

A New Subspecies of *Viduoliva* (Olividae) from Northern Queensland, Australia

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ABSTRACT A new intertidal olive shell of the genus *Viduoliva* Petuch and Sargent, 1986 is described from northern Queensland, Australia. Although referred to as “*Oliva elegans*” and “*Oliva vidua*” in recent works, this large and commonly-encountered olivid is now known to represent an eastern subspecies of the wide-ranging northwestern and northern Australian (Dampierian Province) *Viduoliva westralis* (Petuch and Sargent, 1986). The new subspecific taxon, *Viduoliva westralis elodieae* new subspecies, differs in having a smaller and much more inflated shell and in having a lower, less-exerted spire.

KEY WORDS Olividae, Olivinae, *Viduoliva*, Queensland, Australia

INTRODUCTION

Over the past decade, intensive biodiversity collecting along the Queensland coast, especially between Cairns and Cooktown, has uncovered several new, previously-undescribed endemic mollusks. Some of these new discoveries include the cardiid bivalve *Vasticardium swanae* Maxwell, Congdon and Rymer, 2016, the cowrie *Bistolida stolidalorrrainae* Lorenz, 2017, the harpid *Harpa queenslandica* Berschauer and Petuch, 2016 (on offshore reefs), and a previously-unrecognized subspecies of the northwestern and northern Australian *Viduoliva westralis* Petuch and Sargent, 1986. For an excellent description of the muddy sand environments of northern Queensland see Maxwell *et al.*, 2016. This new Queensland subspecies, which had mistakenly been referred to as “*Oliva vidua*” or “*Oliva elegans*” in recent works, is described in the following sections. The holotype of this new taxon, here named *Viduoliva westralis elodieae*, is deposited in the molluscan collection of the Biodiversity Section, Queensland Museum,

Brisbane, Queensland, Australia and bears a QM catalog number.

SYSTEMATICS

Class Gastropoda

Subclass Orthogastropoda

Superorder Caenogastropoda

Order Sorbeoconcha

Infraorder Neogastropoda

Superfamily Olivoidea

Family Olividae

Subfamily Olivinae

Genus *Viduoliva* Petuch and Sargent, 1986

Viduoliva westralis elodieae

Petuch and Berschauer, new subspecies

(Figure 1 A-F)

Description. The new taxon is described as a geographical subspecies of *Viduoliva westralis* (Figure 1G & H); shell elongated, bulbous, subcylindrical, with distinctly convex sides; shoulder broadly rounded, gradually sloping into body whorl; filament channel very narrow, deeply impressed; spire whorls low, flattened, overlaid with very thick, heavy callus;

protoconch composed of 2 ½ whorls, projecting above spire callus; aperture proportionally wide, straight, flaring slightly toward anterior end; columella with 18-20 low teeth, which become obsolete and over-glazed on older specimens; shell color deep yellow or yellow-green, overlaid with variable amounts of dark green elongated flammules, often arranged in zig-zag pattern; 2 broken bands of widely-separated black or dark brown elongated flammules surround body whorl, with one just below shoulder and one around mid-body; many specimens occur in golden color forms (like holotype), which are mostly bright yellow-orange with faint scattered darker orange flammules; transitional color forms are frequently encountered, where shells alternate between normal green color and golden color morph (Figure 1C & D); columellar callus and interior of aperture white; anterior tip of fascicular callus bright orange; spire callus pale yellow.

Type Material. **HOLOTYPE** - Length 39.1 mm, intertidal mud flats, off Port Douglas, Queensland, Australia, QM MO85815, (Figure 1A & B); **OTHER MATERIAL EXAMINED** - 3 specimens, lengths 39 mm, 40 mm, and 43 mm, from the same locality as the holotype, in the research collection of the senior author; 3 specimens, lengths 42.4 mm, 37.7 mm, and 41.5 mm, from the same locality as the holotype, in the research collection of the junior author.

Type Locality. On mud flats at low tide, off Port Douglas, Queensland, Australia.

Distribution. The new subspecies ranges from Cairns, Queensland, northward along the Cape York Peninsula to Somerset and Bamaga, at the northernmost tip. The new subspecies extends along the Gulf of Carpentaria side of the Cape York Peninsula southward to at least Nanum, where several specimens were collected on mud

flats at low tide. No specimens of any form of *Viduoliva westralis* have been collected in the Wellsley Islands of the southern Gulf of Carpentaria, demonstrating that the nominate subspecies from the Northern Territory and *elodieae* from Queensland are geographically isolated from each other.

Ecology. *Viduoliva westralis elodieae* lives in muddy sand, on intertidal sand flats, in nearshore areas all along the Queensland coast north of Cairns. The animal is especially active at night and can be collected on mud flats at low tide.

Etymology. The new subspecies is named for Elodie Vulliet of Arundel, Gold Coast, Queensland, Australia, granddaughter of the well-known Australian-New Caledonian shell dealer, Thierry Vulliet. Mr. Vulliet supplied us with the type lot and asked us to honor his granddaughter, a budding malacologist, with the new name.

Discussion. The northern Queensland *Viduoliva westralis elodieae* differs from the Western Australia and Northern Territory *V. westralis westralis* (Petuch and Sargent, 1986) (Figure 1G & H) in being a smaller and much more inflated shell, being much less elongated and less cylindrical in profile, in having less straightened and more rounded sides, and in being a more colorful shell, with brighter yellow and green colors on the body whorl. Both subspecies exhibit a bright golden orange color form, but these occur much more frequently in *V. westralis elodieae* than they do in *V. westralis westralis* (around 10%-15% of individual specimens of *elodieae* exhibit the golden color: S.J. Maxwell, personal communication). The absence of *Viduoliva westralis* in the southern Gulf of Carpentaria demonstrates that there is a substantial geographical separation between the two subspecies, allowing for genetic drift.

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REFERENCES

Maxwell, S.J., B.C. Congdon, and T. Rymer.

2016. A New Species of *Vasticardium* (Bivalvia: Cardiidae) from Queensland, Australia. *The Festivus* 48(4):248-252.

Petuch, E.J. and D.M. Sargent. 1986. Atlas of the Living Olive Shells of the World. The Coastal Education and Research Foundation, Fort Lauderdale, Florida. 253 pp.



Figure 1. *Viduoliva westralis* and its Subspecies. A, B = *Viduoliva westralis elodieae* Petuch and Berschauer, new subspecies (golden color morph), holotype, length 39.1 mm, QM MO85815, low tide on muddy sand, Port Douglas, Queensland, Australia; C, D = *Viduoliva westralis elodieae* Petuch and Berschauer, new subspecies, length 42.4 mm, Port Douglas, Queensland, Australia (transitional color form from green to golden); E, F = *Viduoliva westralis elodieae* Petuch and Berschauer, new subspecies, length 41.5 mm, Port Douglas, Queensland, Australia (typical green color form); G, H = *Viduoliva westralis* (Petuch and Sargent, 1986), length 49.0 mm, found on a sand bar at low tide, off Broome, Western Australia.