

A new subspecies of *Cinctura* (Gastropoda: Fascioliidae) from the Ten Thousand Islands, Florida

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ABSTRACT A new geographical bathymetric subspecies of the offshore deepwater species *Cinctura tortugana* (Hollister, 1957) is described from shallow subtidal depths off southwestern Florida. The new subspecies, *Cinctura tortugana foxi*, is described from offshore of the Ten Thousand Islands, in Collier and Monroe Counties, Florida.

KEY WORDS Fascioliidae, *Cinctura*, *Hollisteria*, *Cinctura tortugana foxi* n. subsp., Carolinian Molluscan Province, Gulf of Mexico

INTRODUCTION

The fascioliid genus *Cinctura* Hollister, 1957, which is endemic to the Carolinian Molluscan Province, is now known to contain five distinct species and four subspecies: *C. hunteria* (Perry, 1811), *C. keatonorum* Petuch, 2014, *C. liliium* (Fischer von Waldheim, 1807), *C. tortugana tortugana* (Hollister, 1957), *C. (Hollisteria) branhamae* (Rehder & Abbott, 1951), *C. hunteria apalachee* Petuch & Berschauer, 2020, *C. liliium connori* Petuch & Berschauer, 2020, *C. tortugana traciae* Petuch & Berschauer, 2020, and *C. (Hollisteria) branhamae morganae* Petuch & Berschauer, 2020.

Although the genus *Cinctura* ranges from Cape Hatteras, North Carolina to Isla Contoy, Yucatan Peninsula, Mexico, the majority of the known taxa are restricted to the Gulf of Mexico. Of these, only two, *Cinctura hunteria* and its subspecies *C. hunteria apalachee*, were previously known from shallow water and intertidal depths (Petuch & Berschauer, 2020). All the other taxa live in deeper water, offshore

areas (in 20-400 m depths), and are primarily collected by the dredging operations of commercial shrimp and scallop fishermen or from deep water lobster and crab traps.

Cinctura tortugana tortugana lives on carbonate rubble sea floors on the West Florida Shelf and along the edge of the bathyal zone, in depths of 50 to 200 m. In the deeper areas along the edge of the Florida Escarpment, *C. tortugana* is associated with sea floors that are dominated by the red coralline algae *Porolithon* and *Goniolithon*, which form thick and densely-intertwined beds composed of algal nodules (rhodoliths). Here, it occurs along with other distinctive rhodolith-associated mollusks such as the muricid *Chicoreus rachelcarsonae* Petuch, 1987, the cone shell *Dauciconus aureonimbosus* (Petuch, 1987), the busyconid *Lindafulgur lyonsi* (Petuch, 1987), and the scallop *Lindapecten lindae* Petuch, 1995.

Cinctura tortugana traciae is an isolated deep water eastern Yucatan subspecies, which lives in deep water areas along the lower neritic and

upper bathyal zones, ranging from 200 to 300 m depths. This deep neritic-upper bathyal bathymetric preference differs dramatically from that of the nominate subspecies, *C. tortugana tortugana*, which prefers shallower depths of 50 to 200 m in the lower neritic zone.

A new geographical subspecies *Cinctura tortugana foxi* n. subsp. is described from shallow water off the Ten Thousand Islands, Collier County, Florida. The holotype of this new subspecies is deposited in the type collection of the Department of Malacology, Los Angeles County Museum of Natural History ("LACM"), Los Angeles, California.

SYSTEMATICS

Class Gastropoda

Subclass Sorbeoconcha

Order Prosobranchia

Infraorder Neogastropoda

Superfamily Buccinoidea

Family Fascioliariidae

Subfamily Fascioliariinae

Genus *Cinctura* Hollister, 1957

Cinctura tortugana foxi Petuch and Berschauer,
new subspecies
(Plate 1 Figures A-E)

Description. Shell of average size for genus, 70-87 mm, same as nominate subspecies, thickened and heavy, elongated and fusiform, with rounded whorls and distinctly sloping subsutural area; body whorl moderately inflated, with rounded sides; spire elevated and protracted, almost same length as body whorl; anterior end of columellar area ornamented with two large, prominent rib-like folds, with posteriormost fold being largest and best-developed; posterior end of columellar area with single large cord that extends beyond edge of lip; dark orange on the parietal callus; shell base color dark cream-white overlaid with very

numerous, densely-packed dark reddish-brown longitudinal flammules, which are best-developed along subsutural area, around shell mid-body, and on siphonal canal; red-brown and cream base color overlaid with 5-6 thin, evenly-spaced thin dark blackish brown bands, with many specimens having thinner secondary bands between the prominent main bands; some specimens have as many as 12 distinct bands; siphonal canal proportionally short, dark brown or blackish-brown in color, ornamented with 8-9 very strong, prominent spiral cords; anteriormost tip of dark brown siphonal canal colored deep orange-tan; protoconch and early whorls pale orange in color; early whorls proportionally narrow, ornamented with 4-5 very shallow spiral grooves and poorly-developed undulating ribs; aperture oval in shape with white interior; columellar area with large orange patches.

Type Material. HOLOTYPE - Length 79 mm, width 47 mm, Kice Island, Ten Thousand Islands, Florida, LACM 3782; OTHER MATERIAL EXAMINED - length 87 mm, same locality as the holotype, in the research collection of the senior author; length 81 mm, from Camp Lulu Key, Ten Thousand Islands, in the research collection of the junior author; length 71 mm, from the same locality as the holotype, in the collection of the junior author; specimen; length 77 mm, from the same locality as the holotype, in the Dave W. Fox collection.

Type Locality. Collected on the beach after a storm, Kice Island, Ten Thousand Islands, Collier County, Florida.

Etymology. Named for Dave W. Fox, of Fort Myers, Florida, who collected the type lot of the new subspecies on Kice Island.

Discussion. This new subspecies of the Tortugas Tulip Shell has only been collected on

beaches along the Ten Thousand Islands and constitutes a distinct shallow water subspecies endemic to the Chokoloskean Infraprovince of the Suwannean Subprovince of the Carolinian Molluscan Province. The other two taxa in the *Cinctura tortugana* complex, including the nominate Florida subspecies *C. tortugana tortugana* (Hollister, 1957) (Figures E, F) and the eastern Yucatan subspecies *C. tortugana traciae* Petuch & Berschauer, 2020) (Figures G, H), are both deep water shells, occurring along the edge of the continental shelf (Outer Neritic Zone) and upper continental slope (Bathyal Zone). (See map at Figure 1) The nominate subspecies was described from the Tortugas Shrimping Ground northwest of the Dry Tortugas Islands, where it is found in depths of 60-150 m depths. There, it lives on red coralline algal sea floors (*Porolithon* and *Goniolithon*). The Yucatan subspecies, *traciae*, occurs in much deeper water, ranging between 200-300 m depths and has only been collected by deep water shrimp (*Glyphocrangon*) boats working along the western side of the Yucatan Channel. The new subspecies, *foxi*, can now be seen to be the only shallow water member of this normally-offshore group. Based on the assemblage of mollusks that is usually associated with *foxi* in beach drift, including the volute, *Scaphella junonia*, the murex, *Vokesimurex cabritii*, and the scallop, *Euvola raveneli*, the new Ten Thousand Islands subspecies is presumed to live in shallow subtidal depths, averaging 10-25 m, and based on the offshore habitat it is presumed to prefer muddy-sand sea floors.

Cinctura tortugana foxi differs from the nominate subspecies in having a more slender shell with less-inflated whorls and straighter sides. The colors of the two subspecies differ greatly, with the nominate subspecies being marked with color patches of bright orange, yellow-orange, or vivid orange-red and a white

parietal callus, while *foxi* typically exhibits only amorphous patches of deep reddish-brown, a dark orange parietal callus, and with little variability in color. The early whorls of the new subspecies are also proportionally narrower than those of the nominate subspecies, being more slender and in having less-inflated whorls. The postnuclear whorls of the nominate subspecies are sculptured with 5-6 deeply incised spiral sulci and 8-10 low, rounded knobs while those of the subspecies *foxi* are much smoother, being only slightly ornamented with faint spiral grooves and a few nearly-obsolete, low knobs. See Petuch & Berschauer, 2020 for a detailed overview of the *Cinctura tortugana* - *Cinctura lilum* species complexes.

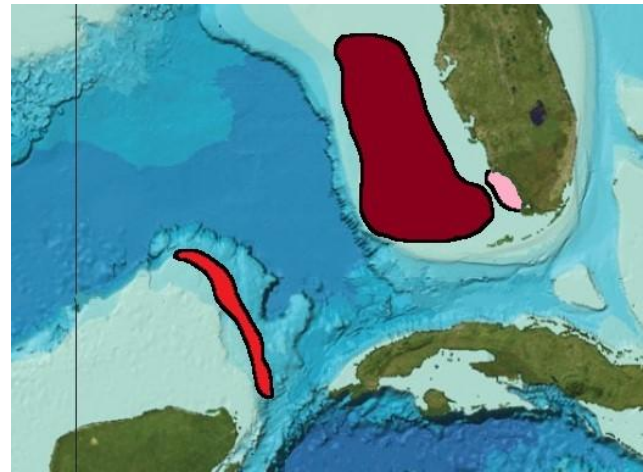


Figure 1. Map Yucatan Peninsula, Mexico and southeastern Florida, United States, showing the presumed ranges of *Cinctura tortugana* species and subspecies based upon bathymetric data. Burgundy= *Cinctura tortugana*; Red= *Cinctura tortugana traciae*; and Pink= *Cinctura tortugana foxi* n. subsp.

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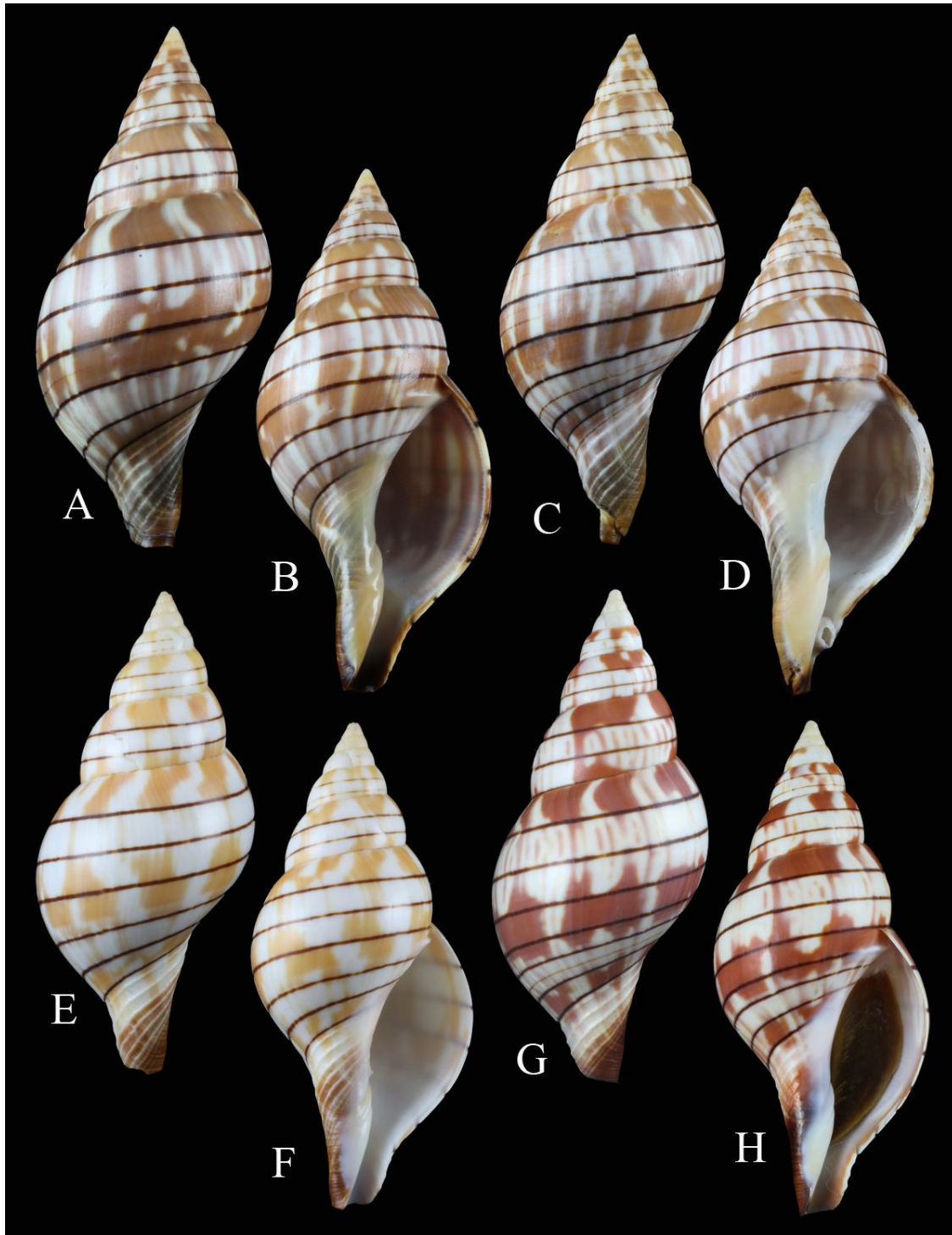


Plate 1. *Cinctura tortugana* species complex.

A, B= *Cinctura tortugana foxi* Petuch & Berschauer, n. subsp., holotype, length 79 mm, LACM 3782, Kice Island, Ten Thousand Islands, Florida; **C, D**= *C. tortugana foxi*, typical specimen, length 87 mm, in the research collection of Edward Petuch; **E, F**= *Cinctura tortugana* (Hollister, 1957), length 74 mm, from 60 m depth north of the Dry Tortugas, Florida Keys, Monroe County, Florida, in the research collection of Edward Petuch; **G, H**= *Cinctura tortugana traciae* Petuch & Berschauer, 2020, holotype length 72.3 mm, LACM 3805, trawled from 250 m depth off Cabo Catoche, Quintana Roo State, Mexico.