coarse or elongate; adults may or may not have lateral bands; slime usually yellow *Arion subfuscus* complex

A large slug, extended body length of adults may exceed 80 mm. Typically with a black band on each side of body and mantle; bands faint or absent in some specimens. Lower boundary of the right mantle band usually diffusely surrounds the breathing pore. Well-developed foot fringe has distinct vertical dark lines, at least posteriorly. Foot sole is whitish gray. Slime is yellow or orange when animal is irritated.

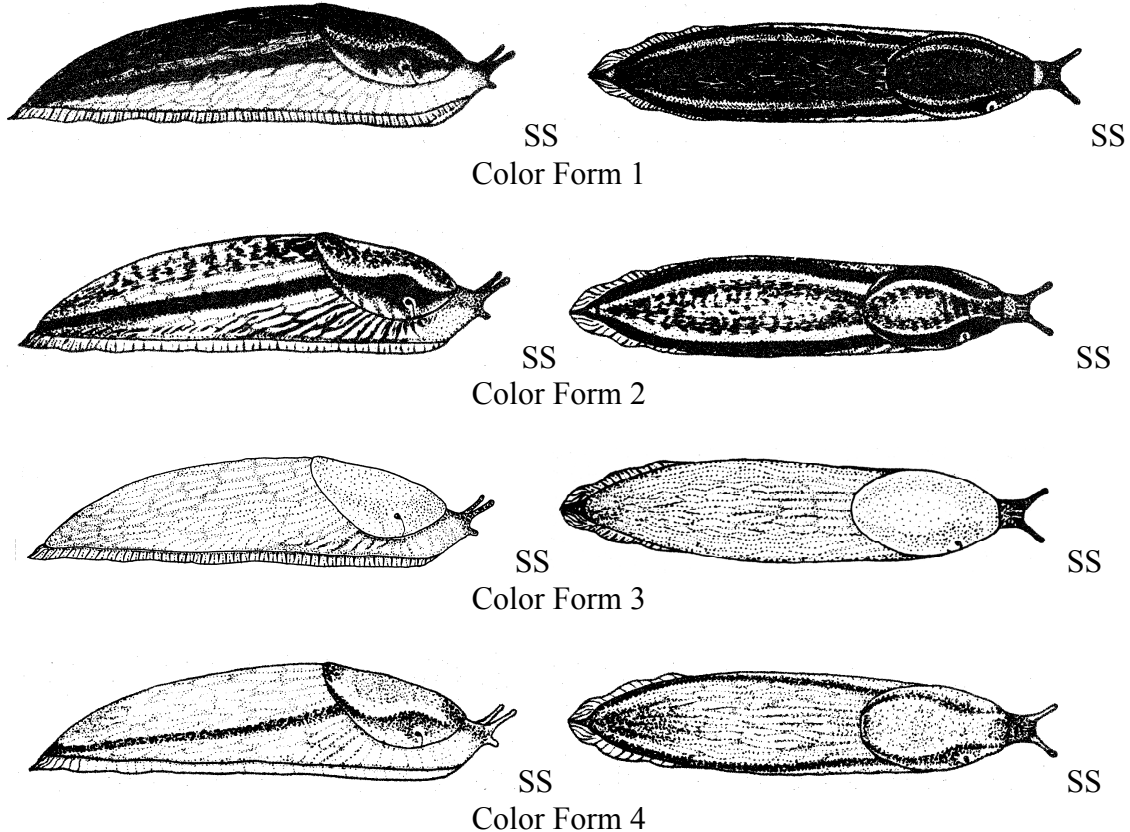
Introduced from Europe. Abundant throughout natural habitats from Southeastern Canada, south to New York and Pennsylvania. Records from northern Virginia and southeastern Michigan.

Color form 1. Dorsum dark reddish brown to black. Upper boundary of lateral band or entire band masked by dark ground color.

Color form 2. Dorsum brown to brownish gray, mottled with black pigment. Area above lateral bands lighter brown so that bands appear much darker and more distinct than in other color forms.

Color form 3. Dorsum and sides yellow or orange; only indications of dark pigment are reticulations between the lateral margins of the mantle and foot fringe.

Color form 4. Dorsum light brown to brownish yellow; lateral bands usually very faint.



***Arion subfuscus* (Draparnaud)**

4a. Breathing pore located within the lateral mantle band; mid-dorsal tubercles not enlarged; no ridge is discernible. Foot sole bright yellow to orange . . *Arion hortensis* complex

The *A. hortensis* complex comprises three species: *A. distinctus*, *A. hortensis* and *A. owenii*. At least the first two species have been introduced into North America. To differentiate the species it is necessary to dissect the reproductive system which is beyond the scope of this key. The following description applies to the complex.

Slender; extended body length of adults, 40 mm. Lateral bands are very dark and lower on the body than in other species of *Arion*. Right mantle surrounds the breathing pore. Dorsal body color is blue-black to black in immatures; adults, brownish-black. Body just above lateral bands light-colored; animals appear to have a pair of light bands just above the dark lateral bands.

Introduced from Europe and England. Recorded from isolated localities from southeastern Canada, Pennsylvania, Maine and Connecticut in the eastern United States and in Washington and California in the western United States.



***Arion hortensis* Féruissac complex**

4b. Breathing pore located below lateral mantle band; mid-dorsal post mantle tubercles raised and enlarged to form a longitudinal ridge (sometimes faint or absent). Foot sole white to gray (*Arion fasciatus* complex) 5

5a. Body sides with a yellow or orange band just ventral to black body bands
 *Arion fasciatus*

Extended body length of adults, 40-50 mm. Mid-dorsal ridge is usually conspicuous even in adults. Dorsal body ground color light gray, becoming slightly lighter just dorsal to the black body bands. Mid-dorsal portion of the mantle is gray, fading to pale grayish yellow just above the mantle bands. Immediately below each lateral body band is a yellow or orange band of about the same width as the black body band. Sides of the foot and sole are white.

Introduced from Europe into most of Canada and the United States. It is the most widely distributed of all the introduced Arionids.



***Arion fasciatus* (Nilsson)**

5b. Body sides without the yellow or orange band 6

6a. Body bands black; dorsum medially black and laterally brown (there appears to be a pair of light brown bands just above the black body bands) *Arion silvaticus*

Extended body length of adults, 40 mm. Lateral bands broad and darkly pigmented. Because the area just above the lateral bands is lightest in color there appears to be a pair of light bands present between the dark mid-dorsum and the dark lateral bands. Dorsum has a distinctly chocolate brown tinge, although apparently there is no brown pigment present. Body sides are slightly paler than the dorsum. Valleys between the lateral tubercles darkly pigmented, producing a distinctly reticulated appearance.

Foot fringe dark spotted almost to the extent of being lineolate. Foot sole pale yellowish white. Slime is clear.



Arion silvaticus Lohmander

6b. Body bands black or brown; dorsum entirely gray, flecked with black; or reddish brown, flecked with darker brown. *Arion circumscriptus*

There are two color forms of this species in the Northeast. The more common black form has an extended adult body length of 40 mm. The dorsal and lateral ground color is gray. The dorsum including the mantle is distinctly flecked with black markings of various shapes and sizes. When fully contracted the animal appears almost black. Lateral black body bands are present. Sides not darker than the area immediately above the bands. Foot sole is bluish-white. Slime clear. The brown form is identical to the black form except that brown pigment replaces the black pigment. Both color form may be present at a single location.

Scattered populations of this species occur throughout Canada and the United States, including the Southeastern Canada and Northwestern United States. It is much less common than *Arion fasciatus*.



Arion circumscriptus Johnston

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