

Freshwater Mussels Confirmed or Possibly Occurring in Woodstown and Pilesgrove

The following are compiled from *Freshwater Mussels of the New York Metropolitan Region and New Jersey*. Available on the Internet:
<http://cbc.amnh.org/mussel/index.html>

Citation: Cordeiro, J. and J. Bowers-Altman. 2003. Freshwater Mussels of the New York Metropolitan Region and New Jersey. Center for Biodiversity and Conservation, American Museum of Natural History, NY, NY.

Species Summaries



Alasmidonta undulata (Say, 1817) triangle floater

Features:

size: 80mm

beak: heavy, coarse, uneven, with concentric sculpture; umbos extend above hinge line

color patterns: bright green color rays; nacre may be white, salmon, pink or red

shape: triangular ovate, anterior rounded, ventral margin broadly rounded

shell features: smooth, shiny yellow-brown periostracum, shell thickness decreases markedly from anterior to posterior

teeth: pseudocardinals strong, one in left valve, two in right; laterals vestigial; well-developed interdental tooth in the left valve

Status:

abundance: common

status: US, NY, CT: not legally protected; NJ: *threatened*; declining in parts of its N.A. range and considered by some observers to be a species of special concern in the metro area

Distribution:

N.A. distribution: Nova Scotia (Canada) west to the St. Lawrence River drainage, and south to Florida

present metro distribution: NY: upper Hudson River and upper Delaware River watersheds; NJ: Hackensack River; Lamington/Raritan River, Stony Brook, Ramapo River (lower Hudson River watershed), Lubbers Run/Musconetcong

River, and Paulins Kill River (upper Delaware River watershed). Pequest River, Hayne's Creek; CT: Connecticut River and Thames River watersheds



other regional localities: CT: all Connecticut watersheds except southwest coast and Hudson River watersheds

historical localities: CT: Housatonic River watershed

Woodstown -Pilesgrove Joint Environmental Commission Comment: This is a State-threatened species documented in Pilesgrove Township by the New Jersey Natural Heritage Program.

Life History:

habitat: large creeks and small rivers, sometimes lakes; found in both slow and fast-moving water; substrate may vary from silt/sand in slow -moving water to gravel/sand in fast water

hosts: *Campostoma anomalum* (Rafinesque, 1820) central stoneroller; *Cottus cognatus* (Richardson, 1836) slimy sculpin; *Etheostama flobellare* (Rafinesque, 1819) fantail darter; *Hypentelium nigricans* (Lesueur, 1817) northern hogsucker; *Lepomis gibbosus* (Linnaeus, 1758) pumpkinseed; *Luxilus cornutus* (Mitchill, 1817) common shiner; *Micropterus salmoides* (Lacepede, 1802) largemouth bass; *Notropis rubellus* (Agassiz, 1850) rosyface shiner; *Rhinichthys atratulus* (Hermann, 1804) blacknose dace; *Rhinichthys cataractae* (Valenciennes, 1842) longnose dace; *Semotilus corporalis* (Mitchill, 1817)

Plates
A. undulata



left view
periostracum shiny, color rays bright



right view
beak heavy



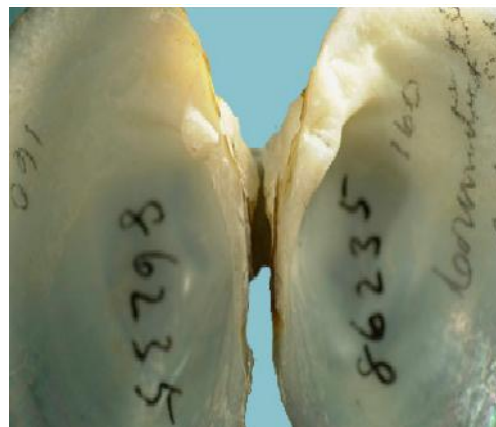
dorsal view



shell thickness decreases markedly



beak sculpture heavy, concentric



pseudocardinals strong,
laterals vestigial



Anodonta implicata (Say, 1829) alewife floater

Features:

size: 100mm (up to 125mm)

beak: double-looped sculpture not nodulous; umbos not elevated above the hinge line

color patterns: occasionally with fine rays; periostracum yellowish -brown, greenish-brown, or reddish-brown; nacre pink or purple, sometimes white;

shape: sub-elliptical and elongate; ventral margin straight

shell features: a marked increasing shell thickness from posterior to anterior below the pallial line; rounded posterior ridge

teeth: absent

Status:

abundance: uncommon

status: reportedly in decline; US, NY, NJ, CT: not legally protected

Distribution:

N.A. distribution: Nova Scotia west to Quebec (Canada), south to North Carolina

present metro distribution: NY: freshwater tidal Hudson River, upper Delaware River watershed; NJ: Millstone River (lower Hudson River watershed), and the outlet of Roosevelt Lake; CT: not present in the metro area



other regional localities: NY: upper Hudson River watershed; CT: Connecticut, Thames, Housatonic, and South central coast watersheds

historical localities: CT: Housatonic River watershed

Life History:

habitat: favors slow, sometimes fast running water, and also quiet standing water;
substrate: cobble; known from stony river bottom on the Neversink River in the lower Delaware River watershed (NY)

hosts: *Alosa pseudoharengus* (Wilson, 1811) alewife; *Catostomus commersoni* (Lacepede, 1803) white sucker; *Gasterosteus aculeatus* (Linnaeus, 1758) three spine stickleback; *Lepomis gibbosus* (Linnaeus, 1758) pumpkinseed; *Morone americana* (Gmelin, 1789) white perch

Plates

A. implicata

posterior



anterior
left view

posterior



anterior
right view



dorsal view



profile view
shape sub-elliptical and elongate



nacre pink; teeth absent



beak without protruberances



Corbicula fluminea (Muller, 1774) asiatic clam

Features:

size: 50mm, though typically smaller

beak: situated centrally, and highly placed above the hinge line

color patterns: distinguished by three brown or purple radial color bands near the umbos; periostracum brown or blackish brown; nacre colored white and purple

shape: inflated, triangular, or rounded triangular in older specimens

shell features: posterior external hinge ligament, with many coarse concentric ribs on epidermis

teeth: long, finely serrated laterals, two in the right valve and one in the left; pseudocardinals short, strong, with blunt surfaces, *three per valve*

Status:

abundance: uncommon

status: US, NY, NJ, CT: not legally protected

Distribution:

N.A. distribution: nearly all major eastern and midwestern river systems; Connecticut west to Minnesota and Iowa, south to Georgia, Oklahoma and Louisiana

present metro distribution: confined to several lakes on Long Island, NY

regional distribution: NY: all major watersheds except the upper Delaware River watershed; NJ: all major watersheds outside the Pine Barrens ; CT: Connecticut, Housatonic, Thames River and South central coast watersheds; East Twin Lakes (Housatonic River watershed)

Life History:

habitat: large rivers, canals and lakes on any hard substrate; some tolerance to salinity; limited tolerance to low calcium and acidity

hosts: no host required; free-swimming veliger larvae

Plates
C. fluminea



left view



right view



ventral view



profile view



nacre with bluish cast



long, fine laterals; 2 right, 1 left
pseudocardinals short, 3 per valve



many concentric ribs

no image



Elliptio complanata (Lightfoot, 1786) eastern elliptio

Features:

size: 100mm (may reach 125mm)

beak: trapezoidal sculpture, low and uninflated

color patterns: fine green color rays only in young individuals; periostracum may be yellowish, brownish or blackish; may have purple nacre

shape: sub-trapezoidal, may be compressed or inflated

shell features: angular posterior ridge, prominent posterior slope

teeth: well-developed triangular pseudocardinals, two in left valve and one in right valve, with rough surfaces; long, sharp laterals

Status:

abundance: abundant, often the most abundant unionid present

status: US, NY, NJ, CT: not legally protected

Distribution:

N.A. distribution: Nova Scotia (Canada) to Georgia; northern parts of the Great Lakes basin from Lake Ontario to the Lake Superior drainage

present metro distribution: throughout the metro region



other regional localities: NY: all watershed drainages except the Allegheny River, Eastern Lake Erie and the Lake Erie watershed, and most of the Niagara River basin above the falls; **NJ: all watersheds**; CT: all major watersheds

Life History:

habitat: All types of natural freshwater bodies

hosts: *Perca flavescens* (Mitchill, 1814) yellow perch, is the only verified host; other, suspected hosts include *Fundulus diaphanus* (Lesueur, 1817) banded killifish; *Lepomis cyanellus* (Rafinesque, 1819) green sunfish; *Lepomis humilo* (Girard, 1858) orange-spotted sunfish; *Micropterus salmoides* (Lacepede, 1802) largemouth bass; *Pomoxis annularis* (Rafinesque, 1818) white crappie



***Leptodea ochracea* (Say, 1817)** tidewater muck et

Features:

size: 75mm

beak: weakly double-looped sculpture rising above the hinge line; moderately swollen with deep beak cavity

color pattern: many fine dark rays on pale greenish yellow; periostracum satiny, yellow to golden brown; nacre may be pink to salmon-colored

shape: sub-ovate; sexes are dimorphic

shell features:

teeth: delicate but well-developed hinge, pseudocardinals compressed and curved, two in each valve

Status:

abundance: rare

status: US, NY: not legally protected; NJ, CT: *threatened*

Distribution:

N.A. distribution: Nova Scotia (Canada) to Georgia

present metro distribution: NY: freshwater tidal Hudson River



other regional localities: NY: Grass River (northern St. Lawrence River watershed); NJ: mid, lower and upper Delaware River watershed; CT: lower Connecticut River watershed

historical localities: NJ: Passaic River (lower Hudson River watershed); CT: Housatonic River watershed

Life History:

habitat: freshwater tidal rivers, standing coastal ponds including oxbows and sloughs, quiet tidal water; substrate: silt, mud

hosts: *Morone americana* (Gmelin, 1789) white perch

Plates
L. ochracea



left view



right view



dorsal view



profile view



nacre whitish; may be pink or salmon



beak sculpture double-looped



pseudocardinals compressed



hinge teeth delicate



***Ligumia nasuta* (Say, 1817)** eastern pondmussel

Features:

size: 100mm

beak: umbos extended only slightly above the hinge line

color patterns: black, rarely with fine color rays over the posterior half of the shell; periostracum dark brown; nacre bluish-white but may be purple

shape: elongate, and pointed posteriorly

shell features: distinct posterior ridge

teeth: one to two pseudocardinals in each valve; laterals long and straight

Status:

abundance: uncommon

status: US, NY: not legally protected; NJ: *threatened*; CT: *special concern*

Distribution:

N.A. distribution: Nova Scotia (Canada) to South Carolina and west to the northern Interior Basin

present metro distribution: NY: upper Delaware River watershed; NJ: Swartswood Lake (upper Delaware River watershed), Delaware River, Cohansey Creek, Mantua Creek, Pennsauken Creek tributary and Raccoon Creek in Gloucester County, Pompeston Creek in Riverton (lower Delaware River watershed), Raritan River; CT: not present in metro area



other regional localities: NY: Allegheny River watershed, eastern Lake Erie watershed, Lake Ontario watershed, southwestern Lake Ontario watershed, St. Lawrence River watershed, Webatuck Creek (Housatonic River watershed), Oswego River watershed, upper Hudson River watershed; NJ: none known; CT: All watersheds except Hudson River watershed

historical localities: NY: Lake Erie watershed; NJ: Stony Brook (lower Hudson River watershed); CT: South central coast watershed

Life History:

habitat: quiet standing water of estuaries, lakes and canals, and slow streams;
substrate: silt and sand (varies)

host: *not known*

Plates
L. nasuta



left view



right view



dorsal view



profile view



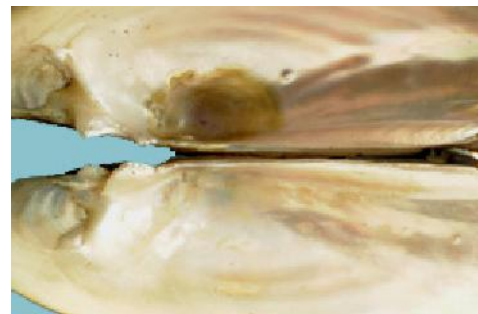
posterior end drawn to a point



beak sculpture double-looped



laterals thin and sharp



pseudocardinals delicate



Pyganodon cataracta (Say, 1817) eastern floater

Features:

size: 100mm (up to 150mm)

beak: sculpture of 5-7 low, evenly raised double loops elevated above hinge line

color patterns: fine green color rays (may be absent in older individuals); periostracum usually greenish

shape: elongate, sub-elliptical to sub-ovate
shell features: smooth, thin shell; nacre bluish -white
teeth: absent

Status:

abundance: abundant

status: US, NY, NJ, CT: not legally protected

Distribution:

N.A. distribution: Saint Lawrence River (Canada) to Georgia, and west nearly to Michigan

present metro distribution: NY: upper Delaware River watershed; NJ: Passaic River (lower Hudson River watershed); CT: Housatonic River watershed



other regional localities: NY: Lake Ontario watershed, southeastern and southwestern Lake Ontario watersheds, Oswego River watershed, Housatonic River watershed, upper Hudson River watershed, upper Susquehanna River watershed; **NJ: most New Jersey watersheds**; CT: all watersheds

historical localities: NY: Allegheny River watershed, St. Lawrence River watershed; CT: Southeast coast watershed

Life History:

habitat: slow and standing water, including oxbows and sloughs; substrate of fine sand, mud, and even silt

hosts: *Ambloplites rupestris* (Rafinesque, 1817) rock bass; *Catostomus commersoni* (Lacepede, 1803) white sucker; *Cyprinus carpio* (Linnaeus, 1758) common carp; *Gasterosteus aculeatus* (Linnaeus, 1758) threespine stickleback; *Lepomis gibbosus* (Linnaeus, 1758) pumpkinseed; *Lepomis macrochirus* (Rafinesque, 1819) bluegill; *Perca flavescens* (Mitchill, 1814) yellow perch

Plates
P. cataracta



exterior view
periostracum greenish, shell thin;
shape elongate, sub-elliptical to sub-
ovate



interior view
nacre white with pink and bluish
color



dorsal view



profile view



interior view
no teeth



interior view
both valves



Strophitus undulatus (Say, 1817) creeper

Features:

size: 100mm

beak: typically sharply defined, with coarse concentric sculpture slightly depressed

color patterns: fine green color rays may be apparent on posterior slope; periostracum yellowish or greenish, dark brown; nacre bicolored, white to bluish

shape: sub-ovate to sub-elliptical with posterior end blunt

shell features: shape variable; if beak sculpture is unclear, identification may be difficult

teeth: hinge teeth absent; pseudocardinals may be represented by a slight thickening of the nacre in each valve

Status:

abundance: common to abundant

status: US, NY, CT: not legally protected; NJ: *special concern*

Distribution:

N.A. distribution: Nova Scotia (Canada) west to Saskatchewan, south to Pennsylvania and the Atlantic slope to Georgia; and from Ontario southwest through the Ohio and Mississippi River interior basin drainages to Texas

present metro distribution: NY: all watersheds; NJ: lower Hudson River watershed, upper Delaware River watershed; CT: Housatonic River watershed



other regional localities: NY: Lake Ontario watershed, upper Hudson River watershed; NJ: upper Hudson River watershed; CT: Connecticut, Housatonic and Thames River watersheds

historical localities: CT: lower Connecticut River watershed, South central coast watershed

Woodstown -Piles Grove Joint Environmental Commission Comment: This is a State-listed *Special Concern* species documented in Piles Grove Township by the New Jersey Natural Heritage Program.

Life History:

habitat: slow water of all sizes, and lakes; substrate: silt, sand, gravel and mixes

hosts: *Ambloplites rupestris* (Rafinesque, 1817) rock bass; *Ameiurus melas* (Rafinesque, 1820) black bullhead; *Ameiurus natalis* (Lesueur, 1819) yellow bullhead; *Camptostoma anomalum* (Rafinesque, 1820) stoneroller; *Cottus cognatus* (Richardson, 1836) slimy sculpin; *Cubea inconstans* (Kirtland, 1841)

brook stickleback; *Etheostoma caeruleum* (Storer, 1845) rainbow darter; *Etheostoma exile* (Girard, 1859) Iowa darter; *Etheostoma flabellare* (Rafinesque, 1819) fantail darter; *Etheostoma nigrum* (Rafinesque, 1820) Johnny darter; *Etheostoma olmstedi* (Storer, 1842) tessellated darter; *Fundulus zebrinus* (Jordan and Gilbert, 1883) plains killifish; *Ictalurus punctatus* (Rafinesque, 1818) channel catfish; *Lepomis cyanellus* (Rafinesque, 1819) green sunfish; *Lepomis gibbosus* (Linnaeus, 1758) pumpkinseed; *Lepomis macrochirus* (Rafinesque, 1819) bluegill; *Lota lota* (Linnaeus, 1758) burbot; *Luxilus cornutus* (Mitchill, 1817) common shiner; *Micropterus dolomieu* (Lacepede, 1802) smallmouth bass; *Micropterus salmoides* (Lacepede, 1802) largemouth bass; *Nocomis micropogon* (Cope, 1865) river chub; *Notophthalmus viridescens* (Rafinesque, 1820) red-spotted newt; *Notropis hudsonius* (Clinton, 1824) spottail shiner; *Notropis lundibundis* (Girard, 1856) sand shiner; *Oncorhynchus mykiss* (Waldbaum, 1792) rainbow trout; *Perca flavescens* (Mitchill, 1814) yellow perch; *Percina caprodes* (Rafinesque, 1818) log perch; *Percina maculata* (Girard, 1859) blackside darter; *Percina phoxocephala* (Nelson, 1876) slenderhead darter; *Pimephales notatus* (Rafinesque, 1820) bluntnose minnow; *Pimephales promelas* (Rafinesque, 1820) fathead minnow; *Pomoxis annularis* (Rafinesque, 1818) white crappie; *Pomoxis nigromaculatus* (Lesueur, 1829) black crappie; *Rhinichthys atratulus* (Hermann, 1804) blacknose dace; *Rhinichthys cataractae* (Valenciennes, 1842) longnose dace; *Salvelinus fontinalis* (Mitchill, 1814) brook charr; *Semotilus atromaculatus* (Mitchill, 1818) cheek chub; *Stizostedion vitreum* (Mitchill, 1818) walleye; *Umbra limi* (Kirtland, 1840) central mudminnow; also, *no host required*

Plates

Strophitus undulatus



left valve



right valve



dorsal view



profile view



interior profile; bicolored nacre



teeth appear absent



beak sculpture coarse, concentric



pseudocardinals appear vestigial



Utterbackia imbecillis (Say, 1829) paper pondshell

Features:

size: 100mm

beak: compressed, below line of dorsal margin when viewed laterally, double looped with weak ridges

color patterns: brownish green to brown, occasional green rays; interior white to bluish white, iridescent posteriorly

shape: moderately elongate, sub-rectangular

shell features: thin and fragile, posterior pointed, hingeline straight; posterior ridge moderately angled

teeth: teeth lacking

Status:

abundance: widespread and common

status: U.S., NY, NJ, CT: not legally protected; also known as papershell or paper floater

Distribution:

N.A. distribution: Maryland to Wisconsin, south to Kansas, Oklahoma and Texas, and on the Atlantic slope from New York to northern Florida and Mexico
present metro distribution: NY: not present in metro area; NJ: tributaries of the lower Delaware River; CT: does not occur



other regional localities: NY: Great Lakes region; NJ: lower Delaware River tributaries;

Life History:

habitat: ponds, lakes, and muddy-bottomed pools in rivers and streams

hosts: has more identified potential hosts than any other unionid, including many tropical aquarium fish and three amphibians; known fish hosts include: *Ambloplites rupestris* (Rafinesque, 1817) rock bass; *Aplocheilus lineatus* (Cuvier and Valenciennes, 1835) panhead killifish; *Barbus semifasciolatus* (Gunther, 1868) golden barb; *Betta splendens* (Ryan, 1809) Siamese fighting fish; *Brachydonia kerri* (Smith, 1931) blue danio; *Colisa lalia* (Hamilton, 1822) flame gourami; *Etheostoma lepidum* (Baird and Girard, 1853) greenthroat darter; *Fundulus diaphanus* (Lesueur, 1817) banded killifish; *Gambusia affinis* (Baird and Girard, 1853) mosquitofish; *Haplochromis venustus* (Boulenger, 1908) marbled cichlid; *Hemigrammus erythrozonus* (Durbin, 1909) glowlight tetra; *Lepomis cyanellus* (Rafinesque, 1819) green sunfish; *Lepomis gibbosus* (Linnaeus, 1758) pumpkinseed; *Lepomis gulosus* (Cuvier, 1829) warmouth; *Lepomis macrochirus* (Rafinesque, 1819) bluegill; *Lepomis marginatus* (Holbrook, 1855) dollar sunfish; *Lepomis megalotis* (Rafinesque, 1820) longear sunfish; *Melanotaenia maccullochi* (Ogilby, 1915) Australian rainbowfish; *Melynnis argenteus* (Ahl, 1923) silver dollar; *Micropterus salmoides* (Lacepede, 1802) largemouth bass; *Moenkhausia oligolepis* (Gunther, 1864) redeye tetra; *Pangio myers* (Harry, 1949) black loach; *Perca flavescens* (Mitchill, 1814) yellow perch; *Poecilia reticulata* (Peters, 1859) guppy; *Pomoxis nigromaculatus* (Lesueur, 1829) black crappie; *Pseudotropheus zebra* (Boulenger, 1899) zebra Malawi cichlid;

Rasbora einthovenii (Bleeker, 1851) brilliant rasbora; *Semotilus atromaculatus* (Mitchill, 1818) creek chub; *Trichogaster trichopterus* (Pallas, 1770) lavender gourami; *Xiphophorus helleri* (Heikel, 1848) painted sword

Amphibian Hosts: *Ambystoma tigrinum* (Green, 1825) tiger salamander; *Rana catesbeiana* (Shaw, 1802) bullfrog; *Rana pipens* (Schreber, 1782) northern leopard frog; *Xenopus laevis* (Daudin, 1852) African clawed frog

Plates
U. imbecillis



left view



right view



dorsal view



profile view



nacre
white to bluish, iridescent posteriorly



interior view
no teeth