

australasian nudibranch NEWS



No.11 July 1999

Plocamopherus imperialis

Angas, 1864

This polycerid nudibranch has an orange body peppered with smallish black spots. Specimens reach 100mm (4 inches) and have paired 'appendages' down each side of the body some of which end in large rounded pinkish knobs which when disturbed, luminesce, producing flashes of light down each side of the body. How they do this and whether light-producing bacteria are involved is unknown.

Plocamopherus imperialis, like other members of this group can use their foot as a paddle to swim through the water with vigorous side to side movement of the body.

They feed on bryozoans and are distributed throughout the tropical western Pacific, extending south to New Zealand and Tasmania, in Australia. Usually found between 0-15m.

The rhinophores are lamellate and contractile. The body is elongated with a smaller mantle.

From personal experience this species was a common sighting at Port Stephens (NSW Aust), especially at the Co-op.



A Plocamopherus imperialis photographed at the Co-op, Port Stephens where it is common. Note the pink knobs.

Editor's notes

This issue covers several interesting Australasian and one Mediterranean species. Nerida Wilson has made a major contribution to this issue. Richard Willan, Dave Behrens, Bill Rudman and others contently assist (in the background) and their efforts are greatly appreciated.

Three noticable errors occurred in issue #10. Two were corrected and a updated issue is available from Mike Miller's, Steve Long's & Bill Rudman's sites. Mike Miller kindly noted that issue 9 and 10 were both May issues. If anyone would like the correctly labelled issue please email me.

Looking for someone in your area to share your interest in nudibranchs? Use anNEWS to make contact. Dives, trips, etc could be arranged.

Updates

I have recently been up to the Gneerings for a couple of dives and have been amazed by the opisthobranch diversity!! Defintely a macro photographers delight!! Just thought you might like to add *Noumea purpurea* to the species list: found two at "Fairyland(?)" on the outer Gneering. They were under a ledge feeding on a purple sponge (awaiting identification) in about 15m. Thanks for letting the world know about the Gneerings!

I thought you may like to know that one of the Sunshine Coast *specials* (read endemic!) *Glossodoris vespa*, has turned out (not surprisingly) to be a direct developer. So far, the little guys have been in their capsules for 30 days, and show no hurry to get out! They were only recently described (Rudman 1990), and are one of only two *Glossodorids* known with a basic black body colour. According to the literature they have only ever been found on the inner and outer Gneerings, and also Mudjimba Island. It would be interesting to see if readers have ever seen them elsewhere...

Nerida Wilson (nwilson@zoology.uq.edu.au)

Ed: (See page two for further information on Glossodoris vespa). Nerida kindly supplied information from her current work on Chromodorid reproduction (see page three).

I just looked at Mike Miller's site. The "Nudibranch of the Week (177)" is certainly a species of *Thecacera* (Polyceridae). Actually I would not be at all surprised it it weren't a spotted colour form of *T. pacifica*. Colouration varies considerably in all the species of *Thecacera* that we know reasonably well.

Annette Klussmann-Kelb and Gilianne Brodie's paper on bacterial symbiosis in *Dendrodoris nigra* has just been published in the Journal of Marine Biology, Vol.133. p443-447

Richard Willan

...the local coastline is famous for the large variety of nudibranchs with a few species only ever found on this part of the coast. Hoffman's Rocks is in fact, also known as Nudibranch Park. The offshore sites are also often 'littered' with many species... (Bundaberg Qld, Australia)

Greg Barnes (info@bargaradive.com) URL:<http://www.baragadive.com/>

Bill Rudman's site has a shortened URL; <http://www.austmus.gov.au/seaslugs>

Neil Miller has recently added a nudibranch section to his Dive-Oz Web site; <http://www.diveoz.com.au>

Eling Swensen's new nudibranch site can be found at <http://www.marinbi.com/nudibranchia/index.htm>



© 1999 Steve Grail

Fig. 1 *Glossodoris vespa* photographed by Steve Grail at the Gneerings, off Mooloolaba, the area where this species was first sighted by Dr Richard Willan.



Fig. 3 *Glossodoris atomarginata* is similar in shape to *Glossodoris vespa*

In review

Glossodoris vespa

Rudman 1990

Synonymy

Casella sp. Willan & Coleman, 1984 p28-29

Description

The mantle is ovate and has one major fold, one both sides of the mantle overlap, halfway between the gills and rhinophores. The centre of the mantle, foot, rhinophores and the 18 to 20 gills are black or deep greyish blue. Some specimens have sparse white or yellowish specks. A bright yellow submarginal line bordered by a black outer mantle edge surrounds mantle overlap.

The gill lamellae are slightly translucent and the gills form an arc around the anterior side of the anus before each arc curves inwards to form a spiral each side. The tail is rounded and has a vague yellow marginal line.

Distribution

This species is known from the Queensland coast with specimens located at Cape Moreton, the Inner & Outer Gneering reefs (off Mooloolaba), Mudjimba Island (north of the Maroochy River) (See Sunshine Coast map in anNEWS # 1 Sept 1998) & Mackay, Qld. This species seems endemic to the southern and central Queensland coast.

Remarks

G. vespa is probably a coastal species and has not (to date) been found on the Great Barrier Reef. This may indicate its food source does not extend into the reef environment.

Glossodoris stellatus Rudman, 1986a is the only other predominately black species although the body structure differs. The anatomy of *G. vespa* is similar to *G. atomarginata* and *G. cincta*.

Nerida Wilson though her current research has observed that *G. vespa* is a direct developer.

Dr Bill Rudman named this species "*vespa*" which is Latin for "wasp" due to the black and yellow colouring.

Dr Richard Willan "discovered" the original specimens off Mooloolaba, South East Queensland in July 1982.

References

- The Sea Slug Forum*
 Steve Grail: pers comm.
 Nerida Wilson: pers comm
 Dr Richard Willan: pers comm
 Willan and Coleman 1984. *Nudibranchs of Australasia*
 Rudman W. B. 1990 *The Chromodorididae (Opisthobranchia: Mollusca) of the Indo-West Pacific: further species of Glossodoris, Thorunna and the Chromodoris aureomarginata colour group.* ZJLS (1990) 100: 263-326

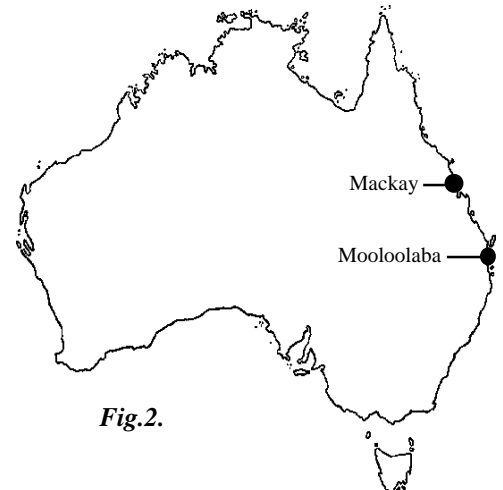


Fig.2.

Nudibranch Egg Size

Nerida Wilson is currently undertaking research into Chromodorid reproduction at Queensland University and when submitting information on direct development in Glossodoris vespa kindly forwarded these additional insights into egg size.

The information about egg sizes comes from a variety of sources- originally Thompson 1967, also in a review by Hadfield and Switzer-Dunlap 1984. Rose 1984 also commented, but it is best summed up by Mollusca: The Southern Synthesis: egg size is more closely correlated with form of larval development than with phylogeny. Everyone gives ranges slightly different, according to what data they accessed.

	Thompson	H & S-Dunlap	Rose	Southern Synthesis
Planktotrophic	40-170	60-110	56-132	30-170
Lecithotrophic	110-250	120-220	130-220	110-250
Direct	205-400	108-380	151-250	200+

Hadfields and Miller also broke up direct development into metamorphic (larvae show veliger stage and/or larval organs before hatching) and ametamorphic (no veliger stage before hatching). The categories were attributed to Bonar 1978.

metamorphic 103-205
ametamorphic 230-380

So, although egg size generally is a species-specific character, the actual size is related to the type of larval development that they will undergo.

It makes sense, in that planktotrophs don't need to have large eggs because the larvae will swim and feed in the plankton. They are better off producing lots of small eggs.

Lecithotrophic larvae only swim for a short time in the plankton, and do not feed during that time (although there is some evidence that they do assimilate ions or something but they don't prey on stuff). So their eggs need to contain a fair bit more yolk to give the larvae energy for that brief time in the plankton.

Direct developers have lots of development to undergo within the egg capsule, so it needs to be large enough to provide lots of yolk for that time. It is obviously more "energetically costly" to the parent (and a bit safer for the larvae), so fewer eggs are produced. There is some debate to whether the eggs became smaller/larger to fit the type of development, or whether the type of development arose from what the egg was like. I suspect the former but it's the typical chicken (or nudibranch in this case!) and the egg debate.

Larval development is a continuum. Categories such as planktotrophic, lecithotrophic and direct development makes it easier to discuss, but other extrinsic factors do come into play. For example, there is really no difference between a larvae that is termed lecithotrophic (who may swim for 12 hours before metamorphosing) and a direct developer who undergoes a larval stage within the capsule and simply never hatches out before metamorphosing. Perhaps the action of ciliates or water currents that normally weaken the spawn mass and help larvae escape for some reason did not occur. We may have considered the category of development for these larvae to have changed, yet the genetic programming of the larvae remained the same.

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Nudibranch egg mass photographed by Steve Grail at the Gneering reefs, off Mooloolaba, Southern Queensland.

© Steve Grail. 1999

Late Request

I'm a biology grad. currently researching the use of *Berghi verrucicornis* as biological control in large aquariums, but am having real difficulties in finding stockists and also detailed information on their use as a biological control. (I have had reports that it maybe detrimental to the fish stocks if stressed in the aquarium?).

Any help or information will be gratefully received!

Karen Burnette
karen_burnett@hotmail.com
or
burnettk@ibah.com

Doto sp. (cf koenneckeri).

Submitted by *Miquel Pontes*

Doto sp. was feeding on *Aglaophenia hidrozoans*. There were tiny white egg masses spotted around the hydrozoans, which made us aware of its presence.

The pictures are slightly out of focus and the animal is really tiny (3-4 mm). We have assumed that the slug is *Doto koenneckeri*, but we had not enough literature for a clear determination of the species.

Details

Depth: 16 m

Date: 29.05.1999 (Spring in Southern Europe)

Location: Punta del Bau del Molí, El Port de la Selva (Costa Brava, Spain)

Photographer: Lluís Aguilar

Shot with a Nikonos V, 35mm lens, M1 extension tubes (1:1). TTL YS-60N strobe, f22

Film Fuji 100 ASA



Miquel and his dive partners photograph nudibranchs along Spain's Costa Brava (Mediterranean) coastline. More of Miquel's Mediterranean nudibranchs will be featured in futures issues.

OPISTHOBRANCHS of KERAMA ISLANDS

Publisher: TBS-BRITANICA. Japan

Author: Atsushi Ono

Published 25/6/1999

Price: 2,400 yen (US \$23.95.) + postage

300 opisthobranchs species (with over 500 photos) found at Kerama Is., Japan. 184 pages, all-color printed with two images per page. All descriptions are in Japanese with data (area, depth, length) in English. Many newly described and undescribed species are included. Sections on cephalaspideans, anaspideans, pleurobranchs, sacoglossans and nudibranchs are included. This book is a mixture of widespread species and regional endemics. The author really is up on the literature and the book is already receiving high praise.

Mr. Atsushi Ono has lived on the Kerama Islands for over 10 years and is a well-known u/w photographer and diving guide in Japan.

Kerama Is. is located near Okinawa-jima, in the archipelago to the south of the main islands of Japan (Bob Bolland territory) and one of most famous diving spots in Japan. This subtropical zone, has a wealth of marine life.

Information supplied by Rie Nakano rie@street.ne.jp

Editors note: Readers (esp. Australasian) interested in purchasing this book please let me know. We may be able to arrange a discount for a bulk order.



Available from:

<http://www.street.ne.jp/divers/ono/english.htm>

Australia: Kinokuniya book store (Sydney)

20 Young Street, Neutral Bay NSW 2089

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