

CEPAEA NEMORALIS (LINN.) IN EASTERN NORTH AMERICA

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The Banded Wood Snail, *Cepaea nemoralis* (Linn.) has been introduced into Eastern United States and Canada from Europe, both intentionally and accidentally. Binney (1869) states that "in 1857 I imported some hundred living specimens from near Sheffield, England and freed them in my garden in Burlington, New Jersey. The whole town is full of them now — 1865." The large colony at Lexington, Virginia, first found in 1886 and reported by Pilsbry in 1889, was introduced from Italy (Barber, 1918). Rippon in 1894 imported this snail from Upper Norwood, Kent, England and liberated them in Toronto, Canada (Oughton, 1938). Brooks and Brooks (1934) state that the specimens found at Hot Spring, Virginia were imported from Holland on the roots of boxwood trees. Specimens in Massachusetts were possibly introduced from Ireland on rose bushes on two estates near Marion (Johnson, 1928). (Specimens found in southern California at Los Angeles (1938 and 1940) were found in nursery stock, as well as at a nursery in Redondo Beach (1940), (Hill, *Nautilus* 55: 31, 1941; Los Angeles, F.M. REED-377. US-365212). Italian families near Twelve Corners, Brighton, near Rochester, New York say this snail has been here for about 20 years (Blakeslee, 1945). In Rhode Island the snail was found on the site of the Home Nursery, about 3 miles from Providence (Matteson, 1945). McColl said a nephew in 1917 sent some to him

from France to Owen Sound, Ontario (Pilsbry, 1928).

Within the United States specimens from the various localities have been transplanted. The Lexington colony has been transplanted to Knoxville, Tennessee by Mrs. Chas. C. Ross in 1910 (Barber, 1918) and thence Remington (Remington and Clench, 1924) took 100 live specimens from Knoxville, near the Campus of the University of Tennessee and planted them on the grounds of the Principia School in St. Louis, Missouri. Either the Lexington or Hot Springs, Virginia, colonies could have been taken to Warm Spring (Clench, 1939). Also the Lexington colony was transplanted to Blairsville, Pennsylvania (Harn, 1891). The specimens reported from Rockaway Beach, Long Island probably were introduced from Flushing, from where the top soil was brought (Jacobson & Smit, 1946).

A more thorough study of the specimens in several collections in North America indicates an even wider distribution than published records would lead one to think. Extensive collecting on my part in Virginia and in western New York has revealed many more large populations of this snail.

I wish to thank the curators of the following museums, either for sending me their records or letting me study their specimens: Dr. J.P.E. Morrison, United States National Museum (USNM); Dr. R. Tucker Abbott, Academy of Natural Sci-

ences of Philadelphia (ANSP); Dr. J. J. Parodiz, Carnegie Museum, Pittsburgh (CM); Dr. Wm. G. Clench, Museum of Comparative Zoology, Harvard University (MCZ); Dr. Alan Solem, Chicago Natural History Museum (CNHM); Dr. Henry van der Schalie, Museum of Zoology, University of Michigan, Ann Arbor (U. Mich.); Dr. Percy A. Morris, Peabody Museum of Natural History, Yale University (YPM); Dr. Charles H. Rogers, Princeton Museum of Zoology (PMZ); Dr. Wm. G. Scheele, Natural History Museum, Cleveland (CMNH); Dr. F. H. Whittaker, University of Louisville (ULKy).

CANADA

Published records: Packard, A. S. A List of the Animals Dredged near Caribou Island, Southern Labrador, during July and August, 1860. *Canad. Nat. & Geol.*, 8: 401-429, 2 pls. 1863.

Latchford, Frank R. Shells of Anticosti. *Am. Nat.* 18: 1051-1052. 1884. (Magdalen Isl., Entry Isl., Anticosti. (Orig. *C. hortensis*, corrected later to *C. nemoralis*).

Pilsbry, H. A. *Helix nemoralis* in Ontario. *Nautilus* 42: 42-43. 1928. Owen Sound. Found by Mr. W. R. McColl who said his nephew had sent him this snail from France in 1917. Ground color pale pink to pale yellow: 18-12345; 1-123(45).

Latchford, F. R. Some introduced Molluscs. *Canad. Field-Nat.*, 44: 33. 1930; *Nautilus* 43: 44. 1930. Owen Sound, Ontario.

Oughton, John. Notes on *Hygromia striolata* (Pfr.) at Toronto, Canada. *Nautilus* 51: 137-140. 1938. Rippon, E. V., Aug. 1894, imported 65-90 living *Cepaea nemoralis* and *Cepaea hortensis* from Upper Norwood (Crystal Palace), Kent, England and liberated them in Rosedale Valley Drive, near the Huntley and Sherbourne St. bridges in Toronto. In 1938, both *Cepaeas* seem to have vanished.

La Rocque, Aurèle. Checklist of the Non-Marine Mollusca of Quebec. *Sterkiana* 7: 23-44. 1962. (*C. nemoralis*, p. 36, no. 165).

Museum specimens: ONTARIO: Bruce Co., Southampton on Lake Huron. 1946, M. Teskey Coll. (CNHM-111647; CNHM-109756; U. Mich. 175095); Sieberton, 1945. (CM); Grey Co.: Owen Sound on Georgian Bay, near Lake Huron. (MCZ; ANSP - first found about 1890); M. Teskey coll. (CNHM-109-759); Owen Sound. (U. Mich. -63417 and 153361); East Owen Sound, Third Avenue. (U. Mich. -201311); Meaford on Georgian Bay. (MCZ; U. Mich. -181328); Middlesex Co.: London. (U. Mich. -181329); Toronto, near ravine east of Bathurst. (U. Mich. -181330).

QUEBEC: Gaspé Co.: Bonaventure Island. (U. Mich. -56048).

NOVA SCOTIA: Halifax Co.: East Petpeswick. (U. Mich. -181339).

INDIANA

Museum specimens: Falls of the Ohio River, New Albany, Floyd Co. Oct. 9, 1902. Billups coll. (CNHM-74167).

KENTUCKY

Museum specimens: In Ohio River Drift, at mile 600, 5 miles upstream from the Falls of the Ohio, at Louisville. April 29, 1964. David Bickel. (In correspondence to author, Oct. 20, 1964, a single shell, slightly worn).

MARYLAND

Published records: Abbott, R. Tucker. Snail Invaders. *Natural History*, Feb. 1950; 83, map. Indication on map for species in Maryland; no specimens available. Note: Wayne Grimm planted specimens taken from the station at Burlington, N. J. in his backyard in Catonsville, Baltimore County, Maryland. 20-30 specimens planted; in fall 1959 he found all the shells in mole and shrew runs in his backyard; a search of the locality in September 1964 revealed no specimens.

MASSACHUSETTS

Published records: Johnson, C.W., *Helix nemoralis* in Massachusetts. *Nautilus* 40: 93. 1927. Found by Marion F. Lewis in garden, Marion. Oct. 10, 1926. (var. *libellula*, 18; var. *rubella*, 13; also 12345 (one of each var.); 00000 (7 var. *libellula*, 1 var. *rubella*); 123(45) - 7; 00300 - 6; 00345 - 3 (all var. *libellula*); 00000 - 1 and 10300 - 11 of var. *rubella*.

Johnson, C.W. Further notes on the colony of *Helix nemoralis* in Massachusetts. *Nautilus* 41: 47-49. 1928. Possibly introduced from Ireland on rose bushes on two estates. 122 shells studied; also 790 shells reported for Dr. H. E. Crampton from Marion. Var. *libellula*, 63; var. *rubella*, 59; 00000 - 29 and 9; 00300 - 22 and 29; 00345 - 4 and 4; 12345 - 4 and 4. Crampton's records: var. *libellula*, 402 and var. *rubella*, 388; 00000 - 157 and 78; 00300 - 159 and 175; 00345 - 26 and 54; 003(45) - 2 and 16; 00305 - 2 and 4; 12345 - 39 and 38; 123(45) - 3 and 15.

Clench, W. J. Additional notes on the colony of *Helix nemoralis* at Marion, Massachusetts. *Nautilus* 44: 13-14. 1930. 1863 shells studied, belonging to var. *libellula*, 987 and var. *rubella*, 876 with 16 stripe variations, the most prevalent types being: 00000 - 413 and 178; 00300 - 399 and 475; 00345 - 84 and 104; 12345 - 70 and 92.

Rehder, H. A. *Cepaea nemoralis* in Boston. *Nautilus* 61: 35. 1927. Jamaica Plains, 1000 block of Centre St., Boston. 12345 - 19; 00300 - 7.

Museum specimens: Barnstable Co.: Chatham, Old Harbor Rd., Cape Cod. (ANSP); Bristol Co.: South Dartmouth. (MCZ); Essex Co.: Gloucester. Roper, 1890. (CM); Plymouth Co.: Marion. Archer, 1930. (CM; MCZ); Rehder. (USNM); Marion. (U. Mich. -214567 and 52880); Clench. (USNM); Clench coll. Nov. 12, 1930. (CNHM-26198); (CNHM-33182, MCZ coll., 1950); (CNHM-77167 from USNM coll.); Junction Rt. 105 and 106, Marion. E. B. Baker, 1960. (CNHM-

99802); Norwell. (MCZ); Wareham. (MCZ); Plymouth. (MCZ); Onset. (MCZ); Suffolk Co.: Stoney Brook, Hyde Park. (MCZ); Boston University Campus, Boston. (MCZ); Jamaica Plains, Palmer, 1947. (USNM). Roslindale. (MCZ); Martha's Vineyard. (U. Mich. - 153365).

MISSOURI

Published records: Remington, P. S. and W. J. Clench. *Vagabonding for Shells*. *Nautilus* 38: 127-143. 1924. On page 141, "100 live specimens were taken by Remington and planted on the grounds of the Principia School in St. Louis."

NEW JERSEY

Published records: Binney, W.G. *Land and Fresh Water Shells of North America*, 1: 182. 1869. Introduced from England in 1857, and planted at Burlington, Burlington Co., New Jersey.

Pilsbry, H. A. *Land Mollusca of North America, north of Mexico*. 1(1): 9-10. 1939. Many records cited for eastern United States, and Burlington.

Museum specimens: Burlington Co.: Binney. (ANSP; USNM; CM; MCZ). Pilsbry (ANSP; USNM-203314). Burlington, fields at Tatham and Pearl Sts., along Rancocas and Delaware rivers. Aug. 29, 1964. C. F. Reed. 11 shells collected (00000 - 5; 00300 - 2; (123)(45) - 4, of which 2 are nearly (12345); Burlington. (U. Mich. - 153362).

NEW HAMPSHIRE

Museum specimens: Coos Co., Berlin. (MCZ).

NEW YORK

Published records: Prime, Henry. *Catalogue of Land Snails of Long Island, New York*. *Nautilus* 8: 69-70. 1894. *Tachea nemoralis*, p. 70. Flushing, Astoria, Lloyds Neck. Blakeslee, C. L. *The Cepaea nemoralis*

of Brighton, Monroe County, New York. *Nautilus* 59: 44-47. 1945. Near Twelve Corners, east of Rochester; Italian family says this snail has been here about 20 years.

Jacobson, Morris K. and Walter Smit. And now in Rockaway Beach - *Cepaea nemoralis*. *Nautilus* 60: 2-4. 1946. Rockaway Beach, Long Island. April 18, 1946, at Beach 136th St., between the ocean and Rockaway Blvd.; first noticed 2 years ago; top soil brought from Nassau Co. (Flushing). Most prevalent types: 00000-209; 12345-76 (some few 123(45) or (12)345); 00300-6; 12045-1; 12340-1. Uniformly greenish lemon yellow, var. *petiveria*.

Flipse, Robert C. A mixed colony of *Cepaea nemoralis* and *Cepaea hortensis* on Long Island, New York. *Nautilus* 61: 132-133. 1948. At Douglaston, Queens Co. in New York City. (Flushing, 4 mi. away; Astoria, 8 mi. away; Lloyds Neck, Suffolk Co., 22 mi. away, which colony Prime states is extinct.) 28 specimens, A. Burnham, Flushing, 1922 (MCZ).

Landman, M. Alan. Statistics on a colony of *Cepaea nemoralis*. *Nautilus* 69: 104-106. 1956. Springfield Gardens, Queens Co., N.Y. Sept. 23, 1955. (Merrick Blvd., Sunbury Rd., Irwin Place and Ursina Rd.). 1297 shells studied. Said to have been here for 40 years; may be related to the Flushing records - 1906. Most prevalent types: 00000 - 669 and 104; 12345 - 333 and 4; 00300 - 43 and 13; 123(45) - 44 and 0; 12045 - 28 and 0; (12)3(45) - 12 and 0; 20 other codes given with 6 to 1 specimens for each. Yellow and pink vars. represented as indicated above. St. Albans, Long Island, N. Y. Sunbury Rd. at 120th St. 92 shells studied: 00000 - 50 and 6; 12345 - 25; 00300 - 7; (12)3(45) - 2; 12045 - 1; 10345 - 1. All yellow except some of the first code. Linden and Merrick Blvds., Long Island. Sept. 26, 1955. All yellow. 00300 - 1; 123(45) - 1; (12)3(45) - 1; (123)45 - 1; 00345 - 1. Baisley Blvd., Sunbury Rd. and Merrick Rd. Sept. 26, 1955. 00000 - 3 and 1; 12345 - 2; 123(45) - 1; (12)3(45) - 1.

Museum specimens: Brooklyn, Bay Parkway, Washington Cemetery. (U. Mich. - 166420); Flatbush, Long Island. (U. Mich. - 153363); Flushing. (MCZ; ANSP; USNM - 499458); L. Brand coll. (CNHM-106662); Long Island. Sanderson coll. (USNM-306350); Douglaston. Jacobson. (CNHM-84763); Rockaway Beach, 136th St. Jacobson. (CNHM-84761); Nassau Co.: Lynbrook, in garden. Sept. 16, 1960. Wayne Grimm; Marion Co.: Brighton near Rochester, near Twelve Corners, 1945. (ANSP; U. Mich. - 165533); Jacobson (CNHM-84841); corner of Elmwood and Antler Sts. May 20, 1948. M. Teskey coll. (CNHM-109763).

Livingston Co.: Dansville. Slopes of fields and woods, 1 mi. W of Dansville, Rt. 245. (97 shells). Aug. 9, 1964. C. F. Reed and (250 shells) Sept. 5, 1964. C. F. Reed; slopes 2 mi. W of Dansville, Rt. 245. (66 shells). Aug. 9, 1964. C. F. Reed; slopes near reservoir, Rt. 245, 3 mi. W of Dansville. (20 shells). Sept. 5, 1964. C. F. Reed; slopes along Canaseraga Creek, W of Dansville. (50 shells). Sept. 5, 1964. C. F. Reed. The slopes, fields, and woods west of Dansville along Rt. 245 and along the Canaseraga Creek are overrun with this snail. At the Canaseraga Creek on the west slope is a city dump from which the snails may have migrated. However, since they are plentiful up to 3 miles away, they have probably been here for some time. On the east bank of Canaseraga Creek is a nursery. This is the more probable source of the snail from nursery stock. Both yellow and pink shells were found and the most prevalent stripe types for 419 shells studied are: 00000-302; 00300 - 33; 12345 - 54; 123(45) - 17; also present in the population are: 00345 - 1; 1(23)45 - 3; (123)45 - 2; 10345 - 3; (12)3(45) - 1; 02345 - 2; 12000 - 1.

OHIO

Museum specimens: Hamilton Co.: Cincinnati. (MCZ).

PENNSYLVANIA

Published records: Harn, E. H. Western Pennsylvania Shells. *Nautilus* 4: 136-137. 1891. Introduced to Blairsville, Pa. from Lexington, Va. On Sept. 7, 1964, I visited the area about Blairsville, Indiana Co., Pa. and was informed by an elderly man that striped snails had been plentiful (20-40 years ago) for many years on the south side of the Conemaugh River, in Bardstown (which is in Westmoreland Co.). However, he had not seen any in recent years. Across the river was an old estate and garden along where the old boulevard had been; probably where Harn lived. At the present time there is nothing here except thickets and some of the old trees and shrubs.

RHODE ISLAND

Published records: Matteson, Ellen G. Rhode Island is invaded - *Cepaea nemoralis*. *Nautilus* 59: 47-48. 1945. Norwood, Rhode Island, 3 mi. from Providence on the site of the Home Nursery. Also transplanted to Miss Matteson's home, 7 miles away.

Clench, W. J. *Cepaea nemoralis* (Linne) from Newport, Rhode Island. *Nautilus* 74: 82. 1960. In abandoned quarry near Rogers High School, in Newport. Found by J. J. Mahoney, Jr. in 1959.

SOUTH CAROLINA

Museum specimens: Spartanburg Co.: Roebuck. Prime coll. (CM).

TENNESSEE

Published records: Barber, Manly D. *Helix nemoralis* in Knoxville, Tennessee. *Nautilus* 31: 107. 1918. Transplanted from Lexington, Virginia in 1910 by Mrs. Chas. C. Ross, who met the person who originally brought them from Italy.

Cockerell, T.D.A. *Helix nemoralis* at Knoxville, Tennessee. *Nautilus* 31: 133. 1918. 102 specimens studied; most prevalent types were: 00000 - 32; 12345 - 36; 123(45) - 20.

Remington, P.S. and W.J. Clench. Vagabonding for Shells. *Nautilus* 38: 127-143. 1924. *Helix nemoralis* introduced near campus of University of Tennessee, Knoxville.

Museum specimens: Knox Co.: Knoxville. Barber, 1919. (CM; MCZ; USNM-408-474); P. J. Adams, 1920. (USNM-408478); Univ. Tennessee Campus. (U. Mich-29002).

VIRGINIA

Published records: Pilsbry, H.A. *Helix nemoralis* in Virginia. *Nautilus* 3: 51-52. 1889. First recorded on Virginia Military Institute Campus, 1886. Shells sent to Cockerell, at West Cliff, Colorado.

Cockerell, T.D.A. The Virginia colony of *Helix nemoralis*. *Nautilus* 3: 73-77. 1889. Studied 103 specimens, coll. by J.H. Morrison, V.M.I.

Cockerell, T.D.A. The Virginia colony of *Helix nemoralis*. *Nautilus* 8: 92-95. 1894. Coll. by J. H. Morrison, Oct. 26, 1889 and Nov. 1, 1889.

Brooke, Mrs. John M. The Colony of *Helix nemoralis* at Lexington, Virginia. *Nautilus* 10: 142-143. 1896. Shells were mainly solid dark brown when introduced, but never seen now in 1896.

Cockerell, T.D.A. The Virginia colony of *Helix nemoralis*. *Science, N.S.*, 5: 985-986. 1897.

Howe, J. L. Variation in the shell of *Helix nemoralis* in the Lexington, Virginia colony. *Amer. Nat.* 32: 913-923. 1898. Total number of variations - 387, each with a different code; 277 var. nov.; and 77 have more than 1 shell.

Brooks, Stanley T. and Betty W. Brooks. A new colony of *Helix nemoralis* with some observations on their color. *Nautilus* 47: 96-100. 1934. Hot Spring, Bath Co., Virginia, imported from Holland on roots of boxwood trees.

McConnell, Duncan. Changes in the frequencies of the variations of *Cepaea nemoralis* (Linne). Amer. Nat. 69: 614-620. 1935.

Vanatta, E. G. A new subspecies of *Zonitoides* (*Ventridens*) *suppressa* Say. Nautilus 49: 99-100. 1936. *Helix nemoralis* from New Market, Shenandoah Co., Virginia.

McConnell, Duncan. Notes on *Helix nemoralis* at Lexington, Virginia. Nautilus 50: 15-16. 1936. Introduced at Lexington in 1883 from Europe (Italy).

Ortmann, A.E. *Helix nemoralis* in Lynchburg, Virginia. Nautilus 39: 73-74. 1936. Collected at Ivy Creek, falling into James River, spanned by bridge, Main St. and Rivermont Ave. and along Norfolk and Western R.R. Also at Valley of Blackwater Creek, NW of Lynchburg at Lynchburg College, 1922, by S.C. Crawford. All specimens of yellow ground color (*libellula*); 12345-7; 123(45) - 1; (12)3(45) - 1; 10345 - 1.

Clench, W. J. *Helix nemoralis* at Warm Spring, Virginia. Nautilus 52: 108. 1939. First noticed in 1935, about 1/4 mi. S of town; may have been introduced from Lexington, or from Hot Springs, 5 mi. to the south.

Hubricht, Leslie. The Land Snails of Pittsylvania County, Virginia. Nautilus 66: 10-13. 1952. Danville, South Main St. between Paxton and Stokes Sts. 106 specimens studied: 00000 - 16 pink; 00000 - 1 yellow; 00300 - 20 yellow; 00345 - 7 yellow; 12345 - 62 yellow.

Museum specimens: Amherst Co., Madison Heights, slopes along Main St. at Third St. Oct. 11, 1964. C.F. Reed. 00000 - 8; (123)(45) - 2; 12(345) - 2; (12)3(45) - 5; 10345 - 3; (12)(345) - 1; 12345 - 14; 1(2345) - 1; (12345) - 3; 123345 - 1; 120(45) - 2; 12045 - 1; 123(45) - 25; 12300 - 1. On most of these specimens the bands are very broad, making some of the five banded specimens appear nearly black; similar to the specimens first observed at Lexington.

Amherst Co., yards at Main St. at Ninth St., Madison Heights. Oct. 11, 1964. C.F. Reed. All yellow, with very broad bands. 12345 - 8; 12045 - 1; 123(45) - 5; 123345 - 1; 10345 - 1.

Amherst Co., Madison Heights, Dawson St. at Ninth St. in yards. Oct. 11, 1964. C. F. Reed & James Nichols. 00000 - 10; 12345 - 8; 123(45) - 6; (123)(45) - 2.

Amherst Co., Snowdon, along James River, Rt. 521, in gardens and fields. Oct. 11, 1964. C. F. Reed. 00000 - 2; 12345 - 2; 123(45) - 1; 00300 - 1.

Bedford Co., wastes along James River, south of Snowdon, Rt. 521. Oct. 11, 1964. C. F. Reed. 00000 - 2; 12345 - 1.

Bedford Co., around old foundations at Forest, Rt. 450. Oct. 11, 1964. C.F. Reed. 00000 - 2; 12345 - 3; 123(45).

Goochland Co., garden at Crozier, Rt. 6, Oct. 10, 1964. C.F. Reed. 12345 - 1.

Fluvanna-Goochland Co., at Columbia, Rt. 6, banks along James River. Oct. 10, 1964. C.F. Reed. 00000 - 1; 12345 - 1.

Rockbridge Co., Buena Vista, Rt. 521, between 12 - 13th Sts., in lawns and flower beds. Oct. 11, 1964. C.F. Reed. 00000 - 2; 123(45) - 6; (12345) - 8; 12345 - 1; (12)3(45) - 2; 1(23)(45) - 1. Very broad bands, making the shells similar to the original specimens from Lexington.

Rockbridge Co., wastes along C & O RR and the Maury River in Buena Vista, Rt. 521 at Rt. 60. Oct. 11, 1964. C.F. Reed. 00000 - 8; 00300 - 2; 123(45) - 2; 10345 - 9; (12)3(45) - 2; 12345 - 16; 123345 - 1; 00345 - 2. Bands very broad making the shells very dark, again similar to the original specimens from Lexington, which is also on the Maury River, upstream.

Rockbridge Co., Lexington, first found in 1886. J. A. Morrison, 1889 (CM); G. Clapp (CM); Morgan, 1893 (CM); Ortmann, 1912 (CM); many collections in USNM by Brooke and J. A. Morrison; White St. C.K. Ellis (USNM-534107); W.J. Webb coll. May 12, 1930. (CNHM-26197 and 37229); G.H. Clapp, March 1, 1903 (CNHM-75023 and 74972); Nelson Coll. (CNHM-93200); Button coll. (CNHM-91481 and 91528).

Rockbridge Co., Lexington. Slopes, Hooke Lane, off Rt. 11, near Maury River, east of VMI. Sept. 17, 1964. C.F. Reed. 85 shells. (00000-44; 12345-20; 00300-4; 10345-4; (123)(45)-4; (12)3(45)-4; 00345-2; 023(45)-2; 00(345)-1). McLaughlin St. at R.R. Sept. 17, 1964. C. F.

Reed. 8 shells. (00000 - 2; 123(45) - 6). Slopes along RR at Nelson St., Washington & Lee University Campus. Sept. 17, 1964. C.F. Reed. 20 shells. (00000 - 5; 00300 - 3; 12345 - 8; (12)3(45) - 1; 02345 - 1; 12(34)5 - 1; 123(45) - 1). Lime Kiln Rd. at White St. Sept. 17, 1964. C.F. Reed. 28 shells. (00000 - 6; 123(45) - 8; 12345 - 4; 00300 - 1; 10345 - 1; 1(2345) - 1; (12)3(45) - 5). Slopes along Rt. 11 at Virginia Military Institute. Sept. 17, 1964. C.F. Reed. 42 shells. (00000 - 12; 123(45) - 8; 12345 - 8; 00300 - 4; 10345 - 5; 12045 - 1; 023(45) - 1; 00305 - 1; (12345)-2); Lexington. (U. Mich. - 153366 and 207131).

Augusta Co., Staunton. Mrs. C. A. Long, Oct. 9, 1938. (USNM-473904); Beverly St. Oct. 9, 1938. J.P.E. Morrison.(USNM-473578); M. S. Briscoe, July 30, 1941. (USNM-543101). 600-660 Frederick St., Sept. 17, 1964. C. F. Reed. (12345 - 2; 00000 - 1); 945 W. Beverly St. Sept. 17, 1964. C.F. Reed (00000 - 2; 12345 - 3; 12045 - 1; (123)(45) - 1).

Bath Co., Warm Springs. First noticed about 1935. Clench, 1939. (MCZ); limestone ledges, Rt. 220 at Rt. 29. June 18, 1964. C.F. Reed. (00000 - 2; 00300 - 2; 123(45) - 2; (123)(45) - 1); mountain slopes, Rt. 39, 1 mi. W of Warm Springs. Sept. 18, 1964. C.F. Reed. (00000 - 6; 00300 - 8; 123(45) - 4); limestone ledges, Rt. 39, 3 mi. W of Warm Springs. Sept. 18, 1964. C.F. Reed. (00000 - 18; 123(45) - 1; (123)(45) - 1).

Bath Co., Hot Springs. Imported from Holland, Brooks & Brooks, 1934, color variation. Slopes on Rt. 615, 1 mi. W of Hot Springs. Sept. 18, 1964. C.F. Reed. 169 shells. (00000 - 24; 00300 - 64; 12345 - 27; 123(45) - 43; 1(23)(45) - 3; (123)(45) - 5; (12345) - 1; 12045 - 1; 00345 - 8; 003(45) - 3). "Twenty years ago they use to climb all over the fences and houses in rainy weather. We raked them up" -- a native.

Bath Co., Bacova Junction. Rt. 615, on mountain slopes and in gardens on cabbages. Sept. 18, 1964. C.F. Reed. 95 shells. (00000 - 5; 00300 - 45; 00305 - 6; 02345 - 3; 003(45) - 10; 12345 - 6; 123(45) - 13; 1(23)(45) - 1; (123)(45) -1; (12345) - 1; 00(345) - 3; 00345 - 1; (12) 3(45) - 1). About 50 young brought for breeding purposes and study.

Alleghany Co., Covington. Along R.R. embankment near Jackson River. June 18, 1964. C. F. Reed. 60 shells. (00000 - 4; 12345 - 23; 10345 - 20; 12045 - 2; 10305 - 2; 10045 - 3; 00345 - 3; 123(45) - 2; 00305 - 1). Along R.R. Magazine St. at Hickory St., Covington. Sept. 18, 1964. C.F. Reed. 47 shells. (00000 - 11; 00300 - 9; 12345 - 19; 10345 - 7; 10305 - 1).

Alleghany Co., Clifton Forge, in gardens on cabbages, Rt. 220, along Jackson River in Clifton Forge. Sept. 18, 1964. C.F. Reed. (00000 - 4; 00300 - 3; 12345 - 4; 123(45) - 1). About 10 young specimens brought for breeding purposes.

Alleghany Co., Iron Gate, in gardens along Jackson River. Spet. 18, 1964. C.F. Reed. (12345- 1; 123(45) - 1; 00345 - 1).

Henrico Co., Richmond. Webb coll. (CNHM - 37233).

Botetourt Co., Lick Run, fields near where Jackson and Cowpasture rivers form the James River. Sept. 18, 1964. C.F. Reed. (00000 - 2; 12345 - 2).

Shenandoah Co., New Market. Vanatta, 1936 (in litt.); Rehder, 1947 (in litt.).

Campbell Co., Lynchburg. First noticed in 1922. Ortman, 1925 (CM); Blackwater Creek. Ortman, 1926 (CM). Lynchburg, along Norfolk & Western RR. Oct. 11, 1964. C.F. Reed. 00300 - 2.

It is of interest to note that Warm Springs, Hot Springs, Bacova Junction, Covington, Clifton Forge and Iron Gate are all on the Jackson River or its tributaries. Below Iron Gate the Jackson and Cowpasture rivers come together to form the James River. Then Lick Run, Lynchburg and Richmond are on the James River. Lexington is on the Maury River which runs into the South River, and then into the James River at Glasgow, Virginia. Then the James River goes on to Lynchburg.

The Staunton and New Market localities are on the drainage of the Shenandoah River, one on the Middle Fork and the other on the North Fork.

WISCONSIN

Published records: Rowley, Nettie A. *Helix nemoralis* in Wisconsin. *Nautilus* 6: 131-

132. 1893. Baraboo, Sauk Co., Wisconsin -- 1 shell of dubious origin.

Roy, Edward C., Jr. Checklist of Pleistocene and Living Mollusca of Wisconsin. *STERKIANA* 10: 5-21. 1963. (*Cepaea nemoralis*, p. 17, no. 313; based on Pilsbry, 1939: 9, doubtful record).

COLORADO

Cockerell, T.D.A. A List of the Mollusca of Colorado. *Nautilus* 3: 99-103. 1890. A few specimens from Burlington, New Jersey, were liberated near West Cliff, Colorado in about 1889.

Henderson, Junius. Mollusca of Colorado, Utah, Montana, Idaho and Wyoming. *Univ. Colo. Studies*, 13(2): 78 (list), 100 (note). 1924. "It would be interesting to know whether the two or three specimens liberated survived and established a colony" --- at West Cliff by Cockerell.

Although Dr. Cockerell was one of the founders of the University of Colorado Museum at Boulder, Colorado, Dr. Hugo G. Rodeck, Director of the Museum communicated to the author (Oct. 15, 1964) that "there is no reason to believe that we ever had Colorado specimens."

Abbott, R. Tucker. Snail Invaders. *Natural History*, Feb. 1950, map on p. 83. On the map

there is an indication in Colorado for this snail. A recent note from Dr. Abbott (Oct. 11, 1964) indicates his Colorado location was a literature record, probably the notes mentioned above, in addition to the note in Pilsbry, *Land Mollusca of North America North of Mexico* 1(1): 9-10. 1939.

Colorado should be deleted as a location for finding this snail in the live state, until better records have been located.

Other references of general knowledge concerning the distribution or color variations in *Cepaea nemoralis*.

Abbott, R. Tucker. Snail Invaders. *Natural History*, Feb. 1950, pp. 80-85. (*Cepaea nemoralis*, p. 83, map).

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