

Two New Fossil Gastropod Taxa from the Southeastern United States

Edward J. Petuch¹ and David P. Berschauer²

¹ Department of Geosciences, Florida Atlantic University, Boca Raton, Florida
ecphora3@outlook.com

² Santa Barbara Museum of Natural History
 2559 Puesta del Sol, Santa Barbara, California 93015
shellcollection@hotmail.com

ABSTRACT Two new fossil gastropod taxa are described from the Neogene of the southeastern United States, including a new subspecies of ocenebrine muricid, *Ecphora (Powhatan) gardnerae jeffersoni* Petuch and Berschauer, new subspecies, from the basal beds of the Claremont Manor Member of the Eastover Formation, Chesapeake Group of Maryland and Virginia. A new genus of scaphelline volute, *Bruggemania* Petuch and Berschauer, new genus, is also described for several highly sculptured species from the late Pliocene Duplin Formation and early Pleistocene Waccamaw Formation of the Carolinas.

KEY WORDS *Ecphora*, Muricidae, Volutidae, Miocene, Pliocene, Pleistocene, Maryland, Virginia, South Carolina, Duplin Formation, Waccamaw Formation

INTRODUCTION

During a survey of the Eastern United States Neogene fossil mollusks, we discovered that several stratigraphically important taxa had never been described. Of these, two stood out as particularly interesting and important; a new subspecies of ecphora muricid, here named *Ecphora (Powhatan) gardnerae jeffersoni* new subspecies, and an undescribed genus of unusual heavily sculptured and ornate scaphelline volutes, here named *Bruggemania* new genus. In our upcoming new book on the living and fossil mollusks of the Eastern United States, these new mollusks are prominent components within the iconographies of important fossil taxa. For this reason, we are describing these interesting new gastropods here, in anticipation of their illustrations in the new book (Molluscan Faunas of the United States East Coast: Endemism Along Northeastern North America, Past and Present, in press).

SYSTEMATICS OF FOSSIL GENERA

Class	Gastropoda Cuvier, 1795
Subclass	Sorbeoconcha Ponder and Lindberg, 1997
Order	Prosobranchia Milne-Edwards, 1848
Infraorder	Neogastropoda Wenz, 1938
Superfamily	Muricoidea Rafinesque, 1815
Family	Muricidae Rafinesque, 1815
Subfamily	Ocenebrinae Cossmann, 1903
Tribe	Ecphorini Petuch and Berschauer, 2023
Genus	<i>Ecphora</i> Conrad, 1843
Subgenus	<i>Powhatan</i> Petuch and Berschauer, 2023

Ecphora (Powhatan) gardnerae jeffersoni
 Petuch and Berschauer, new subspecies
 (Plate 1, Figure B)

Description. Shell large for genus and subgenus, inflated with rounded body whorl; subsutural area flattened, shoulder angled; body

whorl ornamented with 4 broad ribs that are distinctly “T”-shaped in cross-section; ribs elevated, projecting from body whorl; wide ribs ornamented with 3 or 4 incised spiral sulci; siphonal canal very wide and elongated; umbilicus narrow and deep.

Type Material. HOLOTYPE - length 92 mm, width 67 mm, found in the basal bed of the Claremont Manor Member of the Eastover Formation, along the Rosecroft Cliffs, St. Mary’s County, Maryland, 1982, ANSP-IP 52868 (type collection of the Academy of Natural Sciences of Drexel University, Philadelphia, Pennsylvania, illustrated in Petuch and Berschauer, 2023: vii); PARATYPE - length 74.4 mm, width 52 mm, from an exposure of the Claremont Manor Member of the Eastover Formation above Sunken Meadow Creek along the James River, Surry County, Virginia, USNM 258348 (Invertebrate Paleontology Collection of the National Museum of Natural History, Smithsonian Institution, Washington, D.C.).

Type Locality. In a blue clay bed with large gypsum crystals, exposed along the Rosecroft Cliffs, St. Mary’s County, Maryland, USA, adjacent to the mouth of the St. Mary’s River; in a southern Maryland exposure of the Claremont Manor Member of the Eastover Formation.

Stratigraphic Range. Confined to the basal beds of the Claremont Manor Member of the Eastover Formation, Chesapeake Group of Maryland and Virginia, early Tortonian Age of the Miocene.

Etymology. Named for Thomas Jefferson, third President of the United States, in recognition of his great interest in, and support of, American paleontology.

Discussion. This new taxon is described as stratigraphic subspecies of *Ecphora (Powhatan) gardnerae* Wilson, 1987. Although similar in overall shell proportions and structures, this new stratigraphic subspecies from the

Maryland Eastover beds differs from the older St. Mary’s Formation *Ecphora (Powhatan) gardnerae* (Plate 1, Figure A) in having a more cylindrical and less inflated shell shape, in having the four “T”-shaped ribs being proportionally wider, and in having a much larger overhang along their edges. These extremely wide ribs also do not project from the body whorl as far as those of the older St. Mary’s nominate subspecies. This pattern of wide and adherent ribs culminates in the late Tortonian *E. (Powhatan) whiteoakensis* from the overlying, younger upper beds of the Claremont Manor Member of the Eastover Formation (Plate 1, Figure C), where the wide ribs lie almost directly upon the body whorl.

Superfamily Volutoidea Rafinesque, 1815
Family Volutidae Rafinesque, 1815
Subfamily Scaphellinae Swainson, 1832

Genus *Bruggemania* Petuch and Berschauer,
new genus
(Plate 2, Figures A-D)

Diagnosis. Scaphelline volutes of average size range for subfamily, elongately fusiform in shape, with angled shoulders; spire variably scalariform, with some species having distinctly tabulate whorls and others having more rounded whorls; body whorls heavily sculptured with very numerous fine raised cords, which become stronger and more pronounced anteriorly; body whorl and spire whorls ornamented with 18-21 large, prominent longitudinal evenly-spaced riblike folds, producing distinct lyrate sculpture pattern; strong longitudinal folds become smooth and obsolete on last half of body whorl of some gerontic individuals; aperture proportionally narrow; columella ornamented with 4 large prominent folds, with smaller less developed fold present between anterior and posterior pairs of folds; some gerontic individuals with

sixth, poorly developed fold present on extreme anterior end of columella; protoconch proportionally large, protracted, cylindrical in shape, composed of one and one-half whorls.

Type Species. “*Scaphella*” *precursor* Gardner, 1948, from the lower beds of the Waccamaw Formation along the Cape Fear River, at Neills Eddy Landing, Columbus County, North Carolina, Gelasian Age, Early Pleistocene.

Other Species in *Bruggemania*. *Bruggemania* unnamed species 1, Golden Gate Member, Tamiami Formation, late Piacenzian Pliocene of southwestern Florida; *Bruggemania* unnamed species 2, from the upper beds of the Duplin Formation, North Carolina; *Bruggemania* unnamed species 3, uppermost beds of the Golden Gate Member, Tamiami Formation, late Piacenzian Pliocene of southwestern Florida.

Stratigraphic Range. The new genus first appears in the early Piacenzian Pliocene (Duplin and Tamiami Formations) and ranges into the Gelasian Pleistocene (Waccamaw Formation). The genus becomes extinct at the end of the Gelasian Age.

Etymology. Named for Michael Bruggeman of Snellville, Georgia, who personally collected, and generously donated, several specimens of the type species of the new volute genus.

Discussion. The two broken co-types of “*Scaphella precursor*” that were illustrated by Gardner (1948: plate 36, figures 7, 8, and 9) have distinctly sloping shoulders with rounded edges, quite different from the scalariform spire and tabulate whorls of the shells illustrated here on Plate 2, Figures A-D. This may reflect either regional variation within the genus or actual differences between separate species.

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LITERATURE CITED

- Gardner, J. 1948.** Mollusca from the Miocene and Lower Pliocene of Virginia and North Carolina. Part 2. Scaphopoda and Gastropoda. US Geological Survey Professional Paper 199-B, US Department of the Interior. pp. 179-310.
<https://doi.org/10.3133/pp199B>
- Petuch, E.J. and D.P. Berschauer. 2023.** The Ecphoras: Iconic Fossils of Eastern North America. CRC Press, Boca Raton, London, New York, 207 pp. <https://doi.org/10.1201/9781003378181>
- Ward, L.W. and B.W. Blackwelder. 1980.** Stratigraphic Revision of Upper Miocene and Lower Pliocene Beds of the Chesapeake Group, Middle Atlantic Coastal Plain. US Geological Survey Bulletin 1482-D, Contributions to Stratigraphy, US Department of the Interior. pp. D1- D61, plates 1-5.

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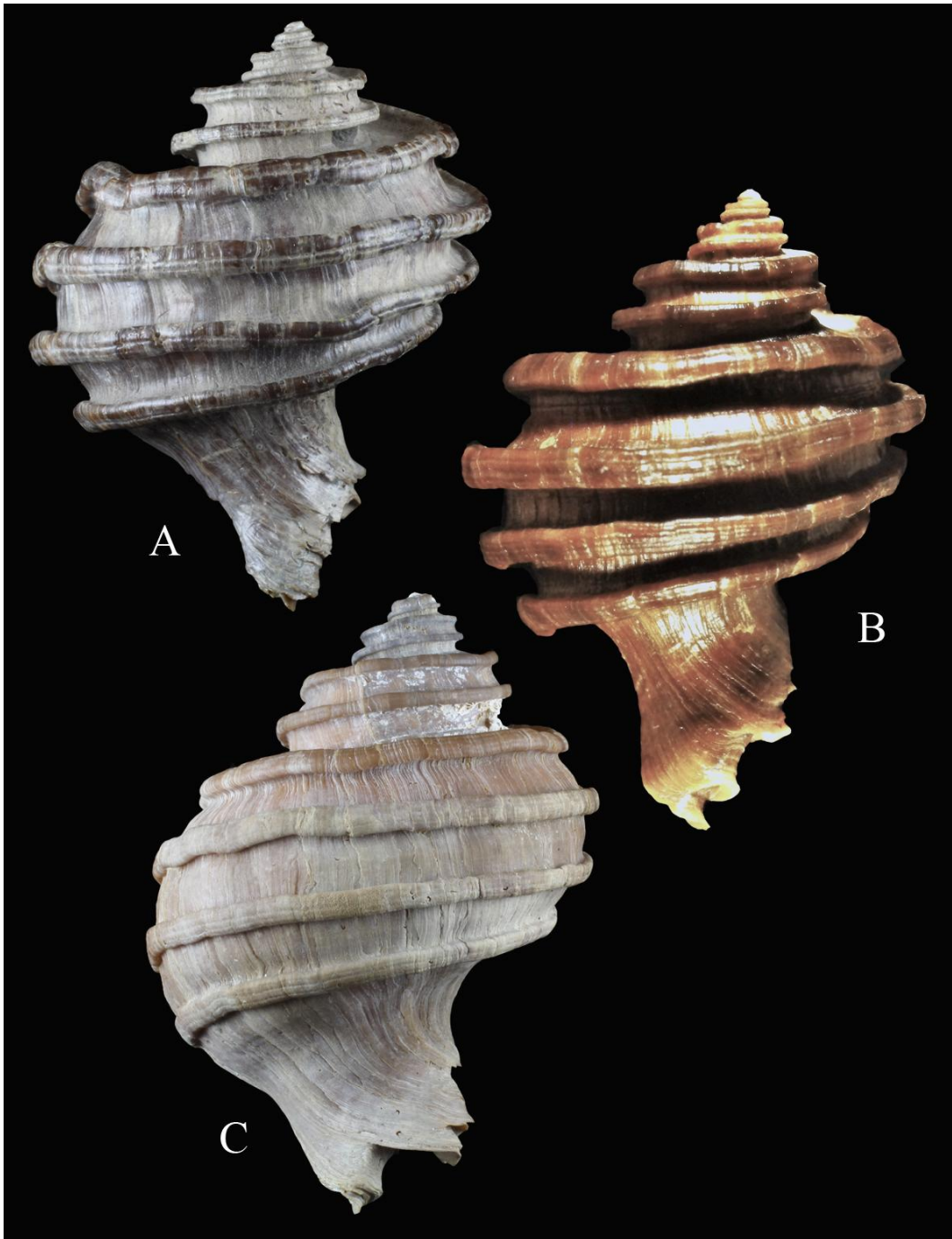


Plate 1. *Ecphora (Powhatan)* species from the late Miocene of Maryland and Virginia.

A= *Ecphora (Powhatan) gardnerae* Wilson, 1987, length 120 mm, From the Windmill Point Member (Shattuck Zone 24), St. Mary's Formation at Chancellor Point, St. Mary's County, Maryland; **B=** *Ecphora (Powhatan) gardnerae jeffersoni* Petuch and Berschauer, new subspecies, holotype, length 92 mm, from an undescribed basal bed of the Eastover Formation along the Rosecroft Cliffs, St. Mary's River, St. Mary's County, Maryland, ANSP-IP 52868; **C=** *Ecphora (Powhatan) whiteoakensis* Ward and Gilinski, 1988, length 127 mm, Claremont Manor Member, Eastover Formation along the York River at York View, Gloucester County, Virginia. The new subspecies is morphologically intermediate between the older *E. (Powhatan) gardnerae*, having wider ribs that do not project as far from the body whorl, and the younger *E. (Powhatan) whiteoakensis*, having ribs that are not as adherent to the body whorl.

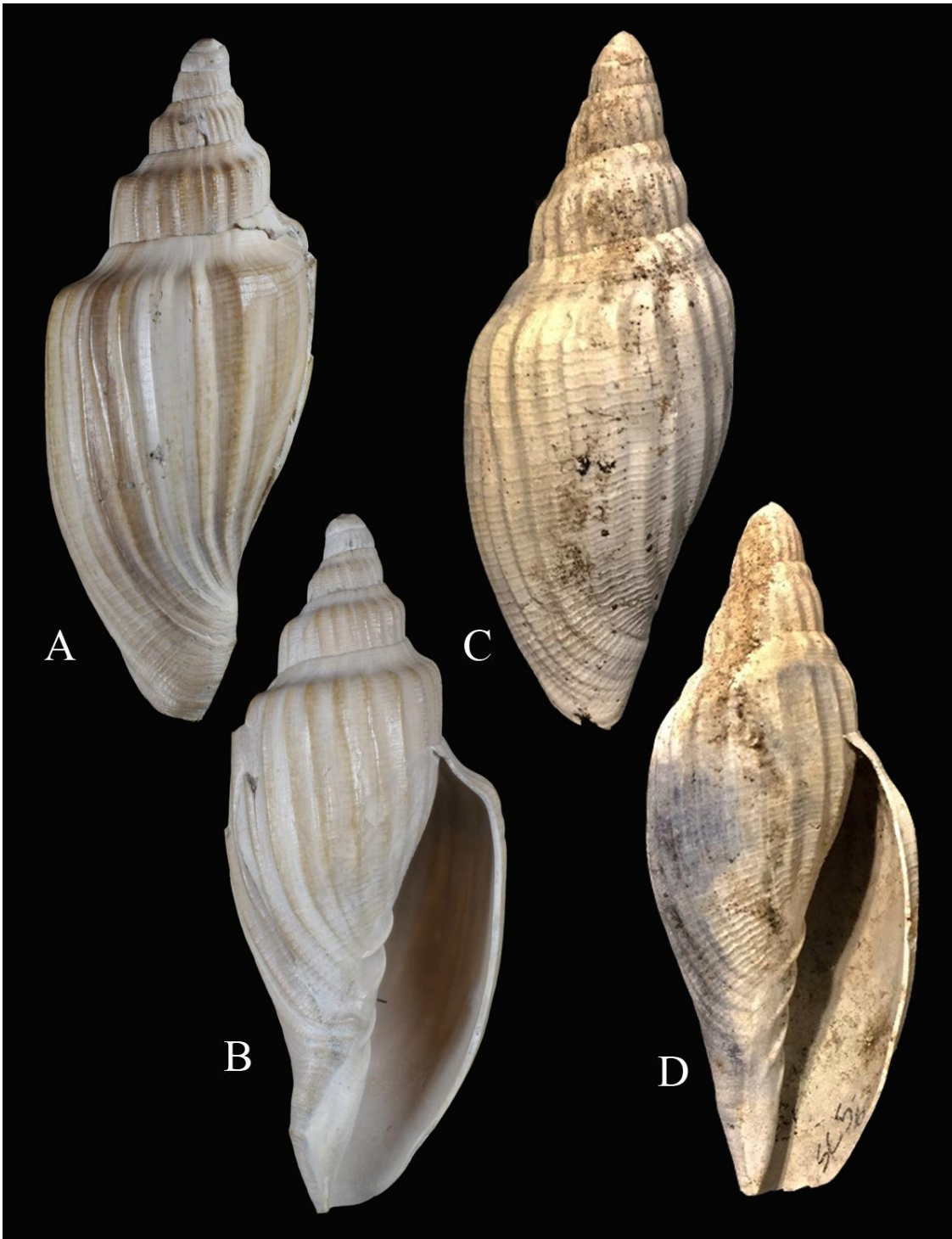


Plate 2. *Bruggemania*, new genus of Scaphelline Volute.

A, B= *Bruggemania* cf. *precursor* (Gardner, 1948), length 78 mm, from a fill pit at Eagle Point, South Carolina, in the Duplin Formation, Piacenzian Age of the Pliocene, showing an incipient fifth fold in the middle of the four columellar folds; **C, D=** *Bruggemania precursor* (Gardner, 1948), specimen in the Douglas Shelton collection, length 97 mm, from the Lumber River, North Carolina, in the Waccamaw Formation, Gelasian Pleistocene.