

## Two new species of *Amoria* J. E. Gray, 1855 (Neogastropoda: Volutidae) from Indonesia

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**ABSTRACT** This study names two new species of *Amoria* J. E. Gray, 1855 (Neogastropoda: Volutidae) from Indonesia, namely *Amoria peregrina* n. sp. and *Amoria compressa* n. sp. Both taxa exhibit characters, or combinations thereof, that differentiate them from each other as well as their congeners. These are the first species of the genus to be named whose distributions appear to exist entirely outside of Australian waters.

**KEYWORDS** Volutidae, *Amoria*, *A. peregrina*, *A. compressa*, Indonesia, biogeography, taxonomy

### INTRODUCTION

Recent years have seen an increase in our knowledge of the volute fauna of Indonesia, largely due to new material becoming available to conchologists and malacologists from throughout parts of the archipelago. Consequently, a number of new taxa have been recently named from the region (Cossignani & Allary, 2022a, Crabos, 2025).

The genus *Amoria* J. E. Gray, 1855 (Neogastropoda: Volutidae) is largely endemic to Australia. However, two species have, for some time, been known to occur in Indonesian waters, namely *Amoria turneri* J. E. Gray, 1834 and *A. damonii* J. E. Gray, 1864 (e.g. Bail and Limpus, 2001). Nevertheless, no species of the genus has previously been named that is exclusively known to occur outside of Australian waters. Herein, examination of shells not conforming to any known species has necessitated the description of two new species, the first of the genus to be named from outside Australia. Consequently, we here describe *Amoria peregrina* n. sp. and *A. compressa* n.

sp., based on a combination of characters not seen in any of its congeners, and make comparisons to species deemed to be of close morphological affinity to the new taxa. We also report on previously unknown micro-sculpture from inside the aperture of these two species, a feature which appears to be prevalent within the genus. Finally, we briefly discuss other *Amoria* material from the Indonesian archipelago.

### MATERIALS AND METHODS

Specimens were measured using digital callipers, with measurements (in millimetres) rounded to the nearest single decimal point. Shell width herein refers to the maximum transverse dimension of the shell perpendicular to the axis of growth, whereas shell length constitutes the distance from the apex (protoconch) to the tip of the anterior siphon. Method of protoconch whorl count is illustrated in Plate 3E. All shells were photographed in the studio of the second author with a Sony A7rIII mirrorless camera equipped with a Sony FE 90 mm f/2.8 Macro G OSS lens

using a tripod. Images were photographed remotely using Helicon Remote and stacked using Helicon Focus.

Internal micro-sculpture of the aperture of *Amoria peregrina* n. sp. and *A. compressa* n. sp. was photographed using stacked macro-photography. Firstly, the internal apertures were cleaned with a cloth to ensure that there was no potential visual contamination from fingerprints. Subsequently, to ascertain that the observed sculpture was not a result of stacking artifacts, stacked images were taken from different angles and areas of pattern were correlated and confirmed as identical between images. Furthermore, micropatterns were confirmed as present upon inspection with an LED-powered magnifying glass.

#### ABBREVIATIONS

AMS	Australian Museum, Sydney
HMC	Hugh Morrison Collection (Perth)
IMC	Ian Matiske Collection (Sydney)
PTtr	Protoconch-teleoconch transition
SL	Shell length
SW	Shell width
Reg. no.	Registration number
WA	Western Australia

#### SYSTEMATICS

Superfamily	Volutoidea Rafinesque, 1815
Family	Volutidae Rafinesque, 1815
Subfamily	Amoriinae J. E. Gray, 1857
Tribe	Amoriini J. E. Gray, 1857
Genus	<i>Amoria</i> J. E. Gray, 1855

*Amoria peregrina* Matiske & Hallan,  
new species

(Plate 1A-D; Plate 2D, E, I; Plate 3A, E)

**Description.** Shell (Plate 1A-D) medium size for genus; maximum known length 55 mm;

highly glossy, elongate-ovate. Protoconch (Plate 3A, E) convex to conical, of 3.5 smooth whorls, orange to light brown, with narrow, whitish subsutural spiral band. Protoconch-teleoconch transition commonly marked with weak but distinct prosocline scar (Plate 3E). Spire short, comprising less than a third of total shell length. Teleoconch of 2.25-2.75 whorls; juvenile teleoconch less convex than protoconch, resulting in slightly pupiform upper spire. Penultimate to last adult whorl subcylindrical, with latter bearing weakly angular shoulder; suture moderately impressed. Outer lip thickened in adult specimens (Plate 1A, B, D), with or without few sparsely situated maculae near inner lip edge; distinct posterior notch present; lip projecting steeply from parietal wall to about adapical quarter, then near-vertical at central half, then convex abapical part tapering toward moderately broad, shallow anterior siphon. Ground colour cream to light brown; whitish, narrow subsutural spiral band overlain by dark orange to chestnut maculae, with latter becoming progressively darker and axially elongate toward last adult whorl, regularly spaced and about 10-12 per whorl; below, three spiral formations of regular to somewhat sporadically spaced, axially oriented, narrow to thick, zigzag lines or maculae of light brown to dark chestnut; additionally, more or less omnipresent undulating, thin orange lines forming reticulate, in areas poorly connected pattern. Aperture whitish pink to light brown, elongate-pyriform, over two-thirds of total shell length; internal aperture of very dense shallow ripple-like sculpture adjacent to lip and anterior siphon (Plate 2I). Columella relatively straight to slightly curved, with 4 oblique plaits (Plate 2D, E). Fasciole prominent, its posterior boundary extending to most posterior columellar plait (when viewed from anterior siphon) (Plate 2D, E). No distinct parietal callus.

**Material Examined.** Holotype - AMS C.613512. 43.1 mm. Kupang, Timor, East Nusa Tenggara, 20 metres (Figure. 1). Paratypes - Locality as for holotype. See Table 1 for further details. All comparative material shown in Plates 1-4.

**Distribution.** Only known from the type locality (Angga Jodi, personal communication; Figure. 1).

**Etymology:** referring to the female gender of the Latin *peregrinus* (= pilgrim), so named for being the first described species of the genus with its known distribution entirely outside of Australian waters.

**Remarks.** This species is only known from material brought into Kupang, Indonesia (Figure 1). The extent of its distribution, both geographic and bathymetric, remains unknown (this applies also to *A. compressa* n. sp.).

Morphologically, *A. peregrina* exhibits affinities to *A. praetexta* (Plate 1F, Plate 2A, B, F, G) from which it differs in terms of the following characters: the latter has a considerably more prominent reticulate pattern, however, with (generally) less prominent, more sparsely situated spiral bands of dark stripes/maculae; more densely spaced subsutural spots on juvenile teleoconch whorl; a distinct bulge on the columellar side of the lower last adult whorl (Plate 2F, G), and a notably more inflated last adult whorl (Plate 1F, Plate 2A, B compared to Plate 1A-D). Furthermore, its spire is generally somewhat oriented toward the right when viewed from the apertural side (see also Bail & Limpus, 2001). Additionally, the most posterior columellar plait (when viewed from anterior canal) is consistently weaker in *A. praetexta* than in *A. peregrina* (Plate 2D-G). It can readily be differentiated from *Amoria textilata* Y. Zheng & S.J. Maxwell, 2025 by the overall morphology, with the latter bearing a more

angular shoulder, fewer columellar plaits, and in general colouration pattern.

While similar in overall morphology, *A. turneri* (Plate 4E, F) can readily be distinguished from the new species in terms of the well-developed axial pattern in the former, which in some individuals approach reticulate (see also Bail & Limpus, 2001), but in the case of the latter with a far more prominent and well-defined such pattern than that seen in *A. peregrina* n. sp. Furthermore, its spirally arranged pigmentation pattern is typically more rectangular in shape (Plate 4E, F) as opposed to the more zigzag-like pattern in the new species. Typically, while a highly variable species (e.g. Bail & Limpus, 2001), *A. turneri* has a narrower outline, a less convex whorl profile, a shallower suture, and a more constricted anterior canal than *A. peregrina* n. sp.

*Amoria compressa* Mattiske & Hallan, new species  
(Plate 2H; Plate 3C; Plate 4A-C.)

**Description.** Shell (Plate 4A-C) medium size for genus; maximum known length 64 mm; highly glossy, broadly ovate-oliviform. Protoconch (Plate 3C) cyrtoconoid, of ~3.5 reddish-orange smooth whorls. Protoconch-teleoconch transition indistinct, presumably marked by onset of dark chestnut suprasutural blotches on early juvenile whorl (Plate 3C). Spire very short, comprising about quarter of total shell length. Teleoconch of ~1.75-2.25 whorls (difficult to count with precision due to indistinct protoconch-teleoconch boundary); teleoconch whorl profile broad, lightly convex, with last adult whorl broad and weakly subcylindrical. Suture rather shallow. Outer lip somewhat thickened, bearing distinct posterior notch; lip slightly rhomboidal to near evenly convex, tapering toward broad, shallow anterior canal. Ground colour mid-brown;

whitish, narrow subsutural spiral band overlain by irregularly spaced chestnut maculae; below (on last adult whorl), three spiral formations of regular to somewhat sporadically spaced, axially oriented, narrow orange lines; additionally, ~10-12 orange, axially arranged, sinuous to highly undulating lines extending from suture to base of last adult whorl; in some material highly interrupted. Penultimate whorl consisting of suprasutural chestnut blotches and thin, vertically arranged sinuous lines. Aperture whitish to light brown near lip, graduating to dark orange-brown near columella; elongate-pyriform, about three-quarters of total shell length; internal aperture of very dense shallow ripple-like sculpture adjacent to lip and anterior siphon (Plate 2I). Columella relatively straight, with 4 oblique plaits. Fasciole prominent, its upper boundary extending posteriorly to the most posterior columellar plait (when viewed from anterior siphon) in a broad, raised ridge. No distinct parietal callus.

**Material Examined.** Holotype - AMS C.613514. 43.1 mm. Kupang, Timor, East Nusa Tenggara (Fig. 1), 20 metres. Paratypes - Locality as for holotype. See Table 1 for further details. All comparative material shown in Plates 2-4.

**Distribution.** Only known from the type locality (Angga Jodi, personal communication; Figure 1).

**Etymology:** Referring to the female gender of the Latin *compressus* (= compressed) due to its vertically somewhat compressed shell morphology.

**Remarks.** *A. compressa* n. sp. exhibits a compressed shell outline and a very short spire that renders it rather distinct, and it cannot readily be confused with any other species of *Amoria*. The pattern on its juvenile teleoconch whorl (Plate 3C) is comparable to that of *Amoria damonii ludbrookae* Bail & Limpus, 1996 (Plate 3D), with the pattern on the last adult whorl between these taxa differing more than that of the preceding whorl(s) (e.g. Plate 4A-C compared to 4D). However, the overall morphology differs in the latter being significantly more elongate than the new species, including a more elongate protoconch, as well as generally being larger in size.

*Amoria compressa* n. sp. differs from *A. peregrina* n. sp. in the following characters: a notably shorter spire relative to the overall shell length; a more compressed, cyrthoconoid protoconch; a distinct colouration pattern; a darker ground colour; the upper fasciole band extends posteriorly to the most posterior columellar plait, not melding with it (as is the case for *A. peregrina* n. sp.).

While this description is based on the type material (Table 1; Plate 3), the authors have examined photographs by Angga Jodi, Indonesia, of four additional specimens that appear morphologically entirely consistent with the species as described here.

Species	Voucher status	SL (mm)	SW (mm)	Reg. no./repository
<i>Amoria peregrina</i> n. sp.	Holotype	43.1	18.3	AMS C.613512
	Paratype 1	49.2	21.2	AMS C.613513
	Paratype 2	43.8	18.1	IMC
	Paratype 3	55.1	23.3	IMC
<i>Amoria compressa</i> n. sp.	Holotype	48.8	22.8	AMS C.613514
	Paratype 1	64	28.6	IMC
	Paratype 2	46.3	20.8	HMC

**Table 1.** Dimensions, voucher status, and reg. no./repository of the type material of *A. peregrina* and *A. compressa* n. spp. All types are from Kupang, Timor, Indonesia (Figure 1), at 20 metres.

## DISCUSSION

For several decades, it has been known that two taxa of *Amoria* occur in Indonesian waters, namely *A. damonii ludbrookae* and *A. turneri* (e.g. Bail & Limpus, 2001). While the authors have observed ample material from the Indonesian archipelago, the majority is restricted to relatively few islands; Aru Island, Timor, and with some specimens purportedly from Sulawesi (IMC), or, seemingly at least brought into Sulawesi from fishing operations. The two species named herein are the first of the genus to be named from outside of Australia. Our understanding of the diversity and distribution of *Amoria* from Indonesia is in its nascency, and the material known so far is predominantly from shallow water. It is likely that additional taxa will surface, or certainly from hitherto uncollected localities that will elucidate distribution ranges that are poorly understood to date.

Comparative shell morphology suggests a close affinity between *A. peregrina* n. sp. and *A. praetexta* (Plates 1-3). In terms of biogeography, this is plausible given that *A. praetexta* (in addition to the morphologically similar *A. textilata* (Plate 2C); see Zheng & Maxwell, 2025) occurs as far northwest as Ashmore Reef, situated between Timor and the northwestern Australian coast (Figure 1). The figured specimen in Zheng and Maxwell (2025) appears highly similar to material of *A. praetexta* from the Australian mainland (e.g. Plates 1, 2). While Ashmore Reef is geographically closer to the island of Timor than to mainland Australia, its biogeography is nevertheless influenced by its placement at the edge of the Australian continental shelf. Furthermore, the deep Timor Trough (Figure 1), separating Ashmore Reef from Timor, potentially acts as a significant barrier for effective dispersal, particularly given that these

are primarily shallow-water, direct-developing taxa. Given the incomplete understanding of exact localities and distribution ranges of the new species, however, testing such hypotheses requires more data.

One specimen (Plate 1E) bears overall morphological similarities to *A. peregrina* n. sp., yet exhibits a colouration pattern more similar to *A. turneri* than to *A. praetexta*. The potential affinity between this individual and *A. peregrina*, as well as to other *Amoria* in general, remains unknown.

*Amoria compressa* n. sp., in terms of its colouration pattern, bears some similarity to *A. damonii ludbrookae* (Plates 3, 4). However, as it differs considerably in several other characters (see previous), understanding the potential lineage from which *A. compressa* n. sp. has derived requires further study.

To the authors' knowledge, the internal micro-sculpture of *Amoria* (Plate 2H, I) has not before been reported in the literature. Examination of several other *Amoria* spp. suggests that this feature is prevalent in the genus (authors, personal observations). The nature and extent of this character in the Volutidae more broadly will be subject to further research by the authors as part of an ongoing project on the family.

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## LITERATURE CITED

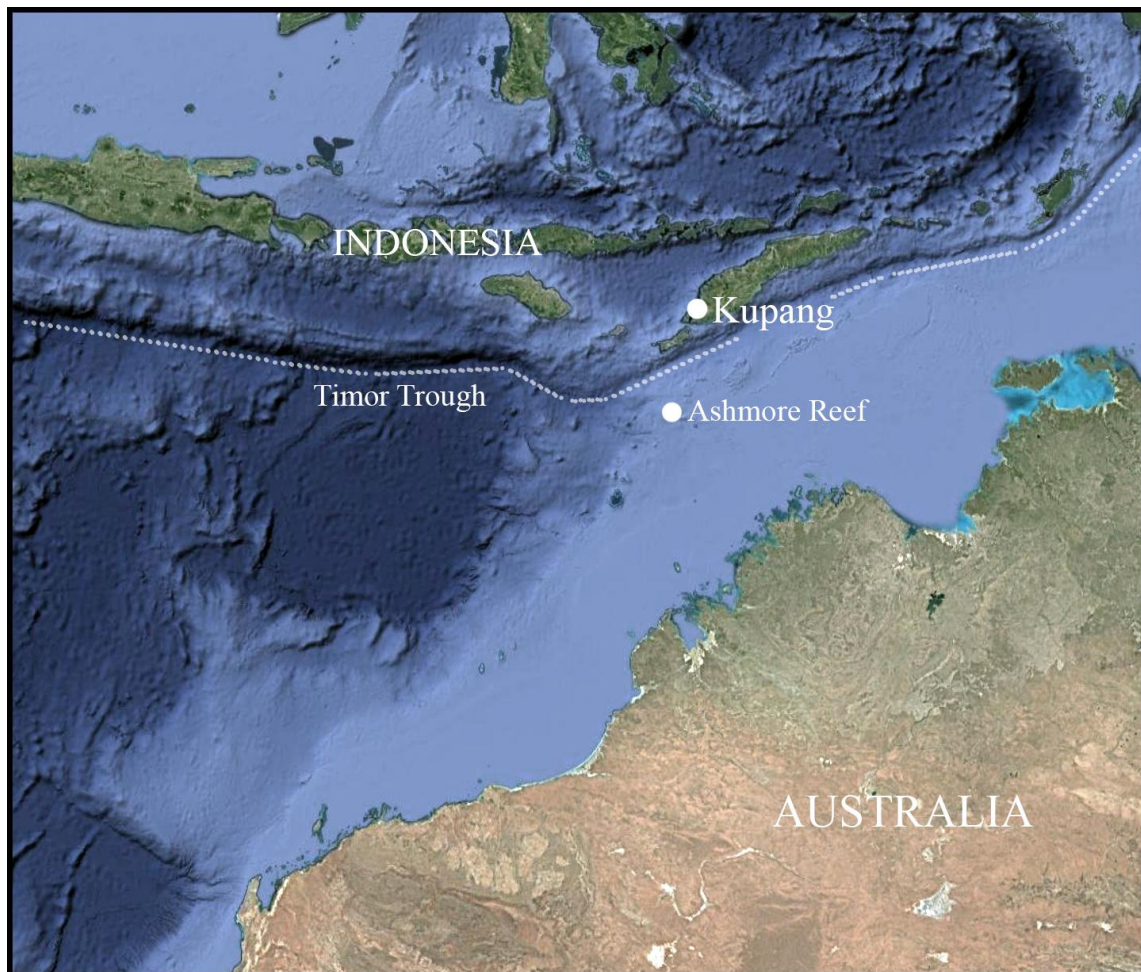
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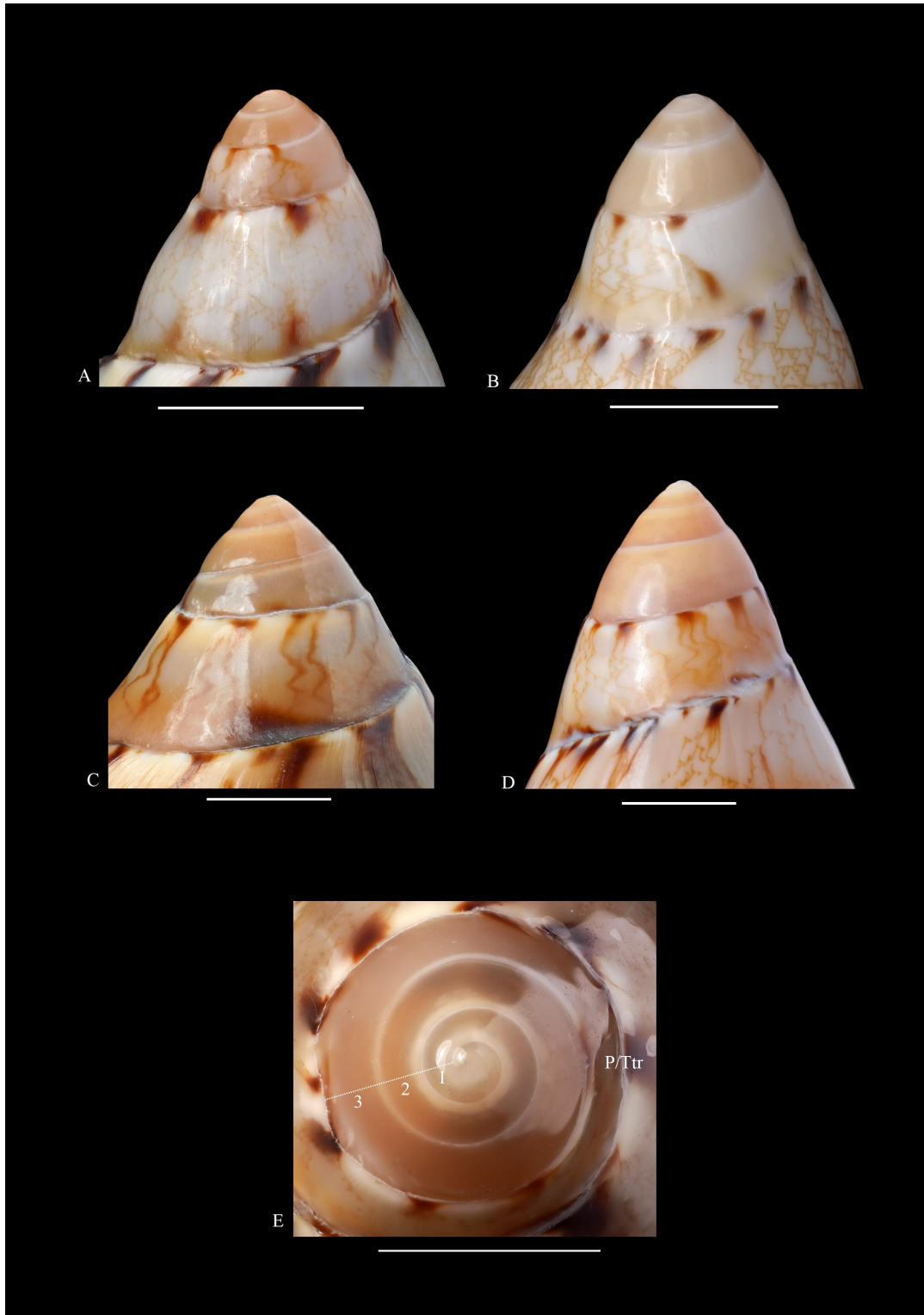
**Figure 1.** Map showing the type locality of Kupang (Timor, East Nusa Tenggara, Indonesia) for the two species named in this study. Stippled line indicates the position of the Timor Trough. Composite map based on Google satellite images.



**Plate 1.** All specimens (except F) are from Kupang, Indonesia. **A-D.** *Amoria peregrina* n. sp. **A=** Holotype, 43.1 mm. AMS C.613512. **B=** Paratype 1, 49.2 mm. AMS C.613513. **C=** Paratype 2, 43.8 mm. IMC. **D=** Paratype 3, 55.1 mm. IMC. **E=** *Amoria* sp., 45.7 mm. IMC. **F=** *Amoria praetexta*, Devils Brook, WA, 47.3 mm. IMC.



**Plate 2.** **A=** *Amoria praetexta*. Broome, WA. 52.5 mm. IMC. **B=** *A. praetexta*. Dampier Archipelago, WA. 48.7 mm. IMC. **C=** *A. textilata*. Ashmore Reef, WA. 5-10 metres. 60.4 mm. IMC. **D-G.** Details of the columella. **D=** *A. peregrina* n. sp. Paratype 3. IMC. **E=** *A. peregrina* n. sp. Paratype 1. AMS C.613513. **F=** *A. praetexta* (A, same figure). **G=** *A. praetexta* (ref. to B, same figure). **H, I.** Micro-sculpture of the internal aperture. **H=** *A. compressa* n. sp. Holotype AMS C.613514. **I=** *A. peregrina* n. sp. Paratype 1. AMS C.613513. All scalebars are 5 mm.



**Plate 3.** Protoconch details. **A**= *A. peregrina* n. sp. Holotype. AMS C.613512. **B**= *A. praetexta*. Broome, WA. IMC. **C**= *A. compressa* n. sp. Paratype 1. IMC. **D**= *A. damonii ludbrookae*. North Sulawesi, Indonesia. Trawled 40 metres. IMC. **E**= *A. peregrina* n. sp., showing protoconch whorl count method and location of the hypothesized protoconch-teleoconch boundary. Paratype 1. AMS C.613513. All scalebars are 5 mm.



**Plate 4.** A-C. *A. compressa* n. sp. A= Holotype. 43.1 mm. AMS C.613514. B= Paratype 1. 64 mm. IMC. C= Paratype 2. 46.3 mm. HMC. D= *A. damonii ludbrookae*. Kupang, Indonesia. 62.3 mm. IMC. E= *A. turneri*. South of Aru Island, Indonesia. Trawled, 180 metres. 67.1 mm. IMC. F= *A. turneri*. Kupang, Indonesia. 20 metres. 52.4 mm. IMC. G= *A. cf. damonii*. Same locality data as Figure F. 97.6 mm. IMC.