Contents

Onchidoris muricata (O F Müller, 1776)

DESCRIPTION The body may be white or yellow and some rare individuals may have brown speckling on the mantle. The mantle bears flattened, stalked tubercles. The maximum body length is 14 mm. The spawn consists of a ribbon, coiled several times.

ECOLOGY This species feeds on a wide variety of encrusting bryozoans, but it is most often found on *Membranipora membranacea* on the lower shore or on *Securiflustra securifrons* in the sublittoral.

DISTRIBUTION More common in the north of Britain and Ireland than in the south. The species range extends into the Arctic Circle. A few records exist for the French coast.

SIMILAR SPECIES This species is most likely to be confused with *Adalaria proxima* (p. 24), and often they occur together. *Onchidoris muricata* is generally smaller (up to 14 mm), while *A. proxima* can reach 17 mm in length and has tubercles with pointed tops. The radulae are so different that these species are placed in separate genera. White is quite a common colour for dorid nudibranchs and externally *Aldisa zetlandica* (p. 98) juveniles look quite like this species.

KEY CHARACTERISTICS White or yellow animal with rounded tubercles. Tubercles with flattened tops.

Two individuals on the bryozoan *Securiflustra securifrons*, Rathlin Island, Northern Ireland.

Studio shot of adult, Rathlin Island, Northern Ireland.

Several spawn coils on kelp blade with the bryozoan *Electra pilosa*, Gulen, Norway.

Diaphorodoris luteocincta (M Sars, 1870)

DESCRIPTION This animal may grow to up to 11 mm in length. Unlike the species in the family Onchidorididae, *Diaphorodoris luteocincta* has a conspicuous coloration. The mantle is translucent white with conical tubercles and appears mottled due to subsurface spicules. Between the tubercles there is a variable amount of red pigmentation in the centre of the back extending to a yellow submarginal band. This yellow band is irregular and often broken, set in from the edge of the mantle.

ECOLOGY Feeds on the ctenostome bryozoan *Nolella* and is often found on silt-covered rocks or amongst erect bryozoans on vertical rock faces.

DISTRIBUTION Found around Britain and Ireland and reported from Norway to the Mediterranean.

SIMILAR SPECIES Previously confused with *Diaphorodoris alba* (p. 44), which differs in having a continuous band of yellow at the very edge of the mantle.

KEY CHARACTERISTICS White mantle with irregular yellow submarginal rim. Red patch in the centre of the back.

Adult feeding on the bryozoan *Nolella* sp., Skomer, Wales.

Studio shot of adult, Strangford Lough, Northern Ireland.

Close-up of *Diaphorodoris luteocincta* showing broken, submarginal yellow band. Isle of Man.

Studio shot of spawn coil, Strangford Lough, Northern Ireland.

Diaphorodoris alba Portmann & Sandmeier, 1960

DESCRIPTION *Diaphorodoris alba* was considered a colour morph of *Diaphorodoris luteocincta* until a recent study by Furfaro *et al.* (2016), using both morphology and DNA, supported the hypothesis that they are distinct species. *D. alba* is usually around 12 mm in length, the body, rhinophore and gills are all white in colour. There is a broad, continuous, yellow ring at the edge of the mantle margin. The mantle is covered in white tubercles that are conical in shape.

ECOLOGY Feeds on the ctenostome bryozoan *Nolella* and can be found with *D. luteocincta* amongst bryozoans on silty rock.

DISTRIBUTION Mediterranean Sea, Atlantic coasts of Europe, southwest England, Wales, northwest Ireland.

SIMILAR SPECIES *D. alba* is similar to *D. luteocincta* (p. 42) but usually lacks the red pigment on the mantle, although some animals have a small amount of red in the centre of the back. In *D. luteocincta* the yellow ring is broken in places and does not extend to the edge of the mantle, whereas in *D. alba* it is unbroken and extends to the mantle edge (Furfaro *et al.*, 2016b).

KEY CHARACTERISTICS White body with yellow marginal ring that extends to the mantle edge.

Adult on bedrock with encrusting bryozoans and coralline algae, Skomer, Wales.

Studio shot of adult, Skomer, Wales.

Diaphorodoris luteocincta, left, meets *D. alba*, right. Martin's Haven, Pembrokeshire, Wales.

Corambe testudinaria H. Fischer, 1889

DESCRIPTION This species has a body shape similar to *Atalodoris* but there is no gill rosette on the back, just a rim made from a break in the notum surrounding the dorsal anus. The gills are 7–10 leaves in the space between the mantle and the foot, hidden by the mantle. The rhinophores have an incomplete sheath around them, open at the back. The colour pattern is distinctive, consisting of a reticulate pattern of yellow within the transparent mantle, resembling a bryozoan. There are spots in each reticulation, resembling the openings of the bryozoan. It grows to 7 mm in length.

ECOLOGY Feeds on bryozoans. Reported to feed on several bryozoans including *Conopeum reticulatum* and *Electra pilosa*.

DISTRIBUTION Originally described from the French Atlantic coast, this species has been recently found in southwest England. Reported from the French, Spanish and Portuguese Atlantic coasts.

SIMILAR SPECIES The reticulate yellow pattern and pallial gills make this species very distinctive.

KEY CHARACTERISTICS Thin, flat dorid-shaped body with no gill cluster on the back.

Under boulder, Cornwall, England. (Charlotte Cumming)

Under boulder, Cornwall, England. (Charlotte Cumming)

Animal on *Electra pilosa* with spawn coils, Portugal. (J. P. Silva)

Ancula cristata (Alder, 1841)

DESCRIPTION The body of this nudibranch is translucent white. There are up to 7 orange-tipped processes on each side of the gills. A pair of pointed processes project forwards from the base of each rhinophore. White ovotestis is visible through the transparent epidermis. The oral tentacles are short and tipped with orange. Orange pigment is also found on the tips of the rhinophores and on the tip of the tail. Individuals can be found in which the orange pigment is replaced with opaque white. Adult specimens may reach a length of 20 mm.

ECOLOGY This species feeds on minute kamptozoans (Entoprocta) such as *Pedicellina cernua* which are usually epizooic on bryozoa, hydroids, sponges and tunicates, but may also grow on inert surfaces.

DISTRIBUTION *Ancula cristata* is a widely distributed species found from Brittany to Norway. It is found around Britain and Ireland but usually in small numbers. It is apparently rare and confined to cold water in the Mediterranean Sea, and the conspecificity with *Ancula gibbosa* of Risso, 1818 is doubtful.

SIMILAR SPECIES There are several other unrelated species with similar coloration including *Polycera quadrilineata* (p. 90), *Polycera faeroensis* (p. 86), *Polycera kernowensis* (p. 88), *Trapania tartanella* (p. 68) and *Trapania maculata* (p. 64).

KEY CHARACTERISTICS Two anteriorly directed processes at the base of each rhinophore. Several processes at the sides of the gill cluster.

Adult on the bryozoan *Cellaria fistulosa*, Skomer, Wales.

Studio shot of adult, Strangford Lough, Northern Ireland.

Adult and spawn on the hydroid *Sertularella*, Plymouth, England.

Goniodoris castanea Alder & Hancock, 1845

DESCRIPTION The body of this nudibranch is red-brown in colour and the dorsum is covered with white flecks. There are small ridges and tubercles on the dorsum and flanks. A conspicuous rim runs down the middle of the back and around the edge of the mantle. The rhinophores are lamellate and the small oral tentacles are flattened. This animal may reach 38 mm in length.

ECOLOGY This species feeds on the compound ascidians *Botryllus schlosseri and Botrylloides leachii* and has also been reported as deeply burrowed in the test of *Ascidia mentula*. In the Netherlands it has become common, feeding on the invasive sea squirts *Botrylloides violaceus* and *Botrylloides diegensis* and a wide range of colour forms are present, from orange to white individuals.

DISTRIBUTION Usually found at depths of less than 25 m and sometimes found on the lower shore. Found around Britain and Ireland but occurrence sporadic. Recorded from southern Norway south to the Canary Islands and the western Mediterranean Sea.

SIMILAR SPECIES This species is not easily confused with any others in the northeast Atlantic.

KEY CHARACTERISTICS Thick-set body with ridge at mantle edge and down centre of tail. Front of head with thin mantle ridge with oral tentacles projecting below this.

Underside of boulder on the low shore, County Down, Northern Ireland.

Studio shot of adult, St John's Point, Northern Ireland.

Spawn coil on underside of boulder on the low shore, County Down, Northern Ireland.

Goniodoris nodosa (Montagu, 1808)

DESCRIPTION A translucent white nudibranch with small tubercles and specks of white and/or yellow pigment on its dorsum. An opaque pale yellow ridge runs down the middle of the back to the tip of the tail. There is a transparent patch that is situated just behind the branchial plume, this looks like a small pore on the animal's back. The lamellate rhinophores have a yellow tinge, the oral tentacles are dorso-ventrally flattened. This species may reach a length of 27 mm.

ECOLOGY Juveniles feed on bryozoans, especially *Alcyonidium diaphanum*, but the adults feed on ascidians, especially *Diplosoma listerianum* and *Dendrodoa grossularia*.

DISTRIBUTION Distributed from northwest Spain to the Faeroes and Norway. A common species around Britain and Ireland both on shore and in the shallow sublittoral, it has been recorded at depths down to 120 m.

SIMILAR SPECIES In Norway and the Netherlands *Goniodoris castanea* (p. 50) is sometimes mostly white but differs in having a pronounced rim at the edge of the mantle.

KEY CHARACTERISTICS White animal with reduced thin frilly mantle rim and tail extending at rear. Front of head with oral tentacles visible from above.

Adult on coralline encrusted bedrock, Gulen, Norway.

Studio shot of adult, Skomer, Wales.

Ribbon of spawn on the bryozoan *Alcyonidium diaphanum*, Skomer, Wales.

Lophodoris danielsseni (Friele & Hansen, 1876)

DESCRIPTION The body of this nudibranch is translucent white in colour. The mantle edge is extended and supported by bundles of internal calcareous spicules which terminate in points at the edge. This mantle edge is continuous across the front of the head and broken behind the gills. The last pair of spicule bundles, behind the gill, support a thicker mantle extension which contains yellow glands, and similar glands are at the tip of each gill pinna. There is a jagged keel along the centre of the back, from in front of the rhinophores to the gill cluster. A similar keel runs along the tail. The rhinophores are lamellate. *Lophodoris danielsseni* typically grows to a length of 12 mm. The spawn is unknown.

ECOLOGY This animal feeds on a creeping ctenostome bryozoan which can be found on hydroid stems and other substrata.

DISTRIBUTION Records for this species are few, but specimens have been recorded on the whole coast of Norway. Further records include the Faeroe Islands and southern Greenland.

SIMILAR SPECIES *Goniodoris nodosa* (p. 52) is similar in shape and colour, but *L. danielsseni* is immediately recognisable by its unique jagged mantle edge.

KEY CHARACTERISTICS Mantle margin extended by spicule bundles to a serrated edge. Translucent white with yellow pigmented glandular structures in the post-branchial processes and the tips of the gill pinnae.

Adult, feeding on a bryozoan that is growing with small hydroids on the stems of the hydroid *Tubularia indivisa*, Gulen, Norway.

Studio shot of adult, Gulen, Norway.

Adult, with bryozoans on leg of sea spider, Gulen, Norway.

Okenia aspersa (Alder & Hancock, 1845)

DESCRIPTION The body of this nudibranch is translucent white in colour and is covered with yellow/orange, opaque white and brown speckling with a broad white stripe along the tail. There are 2 pairs of long, thin, anteriorly directed processes that precede the rhinophores. There are 5 pairs of processes arising from the mantle edge, becoming longer at the gill with the last 2 sharing a base. The long rhinophores are lamellate. *Okenia aspersa* may reach a length of 22 mm. The spawn consists of a short coil, like a spring, attached at one end to the substratum.

ECOLOGY This animal feeds on ascidians such as *Molgula* spp. and possibly also on other ascidians such as *Polycarpa* and *Ascidiella* species.

DISTRIBUTION Records for this species are few but specimens have been recorded all round Britain and Ireland, as far north as southern Norway and as far south as Arcachon on the Atlantic coast of France.

SIMILAR SPECIES *Okenia pulchella* (p. 62) is similar but has no bright yellow markings on the back and a different, more reticulated, appearance to the purple-brown pigment.

KEY CHARACTERISTICS Long processes arising from the mantle edge. Mottled brown and yellow pigment on body and processes.

Adult on silt covered bedrock, Rathlin Island, Northern Ireland.

Studio shot of adult, Tiree, west coast of Scotland.

Spawn coils on silty bedrock with the siphons of the ascidians *Polycarpa* sp. and *Molgula* sp. visible. Portrush, County Antrim, Ireland.

Okenia elegans (Leuckart, 1828)

DESCRIPTION The maximum recorded length of this attractive nudibranch is 80 mm. The body is white, suffused with pink in parts, varying to red in some individuals. Finger-like processes project from the head, the edges of the mantle and the middle of the dorsum. These processes are orange with yellow or white tips. There is a yellow band that runs around the edge of the foot. The lamellate rhinophores are rosy in colour with yellow tips. The spawn consists of an irregular and loosely coiled ribbon which varies in colour from pale pink to white.

ECOLOGY This nudibranch feeds on *Polycarpa* species ascidians. It is often found burrowed inside the test of the ascidian, with only its gills protruding.

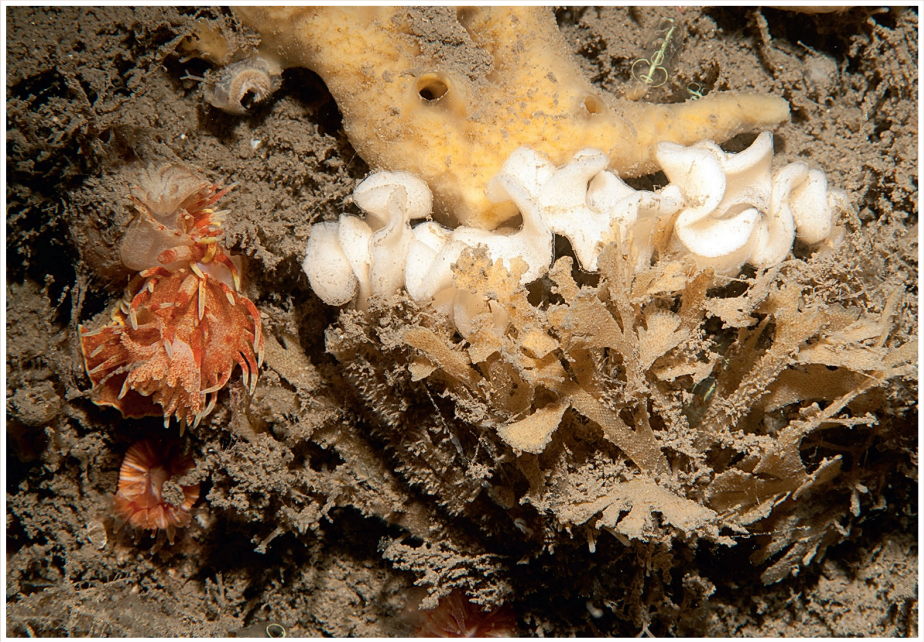
DISTRIBUTION A scarce species in Britain and Ireland, *Okenia elegans* has been found at scattered localities from southwest England and Ireland to the west coast of Scotland.

SIMILAR SPECIES *Okenia leachii* (p. 60) is similar in size and shape, but has white coloration instead of yellow and red. Unlikely to be confused with other species.

KEY CHARACTERISTICS Long processes arising from the mantle edge and the midline of the back. White or red body with yellow-tipped processes.

Adult on gravel, Rathlin Island, Northern Ireland.

Studio shot of adult, Strangford Lough, Northern Ireland.



Adults and spawn, Sound of Jura, west coast of Scotland.

Okenia leachii (Alder & Hancock, 1854)

DESCRIPTION *Okenia leachii* has a translucent body with a pinkish brown hue and long dorsal processes streaked with white pigment. The processes arise from the mantle rim and are in 3 rows down the back. The edge of the foot is also pigmented white, as are the rhinophore lamellae and the edges of the gills. Adults reach 40 mm in length. The spawn is a long sausage-shaped mass attached at one end by a filament.

ECOLOGY A rare species found on muddy sand seabeds usually in deep water, below 25 m. Probably feeds on burrowing sea squirts such as *Molgula occulta*.

DISTRIBUTION Originally described from four specimens, from Devon, Durham and the Hebrides; there are recent records from the Celtic Sea, and from the Shiant Isles and Skye on the west coast of Scotland. There are older records from the Shetlands, Connemara, and Norway.

SIMILAR SPECIES Living animals are easily distinguished from *Okenia elegans* (p. 58) by their colour; preserved animals can be distinguished by the 3 longitudinal rows of dorsal processes.

KEY CHARACTERISTICS Long processes arising from the mantle edge and in 3 rows on the back. Pigmented with white on the gills, edge of foot, and all processes.

Adult on shelly sand, Shiant Islands, west coast of Scotland.

Adult and spawn, Shiant Islands, west coast of Scotland.

Okenia elegans (p. 58) gills emerging from a sea squirt, Rathlin Island, Northern Ireland.

Okenia pulchella (Alder & Hancock, 1854)

DESCRIPTION The body of this nudibranch is translucent white in colour and is covered with cream and purple-brown speckling, with tiny spots of yellow. There are 2 pairs of long, thin, anteriorly directed processes that precede the rhinophores. Six finger-like processes arise from each side of the mantle edge. The long rhinophores are lamellate. *Okenia pulchella* may reach a length of 30 mm. The spawn consists of a long coil, like a spring, attached at one end to the substratum.

ECOLOGY This animal feeds on ascidians such as *Molgula occulta* or *Eugyra arenosa* buried below the surface of muddy sand, and the nudibranch may burrow completely inside the ascidian.

DISTRIBUTION Records for this species are few, but specimens have been collected recently in the Oban area of the west coast of Scotland, and there is a photographic record from the Mediterranean coast of France.

SIMILAR SPECIES *Okenia aspersa* (p. 56) is similar, but has small yellow patches on the back, sides and tail and opaque white pigment on the sides of the body and the middle of each gill.

KEY CHARACTERISTICS Long processes arising from the mantle edge. Mottled brown and cream pigment on body and processes.

Individual amongst sea squirts, Boddam Lighthouse, Peterhead, Scotland. (Chris Rickard)

Studio shot of adult, Luing, west coast of Scotland.

Spawn coils on muddy gravel, Luing, west coast of Scotland.

Trapania maculata Haefelfinger, 1960

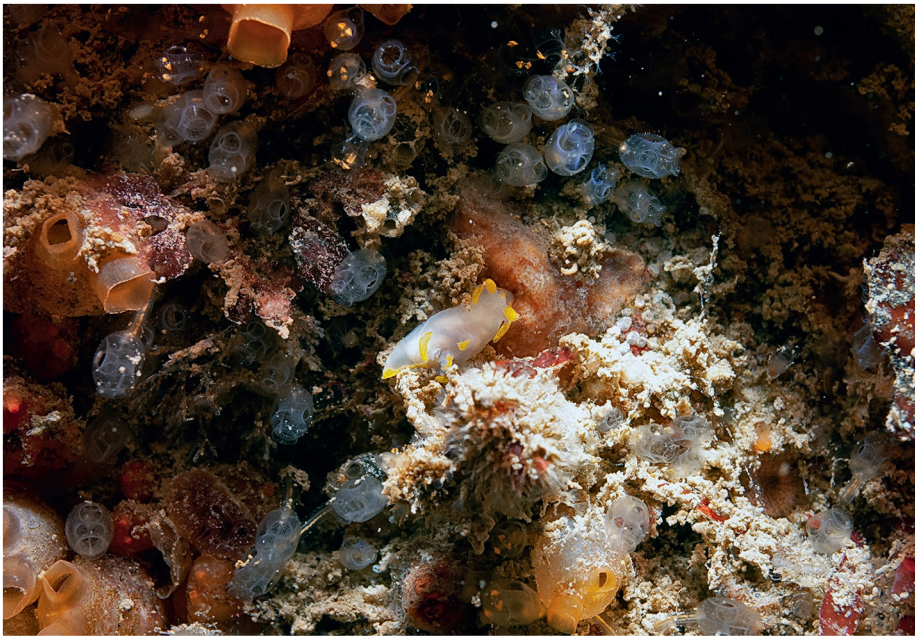
DESCRIPTION This animal may reach 17 mm in length. The body is white with characteristic yellow/orange patches. There is a curved, posteriorly directed, orange-tipped process at the base of each rhinophore and on either side of the branchial plume. The oral tentacles are long and streaked with orange pigment, and there is a pair of recurved propodial tentacles that are similarly pigmented. The lamellate rhinophores are yellow/orange in colour.

ECOLOGY All records of this species are from shallow water. *Trapania* species feed on kamptozoans (Entoprocta), which are tiny animals previously classified with the bryozoans, which live attached to the surface of sponges, bryozoans and hydroids.

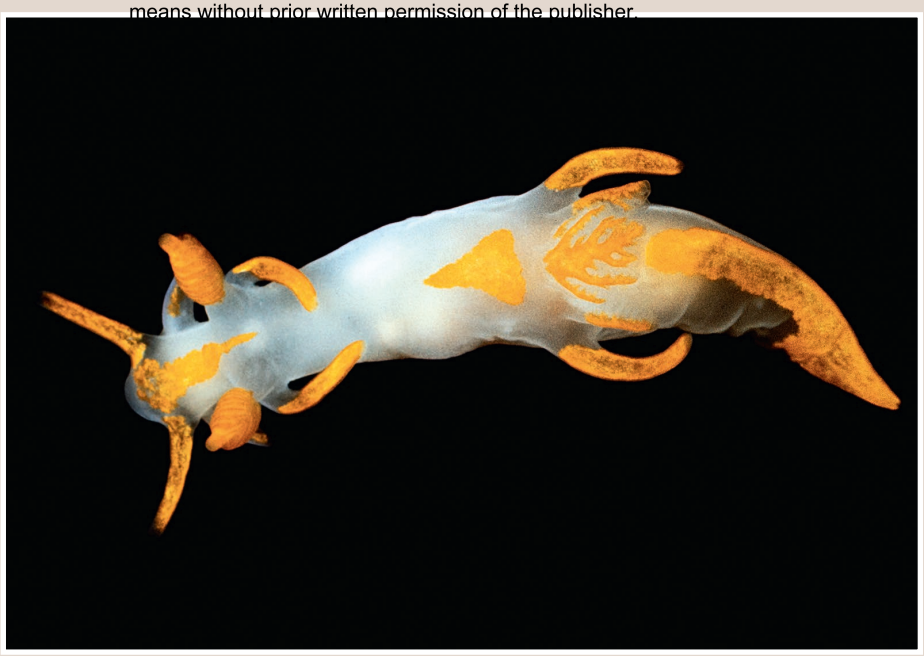
DISTRIBUTION This is a rare southern species in Britain, recorded from the Lleyn peninsula in Wales and English Channel coasts. In Ireland it has been recorded from Connemara. Elsewhere it is known from the Brittany coast of France and the western Mediterranean.

SIMILAR SPECIES *Trapania tartanella* (p. 68) is similar but has no yellow or orange patches on the body. *Ancula cristata* (p. 48) is easily mistaken for this species, but has 2 processes directed forwards at the base of the rhinophores.

KEY CHARACTERISTICS The pattern of the yellow pigment on the body. Recurved yellow processes at the base of the rhinophores and alongside the gills.



Adult on tide-swept bedrock, Sark, Channel Islands.



Studio shot of adult, Portland Bill, England.

Individual spawning, Mediterranean coast of Spain. (Enric Madrenas)

Trapania pallida Kress, 1968

DESCRIPTION *Trapania pallida* is translucent white in colour with white patches on the rhinophores, processes, gills and tail. There are lateral processes directed posteriorly from the bases of the rhinophores and another pair alongside the gills, similar to *Trapania maculata*; however in *T. pallida* they are shorter. The maximum recorded length for this species is 15 mm.

ECOLOGY The prey species of *T. pallida* appears to be a kamptozoan, possibly a species of *Loxocalyx*. It is usually found amongst bryozoans, hydroids and sponges on rocky sublittoral cliffs and outcrops, in depths of 10–20 metres.

DISTRIBUTION Records of this scarce species are from the west coast of Ireland, Loch Sunart in western Scotland, the Isle of Man, southwest England, and from the Atlantic coasts of France and Spain. The suggested conspecificity with *Trapania lineata* on the basis of similar COI sequences is dismissed here because of differences in distribution and morphology of these species and 2% difference in the COI barcode.

SIMILAR SPECIES This is the only *Trapania* species in the northeast Atlantic with white, rather than yellow or orange, pigment.

KEY CHARACTERISTICS The pattern of the white pigment on the body. Recurved processes at the base of the rhinophores and alongside the gills.

Adult on silty bedrock, Sark, Channel Islands.

Studio shot of adult, Connemara, Ireland.

On coralline encrusted bedrock, Connemara, Ireland.

Trapania tartanella (Ihering, 1886)

DESCRIPTION The body is translucent white with no markings apart from a yellow patch at the tail. The white viscera are clearly visible. There is a curved, posteriorly directed process at the base of each rhinophore and on either side of the branchial plume. The oral tentacles are long and there is a pair of recurved propodial tentacles. All these processes and the tips of the gills are coloured with yellow surface pigment which becomes orange at the tips. The lamellate rhinophores are yellow/orange in colour. This animal may reach 20 mm in length.

ECOLOGY *Trapania* species feed on kamptozoans, which are tiny animals previously classified with the bryozoans, which live attached to the surface of sponges, bryozoans and hydroids.

DISTRIBUTION This species has only recently been discovered in Britain, in Cornwall and at Skomer Island in Wales. Elsewhere it is known from the Atlantic coasts of Spain and Portugal.

SIMILAR SPECIES *Trapania maculata* (p. 64) is similar but has orange patches on the body. In southern Spain *Trapania hispalensis* (not included here) is almost identical but has no gradation of colour in the yellow processes. *Ancula cristata* (p. 48) is similar in colour, but has 2 processes extending forward from the base of the rhinophore instead of the single curved process behind the rhinophores.

KEY CHARACTERISTICS Yellow pigment grading to orange on the tips of all the extremities. Recurved yellow processes at the base of the rhinophores and alongside the gills.

Two adults on the sponge *Haliclona* sp., Sesimbra, Portugal.

Studio shot of adult, Plymouth, England.

Individual spawning, Torbay, England. (Terry Griffiths)

Aegires punctilucens (Orbigny, 1837)

DESCRIPTION This animal is usually 10–20 mm in length. It is very inconspicuous, brown (rarely white) in colour, but can be easily identified by the many knob-shaped tubercles and the tiny iridescent blue spots scattered over the back of the animal. The oral tentacles are short and rounded and the rhinophores are smooth. The rhinophores emerge from sheaths with large papillae at their edges.

ECOLOGY *Aegires punctilucens* is well camouflaged amongst its food, the calcareous sponge *Leucosolenia botryoides*, and may be hidden inside a clump of the sponge.

DISTRIBUTION Occurs around the coasts of Britain, Ireland, and Norway and south to the Mediterranean.

SIMILAR SPECIES This nudibranch is unlike any others in the northeast Atlantic, but there are similar species in the Pacific Ocean.

KEY CHARACTERISTICS Iridescent blue spots on the mantle. Knob-shaped mantle tubercles. Smooth rhinophores, unusual for a dorid.

Adult on silty *Modiolus modiolus* shell, Strangford Lough, Northern Ireland.

(continued...)

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