

A NEW SPECIES OF *ENAETA* (GASTROPODA:VOLUTIDAE)
FROM THE MIO-PLIOCENE OF
NORTHWESTERN ECUADOR

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ABSTRACT

Two species of *Enaeta* occur in the Recent fauna of the Tropical East Pacific: *E. cumingii* (Broderip, 1832), and *E. barnesii* (Gray, 1825). The fossil record from the Tropical East Pacific is represented by *E. barnesii* from the Pleistocene of Panama, and a new species, *E. propecumingii* from the Miocene Angostura Formation and the Pliocene Esmeraldas beds, Onzole Formation, of northwestern Ecuador. The occurrence of *E. propecumingii* in the Angostura Formation is the oldest known fossil record of the genus *Enaeta* in the Tropical East Pacific.

INTRODUCTION

The genus *Enaeta* Adams and Adams, 1853, which has sometimes been considered a subgenus of *Lyria* (Keen, 1971, p. 619; Hoerle and Vokes, 1978, p. 106), is a New World genus (Woodring, 1964, p. 289; Abbott, 1974, p. 245; Skoglund, 1992, p. 94) represented by five species in the western Atlantic fossil record, with *E. isabellae* (Maury, 1910, p. 17) from the late Lower Miocene Chipola Formation of Florida the earliest recorded occurrence. Other species included are: *E. trechmanni* Jung (1971, p. 201), from the Middle Miocene Grand Bay Formation, Carriacou, West Indies; *E. perturbatrix* (Maury, 1917, p. 76), from the Mio-Pliocene Gurabo Formation, Dominican Republic; and two species from the Pliocene Gatun Formation, Panama: *E. economica* (Woodring, 1964, p. 289) and *E. olssoni* Hoerle and Vokes (1978, p. 116). The eastern Pacific has two known fossil species: *E. barnesii* (Gray, 1825), a Recent species that also occurs in the Pleistocene beds of the Burica Peninsula, Panama, and *E. propecumingii*, n. sp. The genus *Enaeta* is represented in the Recent western Atlantic by three species: *E. cylleniformis* (Sowerby, 1844, p. 151), Florida to

Brazil; *E. guildingi* (Sowerby, 1844, p. 151), Antilles to Brazil; and *E. reevei* (Dall, 1907, p. 353), Cuba to Honduras. There are two species in the Recent Tropical East Pacific: *E. cumingii* (Broderip, 1832, p. 33), and *E. barnesii* (Gray, 1825, p. 511); both occur from the Gulf of California to Peru.

Enaeta propecumingii, n. sp., from the Late Miocene Angostura Formation of northwestern Ecuador, is the earliest known fossil record of the genus *Enaeta* in the Tropical East Pacific. The genus *Lyria* s.s. is known from older formations in the eastern Pacific, as far north as the state of Washington (Weaver, 1942) but not in the Tropical East Pacific.

In the geological record there are more species of the genus *Enaeta* in the western Atlantic than in the Tropical East Pacific and it is probable that the genus originated in the western Atlantic.

Abbreviations for Repository Institutions
CAS – California Academy of Sciences,
San Francisco, California.

LACM – Los Angeles County Museum of
Natural History, Los Angeles, California.

PRI – Paleontological Research Institution,
Ithaca, New York.

TU – Tulane University, New Orleans,
Louisiana.

USNM – United States National Museum
of Natural History, Washington, DC.

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SYSTEMATIC PALEONTOLOGY

Phylum MOLLUSCA Cuvier, 1797
Class GASTROPODA Cuvier, 1797
Subclass PROSOBRANCHIA
Milne-Edwards, 1848

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Superorder CAENOGASTROPODA

Cox, 1959

Order NEOGASTROPODA Thiele, 1925

Superfamily MURICOIDEA

Rafinesque, 1815

Family VOLUTIDAE Rafinesque, 1815

Subfamily LYRIINAE

Pilsbry and Olsson, 1954

Genus ENAETA

H. Adams and A. Adams, 1853

Enaeta H. Adams and A. Adams, 1853, The Genera of Recent Mollusca, v. 1, p. 167.

Type species: *Voluta harpa* Barnes, 1824, by subsequent designation, Cossmann, 1899; Recent, eastern Pacific. [*Voluta harpa* Barnes, 1824, non Mawe, 1823 = *Voluta barnesii* Gray, 1825 (as *barnsii*)].

ENAETA PROPECUMINGII, n. sp.

Pitt and Pitt

Plate 1, figure 1

Description: Shell elongate, of medium size, with seven whorls; protoconch of about three, smooth, rounded whorls with a blunt ending. Spire whorls (ornamentation appearing immediately) evenly tapering, bearing two rows of nodes; one row of low nodes anterior to suture; a narrow smooth interspace; and one row of larger, elongated nodes just posterior to suture. Body whorl with a row of nodes anterior to the suture; narrow, smooth interspace, separating major axial sculpture, which consists of 11 to 13 smooth, rounded ribs, extending from interspace to base of shell. Aperture elliptical, more than one-half of shell height; outer lip thickened, with a small blunt tooth midway on inner side of outer lip. Columellar wall with three strong plications anteriorly, and three faint plications, evenly spaced posteriorly. Anterior canal recurved.

Etymology: From the Latin, *prope* meaning near and *cumingii* from the Recent *E. cumingii* (Broderip, 1832).

Holotype: CASG 67695.01; height 29.6 mm, diameter 14.3 mm (Plate 1, fig. 1).

Type locality: P-101, Esmeraldas beds, road cut (south side), immediately west of the village of Camarones, about 20 km (by road) east of the bridge over Río Esmeraldas, Esmeraldas Prov., Ecuador (= TU 1399).

Paratype A: CASG 67695.02; height 31.4 mm, diameter 14.9 mm; locality TU 1397, Esmeraldas beds, Ecuador.

Paratype B: CASG 67695.03; height 24.2 mm, diameter 13.5 mm; locality P-103, Angostura Formation, Ecuador.

Paratype C: USNM 484521; height 26.0 mm, diameter 13.7 mm; locality P-101, Esmeraldas beds, Ecuador.

Paratype D: USNM 484522; height 19.5 mm, diameter 8.8 mm; locality TU 1399, Esmeraldas beds, Ecuador.

Paratype E: PRI 33194; height 17.9 mm, diameter 9.2 mm; locality TU 1399, Esmeraldas beds, Ecuador.

Paratype F: LACMIP 12298; height 20.9 mm, diameter 10.7 mm; locality TU 1399, Esmeraldas beds, Ecuador.

Occurrence: Angostura Formation and Esmeraldas beds of the Onzole Formation, Ecuador.

Discussion: *Enaeta propecumingii*, n. sp., is represented by eight specimens, three from locality P-101, three from locality TU 1399, one from locality TU 1397 and one from locality P-103. The fossil specimens examined are most similar to the fossil *E. trechmanni* Jung, 1971, and the Recent *E. cumingii* (Broderip, 1832). *Enaeta trechmanni* differs in having a somewhat globose, but evenly tapering spire and 18 axial ribs rather than the slender, evenly tapering spire and approximately 12 axial ribs of *E. propecumingii*. The body whorl of *E. trechmanni* does have a row of nodes anterior to the suture, a narrow smooth interspace, and axial ribs extending from the interspace to the base of the shell; thus, becoming the closest species to *E. propecumingii* in the fossil record. *Enaeta propecumingii* is also similar to the Recent *E. cumingii* but the latter has only a single row of nodes about midway on the spire whorls, in contrast to two rows in *E. propecumingii*. *Enaeta cumingii* also differs in that the body whorl has a smooth interspace anterior to the suture, a row of nodes and nine axial ribs extending to the base of the shell with a secondary row of nodes at their mid-point.

The Recent *E. cumingii* apparently arose in the Tropical East Pacific from *E. propecumingii*.

LOCALITY DATA

The following are Pitt localities:

P-101. Esmeraldas beds, road-cut (south side), immediately west of the village of Camarones, about 20 km (by road) east of the bridge over Río Esmeraldas, Esmeraldas Prov., Ecuador.

P-103. Angostura Fm., sea cliffs about 300 meters west of Punta Verde, about 2 1/4 km east of the mouth of Río Verde and about 22 km east of the bridge over Río Esmeraldas, Esmeraldas Prov., Ecuador.



PLATE 1

Figures

1. *Enaeta propecumingii* Pitt and Pitt, n. sp.
CASG 67695.01 (holotype); height 29.6 mm, diameter 14.3 mm (X 1.8).
Locality: P-101, Esmeraldas beds, Ecuador.
2. *Enaeta cumingii* (Broderip, 1832)
CASIZ 099363; height 33.2 mm, diameter 17.0 mm (X 1.4).
Locality: PR-100, San Carlos Bay, Guaymas, Sonora, Mexico; Recent.

PR-100. Recent, San Carlos Bay, Guaymas, Sonora, Mexico.

The following are Tulane University localities:

1397. Esmeraldas beds, Quebrada Camarones, cut-bank on east side of canyon, which is at east edge of village of Camarones, 20 km (by road) east of bridge over Río Esmeraldas, or approximately 10 km east of mouth of Río Esmeraldas, Esmeraldas Prov., Ecuador.
1399. Esmeraldas beds, road-cut on west side of village of Camarones, which is 20 km (by road) east of bridge over Río Esmeraldas, at Esmeraldas, Esmeraldas Prov., Ecuador.

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