

# Natural History Snippets



*Phyllidia varicosa* photographed underwater at Kattankudy in June 2005. The gills of this genus are under the notum (mantle) along both sides, above the foot. A popular aquarium animal. Photo - *Malik Fernando*

## NUDIBRANCHS or SEA SLUGS

I devoted the west-coast diving season of the year 2000 to collect, study and photograph nudibranchs. The resulting collection of ex-situ photographs with descriptions appeared in an article titled "Nudibranchs: *Snails without homes*" in the *Loris* - the magazine of the Wildlife & Nature Protection Society of Sri Lanka (*Loris* 2000 **22** (3) June, pp.4-12 ). This snippet contains photographs appearing in that article as well as others.

An internet version of the article with updated identifications can be accessed at:

<https://docmalikfern.files.wordpress.com/2020/02/nudibranchs-snails-without-homes-4.pdf>.

Nudibranchs are molluscs, like our common garden snails, and like the slugs we find in our gardens devoid of an external shell. They are grouped into the Subclass Heterobranchia (formerly Opisthobranchia), together with related forms based on a common anatomical arrangement of the gut and mantle cavity. The Order Nudibranchia lack shells and feed on various attached invertebrates. There are two

suborders—Cladobranchia (Aolids) and Doridina (Dorids). [A simplified, but older, classification of the phylum Mollusca may be seen in the article mentioned above.]

The classification of molluscs has been revised in recent years. This article uses species names and classification based on MolluscaBase through the World Register of Marine Species (2023 November).

**Dorid Nudibranchs**—of the suborder Doridina—take many forms. Most of the specimens collected belong to the **family Chromodorididae**. They all have prominent Christmas tree-like gill filaments on the notum at the rear arranged around the anus. At the anterior are two sensory rhinophores. A

mantle (the notum) occupies the upper surface, frilled or not, sitting atop the foot, clearly seen in lateral views, in some species longer than the 'body' and showing at the rear. They feed on sessile prey, some exclusively on sponges. The common names given are my own.



*Goniobranchus decorus* 20mm



*Goniobranchus tennentanus* 50mm



*Goniobranchus geminus* 40mm



*Goniobranchus fidelis* 25mm



*Glossodoris pallida*

*G. decorus*

*G. tennentanus*

*G. geminus*

*G. fidelis*

*G. pallida*

Decorated sea slug. Ratmalana Deep reef, 20m, on rock.

Tennent's sea slug. Wellawatte, Degal Meda reef, 22m, on rock.

Three-lined sea slug. Lunawa, Bodhigala, 21m, on rock.

Girdled sea slug. Moratuwa, Itipandama reef 10m.

Pale sea slug. From an exporter's tanks, no location data.

Chromodorididae continued next page





*Doriprismatica atromarginata*



dorsal and lateral views



*Verconia alboannulata*

- D. atromarginata* Common sea slug. The deep yellow form with a frilled, blue-lined notum is the most common nudibranch seen on the shallow Colombo reefs. The greyish form with a similar notum edge was from Clappenberg Bay, Trincomalee. Feeds on sponges like many other Chromodoridids.
- V. alboannulata* Peach sea slug. Wellawatte, Degal Meda reef, 22m, on rock. May be a different species, as the typical 'alboannulata' has a white line between the rhinophores that splits into an elongated oval that encloses the gill pocket (Rudman, 1999a).



*Hypselodoris kanga* 30mm



*Hypselodoris pulchella* 60mm



*Hypselodoris* sp. 20mm

- H. kanga* Chequered sea slug. Moratuwa, Itipandama reef, 10m, on sandy, rock-strewn bottom. Swallowed whole another heterobranch in the same collecting bag. The yellow spots on the outer edges of the gills, that are stiffly held in a tulip shape, are characteristic.
- H. pulchella* Beautiful sea slug. Colombo reefs. The notum narrow with an expanded head lobe, exposing the yellow-spotted foot.
- H. sp.* Red-lipped sea slug. Moratuwa, Itipandama reef, 10m, on sandy, rock-strewn bottom. Unidentified, assigned to *Hypselodoris* on account of the expanded head lobe that the animal flips up and down when moving, flashing the bright orange-red under side of the notum (right-hand image). The gills show a constant rapid quivering movement, only seen in this nudibranch.

### Dorid Nudibranchs of the families Discodorididae, Aegiridae and Polyceridae



*Jorunna funebris* 55mm



*Notodoris citrina*



*Gymnodoris ceylonica*



*Tambja affinis* 50mm

*J. funebris* [Fam. DISCODORIDIDAE] - the peppermint slug, is often seen near a blue sponge (*Xestospongia* sp.), on which it feeds. Colombo reefs, 1-10m.

*N. citrina* [Fam. AEGIRIDAE] - obtained from an aquarium fish dealer. Feeds on yellow calcareous sponges.

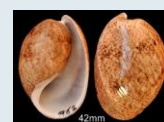
*G. ceylonica* [Fam. POLYCERIDAE] - shallow water, Clappenberg Bay, Trincomalee. Feed on other slugs of the family Aplysiidae (Sea hares).

*Tambja affinis* [Fam. POLYCERIDAE] - Ratgama, Godagala, 15m. Three branched gills. Feeds on Bryozoans (moss animals).



*Philinopsis speciosa* Pease, 1860  
Family Aglajidae

*Philinopsis speciosa* (synonym *P. cyanea*), from the Moratuwa, Itipandama reef, is easily mistaken for a nudibranch. It is, however, in a different Order—Cephalaspidea, head shield slugs and bubble snails. This species preys on bubble snails, swallowing them whole, digesting the soft tissues and regurgitating the undamaged shells. It has no shell itself; the bubble snails have shells, but the animal cannot retract completely into its shell.



*Bulla ampulla*



*Hydatina physis*

Shells of two bubble snails preyed upon by *Philinopsis*



**Dorid nudibranchs** of the family **Phyllidiidae** are firm and rubbery to touch, the notum being covered with nodules of various shapes arranged in various patterns, many being white on black underwater, pink on black at the surface. They possess hidden gills along the sides of the body between the notum and the foot. The notum covers the whole foot, the anus being exposed on the dorsal aspect. Rhinophores are present.



cf. *Phyllidia alyta* 70mm



*Phyllidia varicosa* 40mm



*Phyllidia ocellata* 45mm

- ♣ cf. *P. alyta* - White and yellow phyllidia. In previous articles thought to be a white form of *P. varicosa*. Only a detailed examination of the black lines and tubercles will confirm the identity. (Yonow, 2012) Colombo reefs.
- ♣ *P. varicosa* - Varicose phyllidia. Black lines, blue ridges with yellow tipped nodules. Colombo reefs. Moratuwa, Itipandama reef 10m.
- ♣ *P. ocellata* - Gold-spotted phyllidia. Moratuwa, Itipandama reef, 10m, on sandy rock-strewn bottom.
- ♣ *P. pustulosa* - Noble phyllidia, is shown in both dorsal and left lateral views. Wellawatte, Kinross First reef, 2-3m.
- ♣ *P. meandrina* - Concentric phyllidia. Wellawatte, Degal Meda reef, 20m, on rocks.



*Phyllidiella pustulosa* 40mm



*Phyllidiella pustulosa* lateral



*Phyllidiella meandrina* 30mm



*Phyllidiella cooraburrama* 40mm



*Phyllidiella zeylanica* 30mm

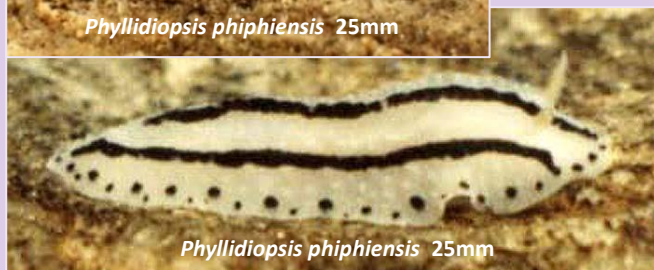


*Phyllidiella zeylanica* 25mm

- ♣ *P. cooraburrama* - Radial phyllidia. Needs confirmation as it is a species described from Australia. Wellawatte, Degal Meda reef, 20m, on rocks.
- ♣ *P. zeylanica* - Ceylon phyllidia. Left: Moratuwa, Itipandama reef, 10m, on sandy rock-strewn bottom. Right: Ratmalana Deep reef, 20m, on rock.



*Phyllidiopsis phiphiensis* 25mm



*Phyllidiopsis phiphiensis* 25mm

*P. phiphiensis* - Sargent phyllidia. Differs from other phyllidids by the absence of lumpy tubercles; only small papillae arranged in two rows down the back and scattered around the mantle periphery. White with three black longitudinal lines, a row of black marginal spots; white rhinophores. Ratmalana deep reef, 20m, on rock.

Known only from southern Thailand (Andaman Sea, north-eastern Indian Ocean) (Rudman 1999b) making this record of great interest. I have been unable to trace any records of collections outside Thailand.



**Aolid Nudibranchs**—of the suborder Cladobranchia—do not have gills like the dorids but instead possess finger-like processes called cerata for gas exchange. The cerata serve a defensive purpose as well. They communicate with the digestive system of the animal and at their summits are special structures (cnidosacs) that store cnidocysts obtained from their cnidarian prey. These are used for the animal's defence. Never handle these animals with bare hands, as they are capable of causing irritating stings on account of these (borrowed) cnidocysts.

Cnidocysts—formerly called nematocysts—are the stinging cells characteristic of cnidarians, such as jellyfishes, sea anemones, hydroids, and corals. Aolids have the amazing capacity to eat cnidarians without triggering the cnidocysts to fire and transferring them to the cerata tips for their own defence.

#### Family Facelinidae



*Pteraeolidia ianthina* 80mm




Photo - Naren Gunasekera

*P. ianthina* - Violet pteraeolidia. Wellawatte, on sand inshore of the Palagala reef, 13m. Background removed to show details of the animal. The 17 pairs of fan-like structures are the cerata.

*P. ianthina* - Violet pteraeolidia. Palagala reef. Underwater image by Naren Gunasekera.



*Phidiana militaris*

 *P. militaris* - Military sea slug. Palagala reef. Underwater image by Naren Gunasekera.

#### Family Arminidae



*Armina* sp.



*Armina* sp.

*Armina* sp. - Black and white striped veiled nudibranch. Veiled nudibranchs have wide, flattened, soft bodies with longitudinal ridges along the notum. The head veil is prominent—the black 'fan' with a yellow margin below the closely placed, retractile rhinophores. No cerata are visible.

#### Family Glaucidae



*Glaucus* sp.

*Glaucus* sp. is a small Aolid sea slug that floats upside-down at the surface of the water. It does this by gulping air into its ventrally placed stomach. Peduncles on either side of the body branch into fans of cerata. The animals feed on jellyfish that also live at the water surface like the siphonophores *Physalia* and *Porpita*. Their jaws are armed with pointed teeth with which they are able to nibble their prey. Washed up on the Wellawatte beach, photographed by Priyantha Jayakody.

1. MolluscaBase eds. (2023). MolluscaBase. Nudibranchia. Accessed through: World Register of Marine Species at: <https://www.marinespecies.org/aphia.php?p=taxdetails&id=1762> on 2023-12-15
2. <https://en.wikipedia.org/wiki/Nudibranch>
3. Rudman, W.B., 1999a (December 5) *Noumea alboannulata* Rudman, 1986. [In] *Sea Slug Forum*. Australian Museum, Sydney. Available from <http://www.seaslugforum.net/factsheet/noumalbo>
4. Yonow, N. ZooKeys 197: 1–129 (2012) doi: 10.3897/zookeys.197.1728. [www.zookeys.org](http://www.zookeys.org)
5. Rudman, W.B., 1999b (August 1) *Phyllidiopsis phippiensis* Brunchhorst, 1993. [In] *Sea Slug Forum*. Australian Museum, Sydney. Available from <http://www.seaslugforum.net/factsheet/phylliphip>