Identification Key to the Genus Phyllidia Cuvier, 1804

Classification: Nudibranchia, Doridina, Phyllidiidae

Number of species: 31 accepted species according to WoRMS (WoRMS list). This includes the subgenus Fryeria and the two species described in 2025, P. fontjei and P. ovata.

Genus diagnosis

- **Body:** firm and oval, with hard dorsal tubercles that are single or arranged in ridges.
- **Rhinophores:** usually yellow or orange. In Phyllidiella they are black.
- **Foot:** most species have a black line along the middle of the foot sole.
- **Gills:** there are no circumanal gills on the back, and no jaws or radula. The gills are leaf-like and ventral, between the foot and the mantle.
- **Anus:** dorsal and posterior, except in the subgenus Fryeria. In Fryeria the anus is ventral, at the very rear of the body (Yonow 2020).

Relevant to Israel

- **Mediterranean:** P. flava is the only species of the genus known from the Mediterranean.
- **Red Sea and Gulf of Aqaba:** P. varicosa, P. multifaria (endemic), P. schupporum, P. rueppelii, P. monacha (endemic) and P. undula, which is sometimes misidentified as P. ocellata.

Characters to check

1. **Anus position:** dorsal or ventral. Checking this requires turning the animal over or photographing it from below.
2. **Background colour:** yellow, gold, white, blue-grey or black.
3. **Tubercles:** single or in ridges, and whether they have yellow caps.
4. **Black pattern:** longitudinal lines, rings, spots, or a Y-shaped mark in front of the rhinophores.
5. **Mantle margin:** its colour, and any white semicircles.
6. **Ventral side:** whether there is a black line on the foot, and the shape of the oral tentacles.

> **Warning:** According to Papu et al. (2022), several species, such as P. elegans and P. ocellata, are complexes of cryptic species. Firm identification requires COI and 16S sequencing.

Dichotomous key

1a. Anus ventral, at the rear end of the body (subgenus Fryeria) → 2

1b. Anus dorsal and posterior → 7

Subgenus Fryeria (ventral anus)

2a. Blue-grey back with a single median ridge carrying one row of yellow-capped tubercles. Two black bands run lengthwise, with many black rays to the mantle edge. Rhinophores yellow. Indian Ocean → **P. marindica**

2b. More than one ridge, or a different pattern → 3

3a. A clean oval black area in the centre of the back, with a U-shape at the front around the first tubercle. A broad white mantle "skirt" surrounds it. White conical tubercles with yellow tips occur only inside the black area. Black line on the foot. North Sulawesi → **P. ovata**

3b. Other pattern → 4

4a. Blue back. Four black lines separate three ridges of tall, yellow-capped tubercles. Blue, granular margin band with tiny black flecks, and a yellow tubercle between the rhinophores. Indonesia and the Philippines → **P. haegeli**

4b. Other pattern → 5

5a. Black back with large yellow-capped tubercles, each surrounded by a pale blue patch. The blue patches merge toward the margin. Black pattern trapezoidal. Rhinophores yellow → **P. picta**

5b. No blue patches → 6

6a. Yellow-orange mantle edge, with white semicircles at the margin. Three rows of central tubercles and a linear black pattern. Red Sea and Gulf of Oman → **P. rueppelii**

6b. Paler yellow. Many tiny isolated tubercles around the mantle margin. No white semicircles and no orange edge. Micronesia → **P. guamensis**

Dorsal anus

7a. No black pigment at all → 8

7b. Black pigment present → 9

8a. Bright yellow, with large white tubercles and smaller yellow ones. Mediterranean and Canary Islands → **P. flava**

8b. Yellow back with a few narrow red or orange lines running in from the margin toward the centre. Guam → **P. larryi**

8c. Translucent cream back, with tan blotches and tiny dark-brown dots. Rhinophores cream and club-shaped. Papua New Guinea → **P. goslineri**

9a. Yellow to gold background → 10

9b. White, cream, blue-grey or black background → 12

10a. Gold back with black spots and three low central ridges. No white. Small. Hawaii → **P. polkadotsa**

10b. Other pattern → 11

11a. Entirely yellow. A bold black ring surrounds the centre of the back and sometimes breaks into rays, with a black line along the midline. Tiny tubercles form ridges. No white. Maldives → **P. koehleri**

11b. Yellow-gold back with 4–10 black rings. Each ring is edged in white and has a gold or white tubercle at its centre → **P. ocellata** (complex). In the western Indian Ocean and the Red Sea, similar animals usually belong to **P. undula**. **P. multituberculata** is also confused with this species, and separating them requires anatomical examination.

12a. Blue-grey ridges carrying yellow-capped tubercles → 13

12b. Other pattern → 14

13a. Large (up to 10 cm), with 3–6 longitudinal ridges. Black stripe on the foot, sometimes broken → **P. varicosa**

13b. Smaller and oval. Three black lines; the middle one is broken and forms a Y in front of the rhinophores. The lateral lines do not join. Broad blue-grey tuberculate margin band. Foot grey, with no stripe → **P. coelestis**

14a. Back mostly dark, with rounded yellow tubercles and no ridges → 15

14b. White, cream or pale background, with black lines, rings or spots → 16

15a. Few, sparse tubercles. A small tubercle in front of each rhinophore pocket. No black line on the foot → **P. madangensis**

15b. Large conical tubercles and small rounded tubercles alternate at even spacing. Black line on the foot. Oral tentacles long and cylindrical → **P. carlsonhoffi**

15c. Many rounded yellow tubercles that become smaller toward the margin. Underside very dark grey, with a black stripe on the foot. Oral tentacles triangular and pointed. Micronesia → **P. tula**

16a. Back smooth, without tubercles, with only tiny granules. From the outside in: orange edge, white band, black line, white ring, and an orange centre with a white ridge. North Sulawesi → **P. fontjei**

16b. Back tuberculate → 17

17a. Translucent white background. Linked black patches on either side of the midline, with thin black streaks running to the margin. An irregular yellow line in the centre. Each rhinophore sits on its own pale patch. Up to 2 cm. Red Sea → **P. monacha**

17b. Other pattern → 18

18a. Black spots on a white background, with no lines. Rhinophores cream-white, each with 7–9 lamellae → **P. scottjohnsoni**

18b. Yellowish-white background with short black stripes. Small, from deep water. Japan → **P. zebrina**

18c. Long black lines or rings → 19

19a. Pale yellow-cream background. White conical tubercles, each at the centre of a black ring. Thin yellow margin → **P. babai**

19b. Pale, granular back, with two black "swirls" along the sides and four tubercles in the centre. No coloured edge → **P. willani**

19c. Other pattern → 20

20a. Small (about 11–15 mm). White background, with 2 or 4 black lines that form scallops toward the margin. Yellow margin, mainly at the front. Single tubercles in rows, the larger ones with gold caps → **P. exquisita**

20b. Larger → 21

21a. Three large, tall tubercles with orange-yellow tips along the midline. Two broad black lines joined by a transverse band, and a black Y-mark in front of the rhinophores. 3 or 4 white semicircles on each side. Gulf of Aqaba, Red Sea and Persian Gulf → **P. schupporum**

21b. Four black lines run lengthwise, parallel to three rows of orange-tipped tubercles. The outer lines send rays to the margin, forming scallops. Black line on the foot. Endemic to the Red Sea → **P. multifaria**

21c. Four black bands that rarely meet, with a transverse band between the rhinophores. The median row of tubercles has orange-yellow tips. Black line on the foot, broken at the front. Maldives and Mauritius → **P. alyta**

21d. White, grey or greenish background with narrow black lines. White granular tubercles form three interrupted ridges, with yellow or orange caps. Rhinophores golden yellow, and a black line on the foot. Western Pacific → **P. elegans**

Species not included in the key

P. orstomi (Valdés, 2001) was described from New Caledonia and has no photographic record. It should be identified from its original description.

Caveats

- Almost every step relies on colour and pattern, and cryptic species exist, so final identification depends on sequencing.
- The anus position (step 1) cannot be seen in a normal photo taken from above. If it is unknown, try both routes through the key.
- WoRMS accepts P. monacha in Phyllidia, but Yonow (2020) places it in Phyllidiopsis.

Species gallery and sources

Photos from iNaturalist. Copyright stays with the photographers: for reference only.

Phyllidia alyta



(c) Thierry Cailleux, some rights reserved (CC BY-NC-SA)

- Original description: Yonow, 1996
- WoRMS
- iNaturalist (294 observations)
- Sea Slug Forum

Phyllidia babai



(c) Erwin Koehler, some rights reserved (CC BY-NC), uploaded by Erwin Koehler

- Original description: Brunckhorst 1993, Rec. Aust. Mus. Suppl. 16: 1–107
- Further description: Papu et al. 2022, Org. Divers. Evol. 22: 585–629
- WoRMS
- iNaturalist (80 observations)
- Sea Slug Forum

Phyllidia carlsonhoffi



(c) Mike Krampf, some rights reserved (CC BY-NC), uploaded by Mike Krampf

- Original description: Brunckhorst 1993, Rec. Aust. Mus. Suppl. 16: 1–107
- WoRMS
- iNaturalist (230 observations)
- Sea Slug Forum

Phyllidia coelestis



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- Original description: Bergh, 1905
- Further description: Papu et al. 2022, Org. Divers. Evol. 22: 585–629
- WoRMS
- iNaturalist (1560 observations)
- Sea Slug Forum

Phyllidia elegans



(c) uwkwaj, some rights reserved (CC BY-NC), uploaded by uwkwaj

- Original description: Bergh, 1869
- Further description: Papu et al. 2022, Org. Divers. Evol. 22: 585–629
- WoRMS
- iNaturalist (1625 observations)
- Sea Slug Forum

Phyllidia exquisita



(c) Bernard Picton, some rights reserved (CC BY), uploaded by Bernard Picton

- Original description: Brunckhorst 1993, Rec. Aust. Mus. Suppl. 16: 1–107
- Further description: Papu et al. 2022, Org. Divers. Evol. 22: 585–629
- WoRMS
- iNaturalist (278 observations)
- Sea Slug Forum

Phyllidia flava



(c) Sylvain Le Bris, some rights reserved (CC BY-NC), uploaded by Sylvain Le Bris

- Original description: Aradas, 1847
- WoRMS
- iNaturalist (217 observations)
- Sea Slug Forum

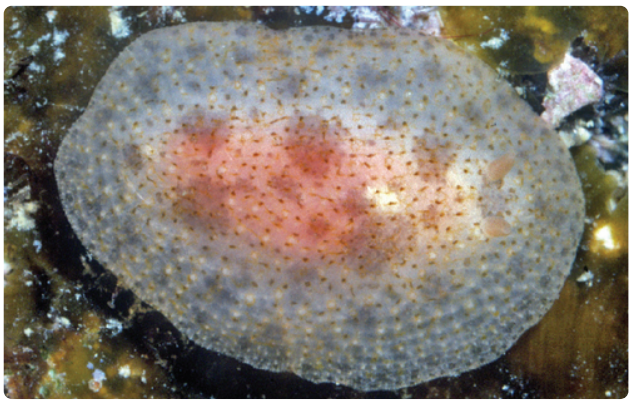
Phyllidia fontjei



(c) marco91919, some rights reserved (CC BY-NC)

- Original description: Wägele et al. 2025, ZooKeys 1245: 1–18
- WoRMS
- iNaturalist (6 observations)

Phyllidia goslineri



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- Original description: Brunckhorst 1993, Rec. Aust. Mus. Suppl. 16: 1–107
- WoRMS
- iNaturalist (5 observations)
- Sea Slug Forum

Phyllidia guamensis



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- Original description: Brunckhorst 1993, Rec. Aust. Mus. Suppl. 16: 1–107
- WoRMS
- iNaturalist (108 observations)
- Sea Slug Forum

Phyllidia haegeli



(c) Bernard Picton, some rights reserved (CC BY), uploaded by Bernard Picton

- Original description: Fahrner & Beck 2000, Arch. Molluskenkd. 128: 189–211
- Further description: Papu et al. 2022, Org. Divers. Evol. 22: 585–629
- WoRMS
- iNaturalist (37 observations)

Phyllidia koehleri



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- Original description: Perrone 2000, Basteria 64: 89–97
- WoRMS
- iNaturalist (27 observations)

Phyllidia larryi



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⚠ Based on a single iNaturalist record; check against the original description.

- Original description: Brunckhorst 1993, Rec. Aust. Mus. Suppl. 16: 1–107
- WoRMS
- iNaturalist (1 observations)

Phyllidia madangensis



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- Original description: Brunckhorst 1993, Rec. Aust. Mus. Suppl. 16: 1–107
- WoRMS
- iNaturalist (36 observations)
- Sea Slug Forum

Phyllidia marindica



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- Original description: Yonow & Hayward, 1991
- Further description: Yonow 2020, ZooKeys 1006: 1–34
- WoRMS
- iNaturalist (248 observations)
- Sea Slug Forum

Phyllidia monacha



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⚠ Based on a single iNaturalist record; check against the original description.

- Original description: Yonow 1986, J. Nat. Hist. 20: 1401–1428
- Further description: Yonow 2020, ZooKeys 1006: 1–34
- WoRMS
- iNaturalist (1 observations)
- Sea Slug Forum

Phyllidia multifaria



(c) Hsini Lin, all rights reserved, uploaded by Hsini Lin

- Original description: Yonow 1986, J. Nat. Hist. 20: 1401–1428
- Further description: Yonow 2020, ZooKeys 1006: 1–34
- WoRMS
- iNaturalist (89 observations)
- Sea Slug Forum

Phyllidia multituberculata



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- Original description: C. R. Boettger, 1915
- WoRMS
- iNaturalist (44 observations)

Phyllidia ocellata



(c) Gwen Noda, some rights reserved (CC BY-NC), uploaded by Gwen Noda

- Original description: Cuvier, 1804
- Further description: Papu et al. 2022, Org. Divers. Evol. 22: 585–629
- WoRMS
- iNaturalist (2650 observations)
- Sea Slug Forum

Phyllidia orstomi

No photo available on iNaturalist.

- Original description: Á. Valdés, 2001
- WoRMS
- iNaturalist (0 observations)

Phyllidia ovata



(c) R Lai, some rights reserved (CC BY-NC), uploaded by R Lai

- Original description: Wägele et al. 2025, ZooKeys 1245: 1–18
- WoRMS
- iNaturalist (9 observations)

Phyllidia picta



(c) Mark Rosenstein, some rights reserved (CC BY-NC)

- Original description: Pruvot-Fol, 1957
- Further description: Papu et al. 2022, Org. Divers. Evol. 22: 585–629
- WoRMS
- iNaturalist (1254 observations)

Phyllidia polkadotsa



(c) uwkwaj, some rights reserved (CC BY-NC), uploaded by uwkwaj

- Original description: Brunckhorst 1993, Rec. Aust. Mus. Suppl. 16: 1–107
- WoRMS
- iNaturalist (146 observations)
- Sea Slug Forum

Phyllidia rueppelii



(c) Hsini Lin, all rights reserved, uploaded by Hsini Lin

- Original description: Bergh, 1869
- Further description: Papu et al. 2022, Org. Divers. Evol. 22: 585–629
- WoRMS
- iNaturalist (129 observations)
- Sea Slug Forum

Phyllidia schupporum



(c) Hsini Lin, all rights reserved, uploaded by Hsini Lin

- Original description: Fahrner & Schrödl 2000
- Further description: Yonow 2020, ZooKeys 1006: 1–34
- WoRMS
- iNaturalist (4 observations)
- Sea Slug Forum

Phyllidia scottjohnsoni



(c) uwkwaj, some rights reserved (CC BY-NC), uploaded by uwkwaj

- Original description: Brunckhorst 1993, Rec. Aust. Mus. Suppl. 16: 1–107
- WoRMS
- iNaturalist (4 observations)
- Sea Slug Forum

Phyllidia tula



(c) uwkwaj, some rights reserved (CC BY-NC), uploaded by uwkwaj

- Original description: Er. Marcus & Ev. Marcus, 1970
- WoRMS
- iNaturalist (33 observations)
- Sea Slug Forum

Phyllidia undula



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- Original description: Yonow 1986, J. Nat. Hist. 20: 1401–1428
- Further description: Yonow 2020, ZooKeys 1006: 1–34
- WoRMS
- iNaturalist (122 observations)

Phyllidia varicosa



(c) Steve Childs, some rights reserved (CC BY)

- Original description: Lamarck, 1801
- Further description: Papu et al. 2022, Org. Divers. Evol. 22: 585–629
- WoRMS
- iNaturalist (4157 observations)
- Sea Slug Forum

Phyllidia willani



(c) Erik Schlögl, some rights reserved (CC BY-NC), uploaded by Erik Schlögl

- Original description: Brunckhorst 1993, Rec. Aust. Mus. Suppl. 16: 1–107
- WoRMS
- iNaturalist (52 observations)
- Sea Slug Forum

Phyllidia zebrina

No photo available on iNaturalist.

- Original description: Baba 1976, Venus 35: 5–8
- WoRMS
- iNaturalist (0 observations)
- Sea Slug Forum

Key references

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- WoRMS – Phyllidia

- Sea Slug Forum