Visual identification guide to Phyllidiella

Identification features and comparison photographs with links to scientific papers

This guide covers 15 species listed as accepted in WoRMS. It supports preliminary identification from photographs, combining classical descriptions with taxonomic updates. The photographic plates are embedded in the file and can be viewed offline.

Limits of identification

Described species and unnamed lineages may look almost identical. A specimen resembling P. pustulosa is not necessarily that species. When uncertain, use Phyllidiella sp. or cf., which indicates resemblance to a species without a definitive identification. [2, 3]

Features to examine

Members of the family have gills beneath the mantle margin and lack an exposed dorsal gill plume. The rhinophores, the paired anterior sensory organs, are usually at least partly black. These features help orient identification, but reliable separation from related genera may require examination of ventral structures and internal anatomy. [1]

For species identification, focus on tubercle arrangement and height, the pattern of black lines, and the mantle margin. Pink, white or greenish colour alone is insufficient. [2]

Separate tubercles and clusters

Phyllidiella pustulosa

Black background with clusters of pale tubercles; the classical pattern has three clusters along the dorsal midline. Appearance changes with growth. Look for clusters rather than long ridges. Compare Plate A, groups 1 and 2. [1, 2]

Phyllidiella nigra

Extensive black areas with pink to reddish tubercles, generally more individually distributed than in the classical pustulosa pattern. Variation occurs, and some tubercles coalesce. Plate A, group 3. [1, 2]

Phyllidiella albonigra

Elongate body, extensive black background, small dense clusters and a narrow pale mantle margin. May resemble pustulosa; reinstated as a separate species in 2022. Plate C, group 2. [2]

Further identification features

Phyllidiella cooraburrama

Very large, tall, compound tubercles with broad pink bases and steep sides. The overall impression is of a few large towers. [1]

Photograph and description at the Australian Museum

Phyllidiella granulata

Granular grey background with white, compound, relatively pointed tubercles. The granular texture and pointed tubercles are more informative than overall colour. [1]

Photograph and description at the Australian Museum

Longitudinal ridges and lines

Phyllidiella rosans

Low, rounded, relatively smooth longitudinal pink ridges. The ridges are smoother than those of specimens historically identified as zeylanica. [1]

Photographs and description at the Australian Museum

Phyllidiella rudmani

Pale dorsum, two narrow longitudinal black lines, and relatively sparse, tall compound tubercles. In the 2022 study, the lines did not join at either end of the body. Plate B, group 2. [1, 2]

Phyllidiella lizae

Pale pink dorsum, low rounded tubercles and crossing black lines. Rhinophores combine black, white and pink. Compared with rudmani, the tubercles are lower and the lines less straight. [1]

Photograph of the type specimen and description

Phyllidiella hageni

Pink or greenish dorsum, low densely distributed tubercles, and longitudinal black lines with connecting branches. Compared with rudmani, the tubercles are lower and denser. Plate D. [2]

Phyllidiella backeljaui

Pink dorsum, two longitudinal black bands and a transverse connection; an X-shaped or reticulate pattern may occur centrally. The pattern is more complex than the two simple lines of rudmani. [5]

Rings and other patterns

Phyllidiella zeylanica

In specimens identified from the Red Sea, a black line encloses a central dorsal area with a squared anterior section. The name has also been applied to specimens that do not match the original description. [2, 4]

Caution with zeylanica: Plate B, group 1 shows specimens labelled zeylanica auctt. in the 2022 study. This denotes authors' use of a name that, in the researchers' interpretation, does not match the original species. Do not treat these specimens as definitive reference images of true zeylanica. [2]

Phyllidiella annulata

Numerous pink rings on a black background, with low tubercles. In the classical pattern, a continuous pink line at the mantle edge is absent. [1]

Photographs and description at the Australian Museum

Phyllidiella meandrina

Central rings of tubercles with coalesced bases, with additional rows of tubercles towards the margin. May be confused with annulata; examine the arrangement of rings and the outer rows carefully. [6]

Phyllidiella amphitrite

Ridges and conical tubercles with pale yellow pigment on white areas; black rhinophores. Described from the northern Red Sea. The original description also highlights three-lobed oral tentacles. [4]

Photograph of the holotype in Plate 1 of the paper

Phyllidiella molaensis

A Caribbean species described from Panama. Black-and-white concentric rings and lines; black rhinophores with white tips. Take care to distinguish it from Ceratophyllidia. [7]

Useful field documentation

Photograph the animal from above and from the side, and take a close-up of the rhinophores. Record locality, depth and approximate length. First look for clusters, separate tubercles, ridges or rings; then compare black markings and margins. Where features overlap, retain identification at genus level or indicate uncertainty.

Plate A Clusters and tubercles

Figure 9: group 1 - P. pustulosa; group 2 - P. cf. pustulosa; group 3 - P. nigra; group 4 - Phyllidiella sp. a, an unnamed lineage. Note the overlap in appearance. Original scale bars: 10 mm.

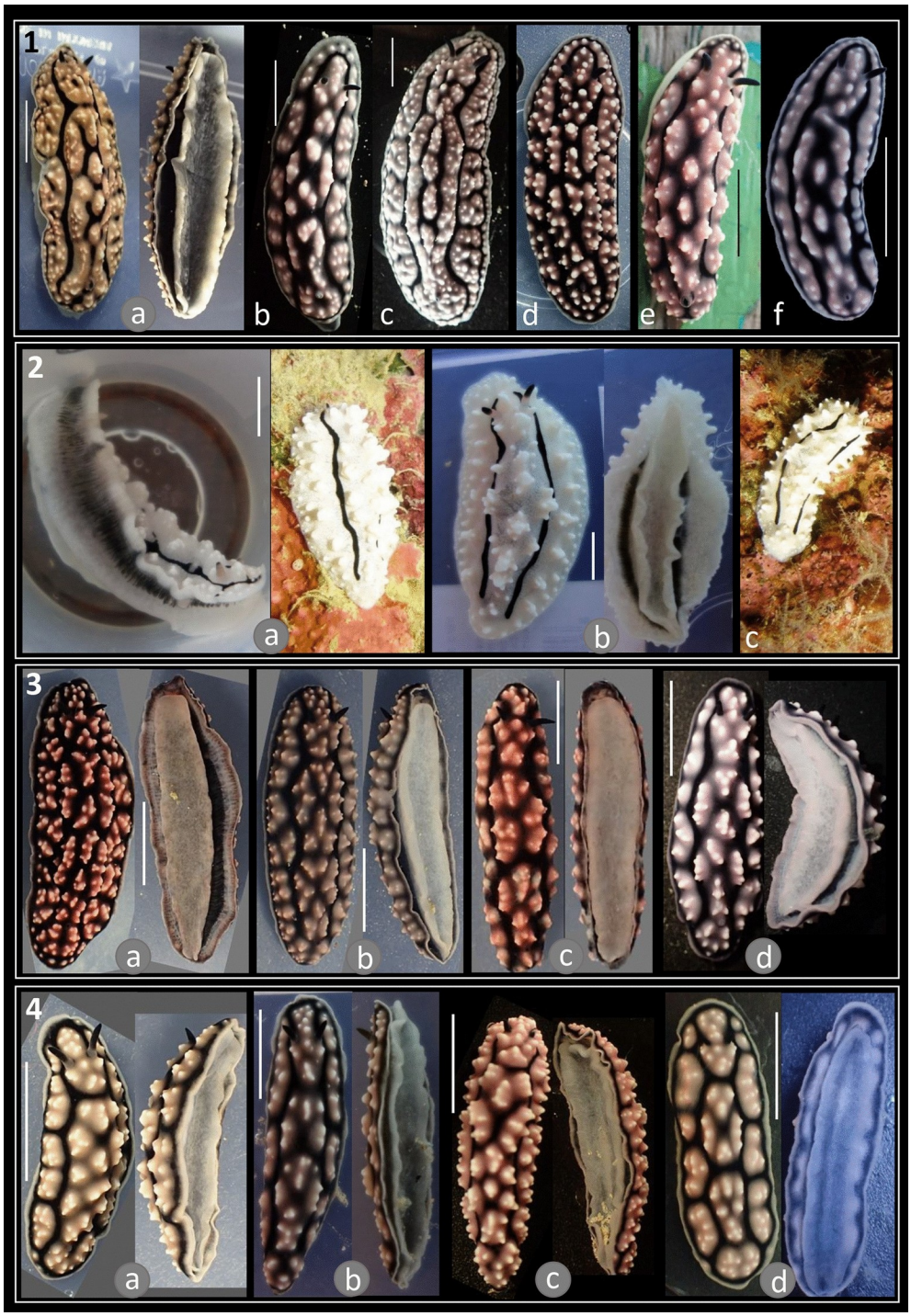


Source: Papu et al. 2022, Figure 9. Complete plate reproduced without alteration. CC BY 4.0. [2]

Open the paper and original figure

Plate B Lines and ridges

Figure 10: group 1 - P. zeylanica auctt., a name used in the literature that the authors consider not to represent the original species; group 2 - P. rudmani; group 3 - Phyllidiella sp. b; group 4 - Phyllidiella sp. c, subclade 1. Scale bars: 10 mm.



Source: Papu et al. 2022, Figure 10. Complete plate reproduced without alteration. CC BY 4.0. [2]

Open the paper and original figure

Plate C Similar species and unnamed lineages

Figure 11: group 1 - Phyllidiella sp. c, subclade 2; group 2 - P. albonigra; group 3 - Phyllidiella sp. d; group 4 - species complex e. Letter labels belong to the study and are not formal species names. Scale bars: 10 mm.

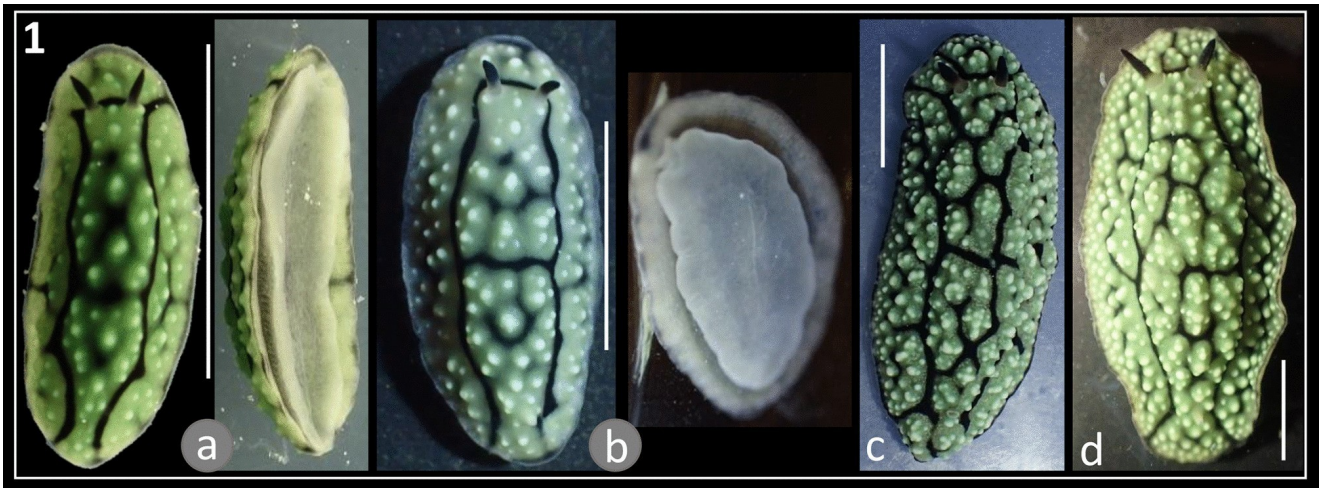


Source: Papu et al. 2022, Figure 11. Complete plate reproduced without alteration. CC BY 4.0. [2]

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Plate D Phyllidiella hageni

Figure 12: four specimens of P. hageni showing variation in appearance. Look for low, dense tubercles and black lines meandering between them. Scale bars: 10 mm.



Source: Papu et al. 2022, Figure 12. Complete plate reproduced without alteration. CC BY 4.0. [2]

Open the paper and original figure

Scientific references and links

1. Brunckhorst DJ. 1993. The systematics and phylogeny of phyllidiid nudibranchs. Records of the Australian Museum, Supplement 16: 1–107.

The foundational monograph for descriptions, keys and colour plates. Some taxonomy has since been revised.

Open source

2. Papu A et al. 2022. Phyllidiidae: an integrative taxonomic approach including chemical analyses. Organisms Diversity & Evolution 22: 585–629.

Source of Plates A-D and taxonomic updates. Published open access under CC BY 4.0.

Open source

3. Stoffels BEMW et al. 2016. Phylogenetic relationships within the Phyllidiidae.

A molecular study of relationships and hidden diversity.

Open source

4. Yonow N. 2020. Red Sea Opisthobranchia 6: Phyllidiidae and their paradorid mimic. ZooKeys 1006: 1–34.

Description of amphitrite and records of zeylanica from the Red Sea.

Open source

5. Domínguez M, Quintas P, Troncoso JS. 2007. Phyllidiidae from Papua New Guinea with the description of a new species of Phyllidiella. American Malacological Bulletin 22: 89–117.

Includes the original description of backeljaui.

Open source

6. Yonow N et al. 2002. Opisthobranch molluscs from the Chagos Archipelago, Central Indian Ocean.

Includes a description of meandrina and Figure 16d.

Open source

7. Valdés Á, Ortea J. 1996. Review of the family Phyllidiidae in the Atlantic Ocean. American Malacological Bulletin 13: 1–9.

Includes a review of molaensis and images of type specimens.

Open source

Taxonomic names in WoRMS

Image credits: the four photographic plates are reproduced from scientific source [2], retaining the original labels and scale bars. Additional photographs are available through links in the guide. Links require internet access; embedded images can be viewed offline.