

***Zoila kostini leemanica* - A new Northern Subspecies  
(Gastropoda: Cypraeidae)**

Michael A. Mont

Molluscan Science Foundation, Owings, Mills, Maryland

[rhondamont@aol.com](mailto:rhondamont@aol.com)

**ABSTRACT** *Zoila kostini leemanica* n. ssp. is described from the northern part of the species' distribution, and differs from the nominate southern subspecies by having darker brown instead of orange tips, a dense dorsal pattern, and distinct dark marginal spotting.

**KEY WORDS** *Zoila kostini*, *Zoila kostini leemanica*, Western Australia, new subspecies

**INTRODUCTION**

On a recent campaign along the western coast of Australia, Ray Walker and his team discovered a northern population of *Zoila kostini* Lorenz & Chiapponi, 2007, which differs from the typical southern population by its color pattern. It is here described as *Zoila kostini leemanica*, a new subspecies. The holotype of the new subspecies is deposited in the molluscan collections of the Western Australian Museum in Perth and bears a WAM the catalog number 27183.

**Abbreviations:**

FL: Collection Felix Lorenz, Buseck, Germany.

MSF: Molluscan Science Foundation, Inc., Owings Mills, Maryland, USA.

WAM: Western Australian Museum, Perth.

**SYSTEMATICS**

Class	Gastropoda Cuvier, 1795
Subclass	Caenogastropoda Cox, 1960
Order	Littorinimorpha Thiele, 1921
Superfamily	Cypraeoidea Rafinesque, 1815
Family	Cypraeidae Rafinesque, 1815
Subfamily	Zoillinae Jousseau, 1884
Genus	<i>Zoila</i> Jousseau, 1884

Species	<i>Zoila friendii</i> , Grey 1831
Subspecies	<i>Zoila friendii kostini</i> , Lorenz & Chiapponi. 2007

*Zoila kostini leemanica*, Mont, new subspecies  
(Plates 2 and 3)

**Description.** The shell is rather large and heavy; general outline is elongate-oval, tapering equally on either end; posterior extremity is rounded, with thin edges and broad marginal callus flanges on both sides; on the columellar side, the callus of the extremity covers the large, projecting spire; anterior canal is hardly rostrate; dorsal dome is slightly humped in the posterior third; base is strongly callused and convex; aperture is moderately narrow throughout and evenly curved in the posterior half; labral teeth are fine and dense and confined to the aperture, with barely noticeable striae extending across the labrum; columellar teeth are strongest in the anterior third, becoming distinct towards the posterior; ground color is bright white there is no discernible primary banding; extremities are stained with rich brown on both canal sides and orange above; base and the margins are plain white ornamented with conspicuous large dark brown spots that frame the basal callus; dorsum is covered with brown spots and Bloches, which are confluent towards the margins.

**Type Material.** There were thirteen live-collected specimens of the new subspecies available, plus photographs of another ten specimens. More than 50 specimens of the nominate *Z. kostini* were available for comparison. Measurements are enlisted length  $\times$  width  $\times$  height (counted labral : columellar teeth) [weight in grams] Depository.

Holotype: 67.7  $\times$  43.9  $\times$  35.4 (28: - ) [46.6] WAM-27183

Paratype 1: 77.3  $\times$  47.8  $\times$  39.3 (32: - ) [57.5] MSF-14730.

Paratype 2: 68.6  $\times$  43.8  $\times$  34.8 (28:26) [42.1] MSF-14731.

Paratype 3: 74.4  $\times$  47.6  $\times$  38.3 (32:22) [50.8] FL.

Paratype 4: 64.9  $\times$  39.2  $\times$  33.8 (26:21) [36.7] MSF-14732.

Paratype 5: 70.4  $\times$  48.3  $\times$  36.1 (30:22) [44.6] MSF-14733.

Paratype 6: 74.6  $\times$  45.6  $\times$  36.5 (26: - ) [59.3] FL.

Paratype 7: 72.5  $\times$  47.3  $\times$  37.3 (31:25) [45.2] FL.

Paratype 8: 66.5  $\times$  42.1  $\times$  35.2 (27:23) [43.7] MSF-14734.

Paratype 9: 72.6  $\times$  47.7  $\times$  38.0 (29:22) [50.0] MSF-14735.

Plus three further paratypes in coll. MSF-11938-11940. All specimens are from off Leeman, Western Australia, at 195 meters, and were collected by a remotely operated vehicle (ROV).

Paratypes vary considerably in the degree of rostration and shape; in most shells, the columellar teeth are discernible throughout; brown dorsal spotting varies in density and darkness, but it is always well-developed; marginal spots are consistent in their density, size, and distribution along the margins and along the sides of the base; color of the base varies from plain white to rich brown color.

**Type Locality.** The first findings of this northern population were made west of Wallabi Island, Abrolhos Archipelago, Western Australia, at 195 to 205 meters (see Figure 1).

**Range and Ecology.** The type specimens have been collected offshore Leeman, Western Australia (locus typicus), at 195 meters using a remotely operated vehicle (ROV).

**Etymology.** Named after the locus typicus, offshore the coastal town of Leeman, Western Australia.

## DISCUSSION

In the comprehensive revision of the *Zoila friendii* group, Bergonzoni (2022) lifted the status of *Zoila kostini* to that of a valid species. Although a fireworks of variations of all the taxa related to *Zoila friendii* (Gray, 1831) are illustrated, no specimen of the northern subspecies described herein is shown. *Zoila kostini leemanica* n. ssp. differs from its southern relatives by having darker brown instead of pale orange tips and by having a dense, dark, and contrasting dorsal pattern resembling the egg of the Willow Warbler (*Phylloscopus trochilus*). The most outstanding feature is the dark brown, regular marginal spotting framing the base. In the nominate *Z. kostini*, the marginal spotting is usually discrete and pale. Occasional shells of the nominate subspecies may have a darker dorsal pattern, but it is usually finer and less contrasting, the tips are usually paler orange, not saturated brown.

## ACKNOWLEDGMENTS

Many thanks to Ray Walker for supplying the type specimens and to Felix Lorenz for valuable suggestions. Thank you for the assistance of Corey Whisson. Also, thanks to David P. Berschauer for technical advice and editing assistance.

## LITERATURE CITED

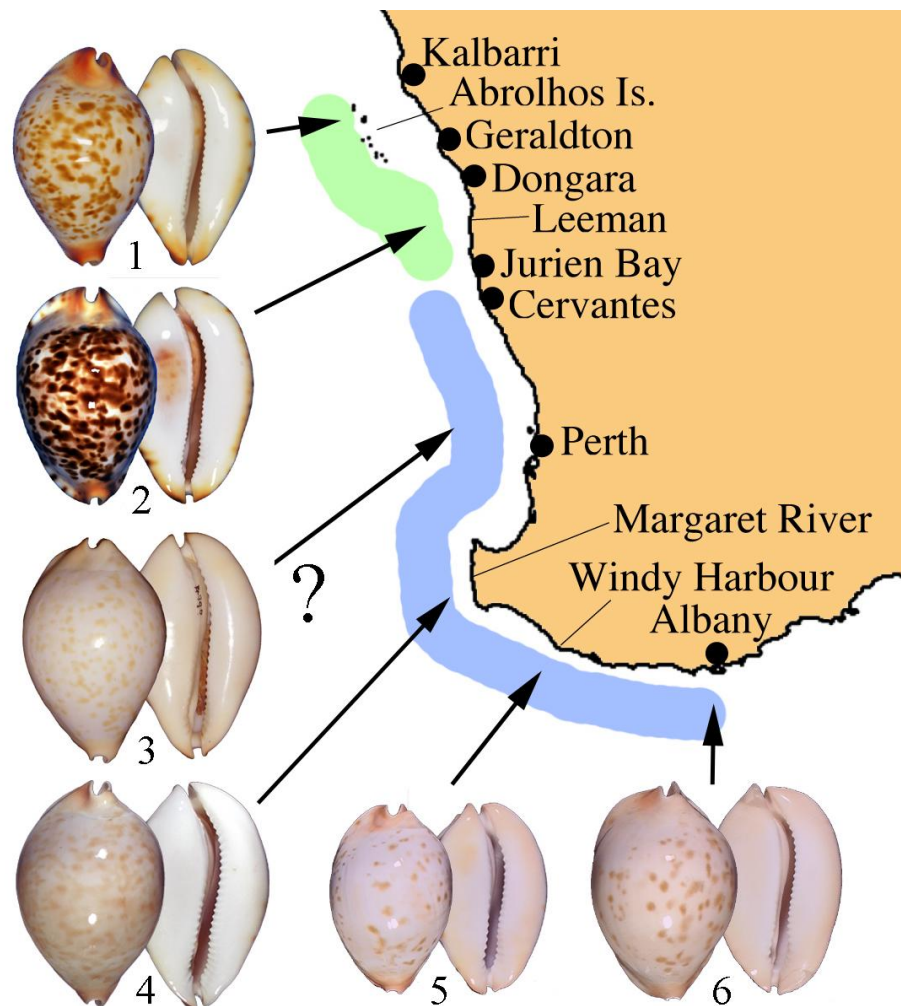
**Bergonzoni, M. 2022.** The *Zoila friendii* Group. Beautifulcowries Magazine 11:7-165.

**Lorenz, F. 2001.** Monograph of the Living *Zoila* – A Fascinating Group of Australian Endemic Cowries (Mollusca: Gastropoda: Cypraeidae). Conchbooks Hackenheim, 187 pp.

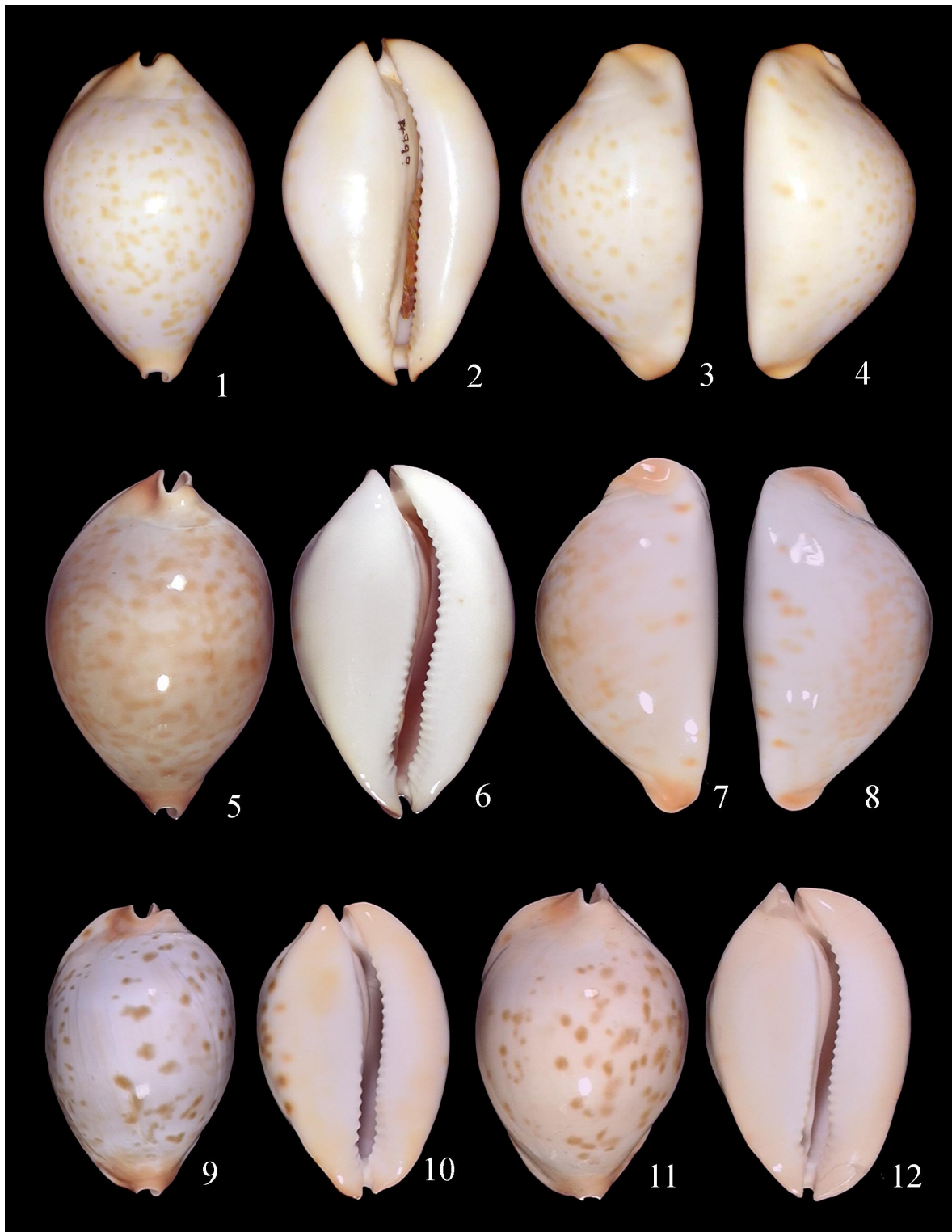
**Lorenz, F. & M. Chiapponi. 2007.** The deep water subspecies of *Zoila friendii* Gray 1831

(Gastropoda: Cypraeidae). Schriften zur Malakozologie 23, 2007; p. 39-44, pl. 7-8.

**Wilson, B. & P. Clarkson. 2004.** Australia's spectacular Cowries. A Review and Field Study of Two Endemic Genera: *Zoila* and *Umbilia*. Odyssey, El Cajon CA, 396 p., 383 pls.

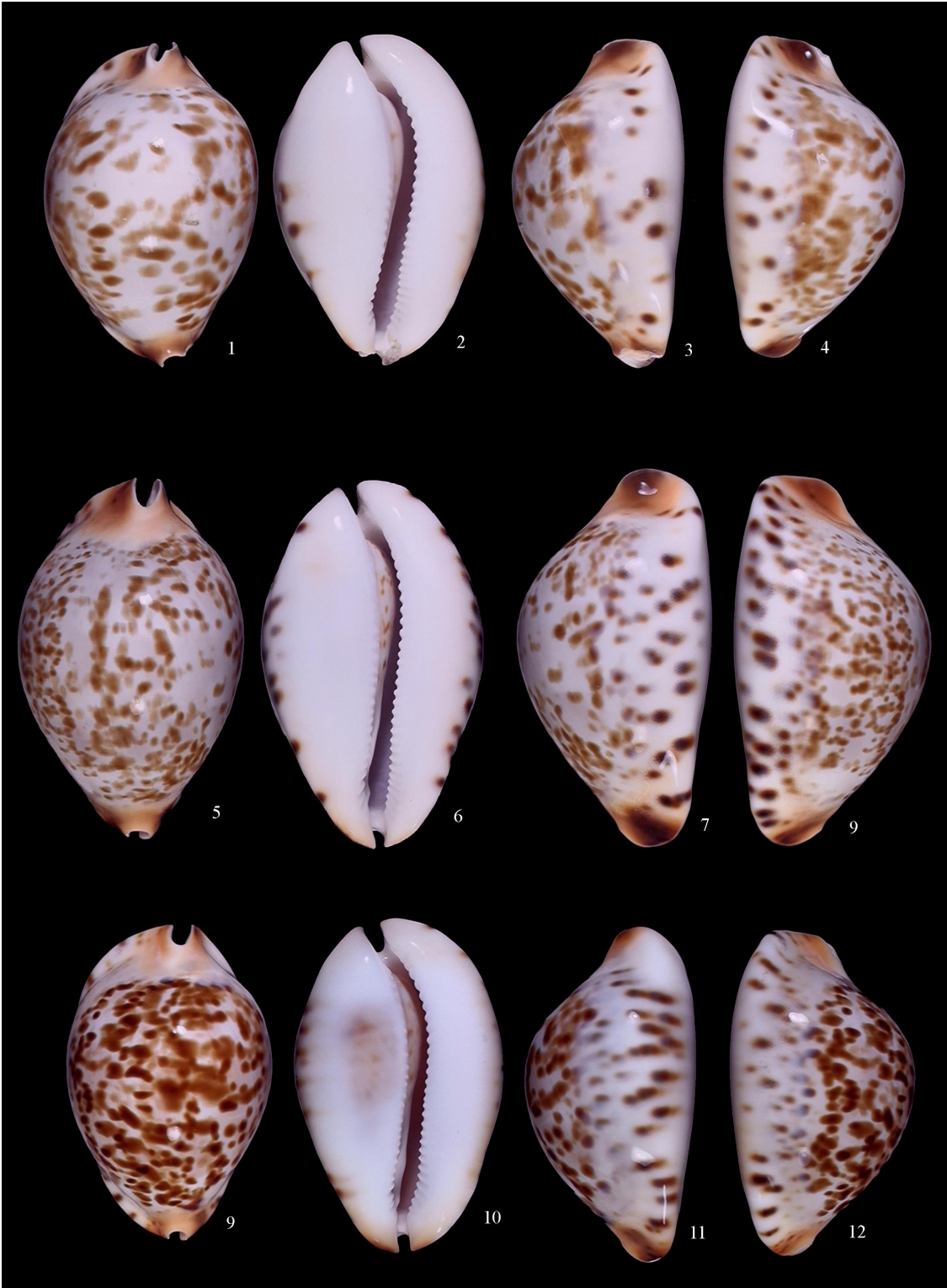


**Figure 1.** Map showing distribution of *Zoila kostini* Lorenz & Chiapponi, 2007 (blue), and *Z. kostini leemanica* n. ssp. (green) along the Western Australian coast. Explanations in the text.



**Plate 1. *Zoila kostini kostini* Lorenz & Chiapponi, 2007**

**1=** Holotype. 67.5 mm. "Between Geraldton and Fremantle", at approximately 150 meters, in 1912, by FIS "Endeavour" Cruise. WAM S33040; **2=** 74.8 mm. Margaret River, at 130 meters, by ROV; **3=** 55.3 mm. Windy Harbour, at 145 meters, by ROV; **4=** 62.7 mm. Off Albany, at 180 meters, dredged.



**Plate 2. *Zoila kostini leemanica* n. ssp.**  
 1-4= Holotype. 67.6 mm. Leeman, at 195 meters, by ROV. WAM-27183; 5-8= Paratype 1. 77.3 mm. Leeman, at 195 meters, by ROV; 9-12= Paratype 2. 68.6 mm. Leeman, at 195 meters, by ROV.



**Plate 3. *Zoila kostini leemanica* n. ssp.**

**1-2=** Paratype 3: 74.4 mm. Leeman, at 195 meters, by ROV; **3-4=** Paratype 4: 64.9 mm. Leeman, at 195 meters, by ROV; **5-6=** Paratype 5: 70.4 mm. Leeman, at 195 meters, by ROV; **7-8=** Paratype 6: 74.6 mm. Leeman, at 195 meters, by ROV; **9-10=** Paratype 7: 72.5 mm. Leeman, at 195 meters, by ROV; **11-12=** Paratype 8: 66.5 mm. Leeman, at 195 meters, by ROV.