

COFFEE BEANS & EAR SHELLS

List of species

1. *Cassidula nucleus* (Gmelin, 1791)
2. *Ellobium gangeticum* (L. Pfeiffer, 1855)
3. *Melampus ceylonicus* (Petit de la Saussaye, 1843)
4. *Melampus fasciatus* (Deshayes, 1830)
5. *Pythia plicata* (Férussac, 1821)

Other species reported from Sri Lanka

No other species

ELLOBIIDAE L. Pfeiffer, 1855 (1822) (Ellobiinae, Melampodinae, Pythiinae)

Coffee beans & Ear shells

The family ELLOBIIDAE contains forms that have cylindrical, conical or fusiform shells with ear-shaped apertures narrowed by teeth and folds on the outer lip and the columella. The spire is small and the body whorl large, lacking an anterior siphonal canal. The outer surface is smooth or with low sculpture. An operculum is absent, serving to distinguish these species from other similar molluscs such as the LITTORINIDAE that also lack a siphonal canal but are operculate. The animal is completely retractable inside the shell.

Most species live in brackish-water mangrove habitats, being found during the day resting on the stems and branches of woody mangrove plants, or on the exposed mud bottom. (de Bruyne, 2003; Poutiers, 1998 p. 641)

Ellobiidae (=Melampidae) was previously placed in the Order Pulmonata Cuvier & de Blainville, 1814, the pulmonate gastropods, that included principally land and freshwater snails with few species in coastal habitats. Recent revisions of the classification of gastropods have re-arranged the grouping, abandoning some of the earlier concepts. They are now placed in the Order Ellobiida, under the Superorder Eupulmonata that includes the Systellomatophora where the mud slugs (Onchidiidae) are placed. (Haszprunar, 2009; Bouchet et al, 2017)

Classification of Ellobiidae

Class: Gastropoda
 Subclass: Heterobranchia
 Infraclass: Euthyneura
 Suborder: Tectipleura
 Superorder: Eupulmonata
 Order: Ellobiida
 Superfamily: Ellobioidea
 Family: Ellobiidae
 Subfamilies: Ellobiinae, Melampodinae, Pythiinae & Pedipedinae
 -- MolluscaBase (2019) / WoRMS



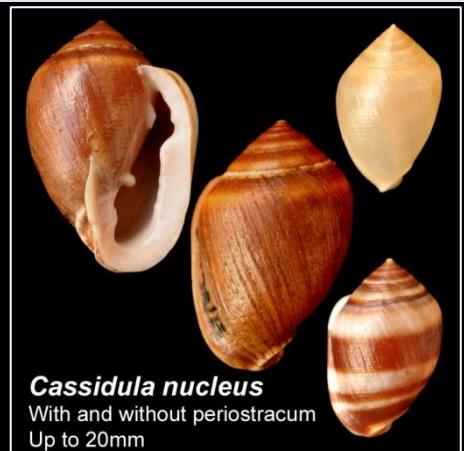
ELLOBIIDAE L. Pfeiffer, 1855 (1822)

Coffee beans and Ear shells

Ear shells



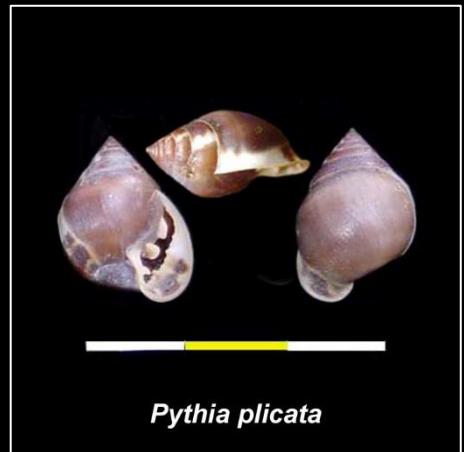
On mangrove stems and roots in three west coast locations. Under leaf litter in dried up mangroves.



Puttalam, Vanathavillu;
Kalpitiya, Thihaliya;
Under mangrove leaf litter, amongst
herbaceous vegetation at edge of
mangrove



On mangrove vegetation, many
locations, including Koggala lagoon
and Madu ganga where the shells
had a purplish hue (image far right)



Coffee bean shells



Mount Lavinia beachside colony

The Mount Lavinia colony was observed for over 20 years. It has established at the foot of a grassy bank with small boulders separating it from the sandy beach. The images above show the characteristic wide shoulders and tapering straight-sided body whorls. The dentition of the outer lip is close-spaced and regular, that of the columella only 2-3 and small.

The shells below, found together with the above, have the same dentition but differ in shape. The colour varies from concolor white through banded to concolor brown.



The images at left and above are all from the Mount Lavinia colony.

These shells were mis-identified as *M. fasciatus* until corrected in May 2018.

Shells of 'fasciatus' are elliptical with strong, ragged teeth. Those of 'ceylonicus' are shouldered with small teeth, but some individuals within a colony may not show a definite shoulder.

Melampus fasciatus – from eastern & western shores of Puttalam Lagoon



The four images on the left are of shells from mangroves on either side of the Puttalam lagoon. They differ from the shells from Mount Lavinia and Diyalagoda in shape (elliptical, not shouldered), dentition (few ragged teeth including many on the columella) and colouring (mostly pale or banded with blue-black apices).

Kalpitiya, NARA Station mangrove (upper pair); Puttalam lagoon eastern shore, Vanathavillu (bottom left); Puttalam lagoon western shore, Kalpitiya peninsular, Kurinjampitiya.



ELLOBIIDAE L. Pfeiffer, 1855 (1822)

Coffee beans and Ear shells

1. *Cassidula nucleus* (Gmelin, 1791)

Nucleus cassidula

[*Helix nucleus* Gmelin, 1791 original name. *Cassidula (Cassidula) nucleus* (Gmelin, 1791) - accepted, alternative.

Auricula mustelina Deshayes, 1830 synonym]

Pythiinae (Subfamily)

Shells robust, with short-spires and rounded, tapering body whorls. Outer lip thick and flange-like with an indentation at the posterior end; two columellar teeth. Brown, white, or banded brown and white. Juveniles have thin lips. A thin brownish periostracum is present in adults, reduced to spiral rows of spaced hairs in juveniles. 20 x 12 mm (ht x w)

Kalpitiya, western lagoon shore at Kurinjampitiya, under leaf litter on moist mud in dry mangrove; Kaluamodera, Kaluamodera Ganga, on roots and stems of mangrove plants; Maggona, Diyalagoda, Dummalamodera Ganga, mangrove stems, up to 2 m above ground.

2. *Ellobium gangeticum* (Pfeiffer, 1855)

Ganges ear shell

[*Auricula gangetica* L. Pfeiffer, 1855 - original name. *Ellobium (Auriculodes) gangeticum* (L. Pfeiffer, 1855) - accepted, alternative]

Ellobiinae (Subfamily)

Shell lightweight, translucent, fusiform with a short-pointed spire, aperture narrow, elongate. Outer lip thin, simple (no teeth), columella with two anterior folds. The shell is coloured white and covered with a straw coloured periostracum. The live shell containing the animal is darker, especially in the apical parts, on account of the viscera showing through; the head and foot are white. 23 x 10.5 mm (ht x w)

Puttalam, Vanathavillu, Pubudugama Totupola, lagoon-shore mangrove, under leaf litter; Kalpitiya, Thihalia, Puttalam lagoon western shore mangrove fringe, amongst leaf litter.

3. *Melampus ceylonicus* (Petit de la Saussaye, 1843)

Sri Lanka coffee bean

[*Auricula ceylonica* Petit de la Saussaye, 1843 – original name]

Melampodinae (Subfamily)

Shell with large tapering body whorl with straight sides, low straight-sided conical spire and rounded, sub-angular shoulder. Aperture elongated and narrow, the anterior part wider and rounded. Outer lip thin, entire, 6, 7, or 8 white teeth on a recessed thickened white coloured linear platform that is thin posteriorly, thicker anteriorly and curving inside the anterior extremity to merge with the columella. Three columellar folds, a gap separating the most anterior one from the other two. Cinnamon, tan or white, or spirally banded in these colours.

14 x 9 mm (ht x w)

Mount Lavinia, Hotel Bay, Pavilion Rocks, supratidal, damp soil bank upper beach under vegetation; Maggona, Diyalagoda, mangrove stems, bank of the Dummalamodera Ganga.

Note: This species distinguished from the marsh coffee bean by the following characters: a rounded shoulder (not always present) placed closer to the spire, the body whorl tapering anteriorly, columella not callus, its folds low, outer lip teeth low, generally even, reducing in size anterior to posterior, sometimes with interposed smaller teeth. [Kesavan et al, 2009; Subba Rao & Dey, 2000 (distribution includes Sri Lanka); G. Nevill has collected *M. ceylonicus* from Balapitiya (Mollusca in the Indian Museum, Calcutta)]

4. *Melampus fasciatus* (Deshayes, 1830)

Marsh or Striped coffee bean

[*Auricula fasciata* Deshayes, 1830 original name. *Melampus (Melampus) fasciatus* (Deshayes, 1830) - accepted, alternative.

Auricula granosa Hombron & Jacquinot, 1848 synonym]

Melampodinae (Subfamily)

Shell elliptical, slender without a distinct shoulder angulation. Prominent jagged teeth border the narrow aperture on both sides. Outer lip with 2 - 3 strong, widely spaced teeth with smaller ones placed irregularly in between forming a jagged row; basal platform usually weak. Columellar folds strong, teeth-like: one anterior at end of columella, the next strong, followed by a row of teeth of decreasing size almost to the posterior end of the columella. Pale tan or white, or spirally banded, some individuals with deeper honey tones or purplish, all with purplish spires. 12.84 x 7.5 mm (ht x w)

Puttalam, Vanathavillu, Pubudugama Totupola, mangrove vegetation and leaf litter: damp stems and pneumatophores up to 20 cm, moist leaf litter on mud, landward fringe of mangrove; Kalpitiya, NARA Research Station, mudflats of mangrove adjacent to beach, in shade; Kalpitiya, Thihaliya, Puttalam Lagoon western shore, Mangrove fringe, on mud, air roots, stems; Kalpitiya, western lagoon shore, at Kurinjampitiya, under leaf litter on moist mud in dry mangrove patch.

5. *Pythia plicata* (Férussac, 1821)

Plicate ear shell

Pythiinae (Subfamily)

Shell ovate, spire short and pointed, body whorl rounded, compressed dorso-ventrally, outer lip thin, prolonged anteriorly. Remnants of earlier lips (varices) arranged 180° apart along the two edges, represented by white patches. Outer lip teeth small, recessed (set back from the edge), three very large columellar teeth. Brown with bluish highlights or purplish, younger shells brown. Outer lip white with brown patches anteriorly, columella brown with white teeth.

Small live shells from Puttalam lagoon mangroves appear brown and not green stained as they were mostly on tree trunks above high tide level up to 1 m in an inundated area. Elsewhere at the landward fringe where the tide had receded, they were similarly high up, but also in the leaf litter on wet mud under dead leaves. In strong light they are purplish.

17 x 12 x 8.3 mm (ht x max w x min w); 18 x 12.7 mm (ht x w).

Puttalam, Vanathavillu, Pubudugama Totupola, mangrove trunks to 1 m and under leaf litter; Kalpitiya, Thihaliya, Puttalam Lagoon western shore, mangrove fringe, empty; Koggala, lagoon, Gan Duwa, empty, shoreline of island, purplish with lip damage; Balapitiya, Maduganga, mangrove plant, water's edge of island, empty, purplish; Akurala, mangrove, empty; Lunama, Lunama Lagoon fringing mangrove, empty, on mud & leaf litter;

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