



NEWSLETTER

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From Banquet to Bilge—Darwin Bivalve Workshop

A group of 21 ecologists, taxonomists and fisheries workers met in Darwin on 16-20 July for a workshop on bivalves, with an emphasis on classification, biology and introduced species. The workshop was organized by Dr Richard Willan of the Northern Territory Museum and Helen Cribb of Northern Territory Fisheries. The impetus for the workshop came from the importance now being given to detecting introduced species and preventing their spread and if possible, their eradication. Introduced bivalves are now a major factor in the

health of some Australian environments. The invasion of the Cullen Bay Marina in Darwin by the bivalve *Mytilopsis sallei*, the black striped “mussel”, catapulted into effect a multi-million dollar effort to eradicate the intruder, and alerted scientists and authorities to the enormous damage that could be done by an uncontrolled pest species.

In March 1999, during a routine survey of the Port of Darwin, this small “mussel” (actually in the family Dreissenidae, rather than the true mussel family Mytilidae), was encountered in plague proportions in



Attendees at the Darwin Bivalve Workshop. Back row: Sheena Rudolph (Alcan), Corey Whisson (WAM), Glen Johnstone (Antarctic Division), Linda Avery, Shirley Slack-Smith (WAM), Des Beechey. Front Row: Melanie Bishop (UTS), Helen Cribb (NT Fisheries), Richard Willan (NT Museum), Heleena Bomford (DAFF), Jane Orr (Alcan), Kirrally Moore (Tasmanian Museum).



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The Society's Newsletter, published quarterly, and the journal *Molluscan Research*, published three times a year, are sent to all members.

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Victorian Branch

Secretary Michael Lyons, 19 Banksia Street, Blackburn, VIC 3130. Phone (03) 9894 1526. Meetings are held at the Melbourne Camera Club, cnr. Dorcas and Farrars Streets, South Melbourne, on the third Monday of each month. No meeting in January, July or December.

Queensland Branch

Meetings are held at 7:30 pm on the last Tuesday of each month except December at the TLC Building, 20 Peel Street, South Brisbane,. Correspondence: Malacological Society of Australasia, Queensland Branch, PO Box 15064, City East, QLD 4002. Phone (07) 3224 2923 (W); (07) 3848 9270 (H) or email msaqlld@powerup.com.au

NSW Branch

NSW Branch meetings are held at 2 pm on the fourth Saturday of each month at the Ryde-Eastwood Leagues Club, 117 Ryedale Rd, West Ryde, Sydney. Contact Steve Dean, email steve@easy.com.au

Newsletter

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This publication is not deemed to be valid for taxonomic purposes (See article 8b in International Code of Zoological Nomenclature 3rd Edition (1985).

Web Site www.malsocaus.org



the Cullen Bay Marina. It was growing on floating pontoons, concrete piles, retaining walls, ships hulls and mooring ropes in immense aggregations It had not been seen on the previous survey in August 1998, so the outbreak had occurred in the previous six months. The growth rate, ability to attach to any substrate, and the immense fecundity of the species implied an ecological disaster if the species were to spread. It would have formed dense mats in suitable habitats, displacing native species, and caused fouling of pearling infrastructure. Fortunately, the Cullen Bay Marina is closed by lock gates because of the 8 m tidal range, so the invasion was controlled, although small infestations were found in the other Darwin marinas and on vessels outside the marina. Swift action by the authorities involved dumping 45

tonnes of copper sulphate into the marina, resulting in a complete kill of the "mussels", and unfortunately most other marine life in the marina. The black striped mussel scare resulted in the establishment of an Introduced Species Unit in NT Fisheries. The Darwin bivalve workshop, under the auspices of the Introduced Species Unit, and taught by Dr Richard Willan of the NT Museum and Dr Shirley Slack-Smith of the WA museum., bought together 21 people with an interest in bivalves. The course commenced with a field trip to collect specimens from three locations around Darwin, among which was the artificial saltwater Lake Alexander. This small artificial lake in a picnic park, supplied with pumped seawater, is an ideal environment for bivalves, three species being present in abundance. Three days of laboratory work dissecting a range of endemic and introduced species was followed by a day of presentations on the role of the various Commonwealth and State government departments in monitoring and controlling introduced species.



A cluster of black striped mussels 150 mm wide on a 12 mm rope.



A New Live Eulimid Gastropod Record in Victoria

Joan Hales

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Eulimids are a family of gastropods parasitic on echinoderms, feeding by sucking out the fluids from their host. Many appear to be host specific. They are generally small, smooth, white shells, uncommonly seen but probably fairly common on the appropriate host.

Earlier this year while exploring the rock platform at Harmers Haven, Victoria, an upturned rock revealed a small black holothurian with a starkly contrasting shiny white mollusc attached. First thoughts were that perhaps it was *Apicalia brazieri* (Angas, 1877), that had found another host. The normal host for that species in the area, the sea star *Meridiaster calcar* (Lamarck, 1816), had only been seen in small numbers, but there was something different about this specimen. Both the mollusc and host holothurian were collected.

Upon later inspection, it was clear that it was not *Apicalia brazieri*. The protoconch was longer and the shape of the shell was a little different. After consulting references, it appeared to be a specimen of *Chryseulima solitaria* Laseron, 1955, which was originally described from a specimen collected at Long Reef, NSW, where it was found crawling on an unknown holothurian. The shell was photographed and returned to the small container with the holothurian host. By the next morning, it had reattached itself to the host where it remained even after preservation.

The specimens were taken to Museum Victoria where Robert Burn was able to confirm the identity of the shell. The holothurian was identified by Mark O'Loughlin as *Staurothyone inconspicua* (Bell, 1887). This is the first known record of *Chryseulima solitaria*



A close up view of *Chryseulima solitaria* at Harmers Haven, Victoria

live for Victoria. Lynton Stephens has recorded two specimens, both from shell grit. One was from Point Leo and the other from San Remo.

In *Australian Marine Shells*, Barry Wilson follows a suggestion by Anders Warén that this species may belong to the genus *Peasistilifer*. As this placement still needs to be confirmed, Laseron's original designation has been followed.

The specimen – still attached to the host holothurian has been lodged with Museum Victoria. Thanks to Robert Burn and Mark O'Loughlin for their kind assistance.



Chryseulima solitaria Laseron, 1955 on its host

References:

Laseron, Charles F. (1955) Revision of the New South Wales Eulimoid Shells. *The Australian Zoologist*, 12: 83-107.

Wilson, B. R. (1993) *Australian Marine Shells. Prosobranch Gastropods*. Volume 1. Odyssey Publishing. Kalaroo, Western Australia

Warén, A. (1980) Descriptions of New Taxa of Eulimidae (Mollusca, Prosobranchia), with Notes on Some Previously Described Genera. *Zoologica Scripta* 9: 283-306.



Variation in the external morphology of *Turbo militaris* Reeve, 1848

Steve Smith, Margie Möhring and Adam Davey

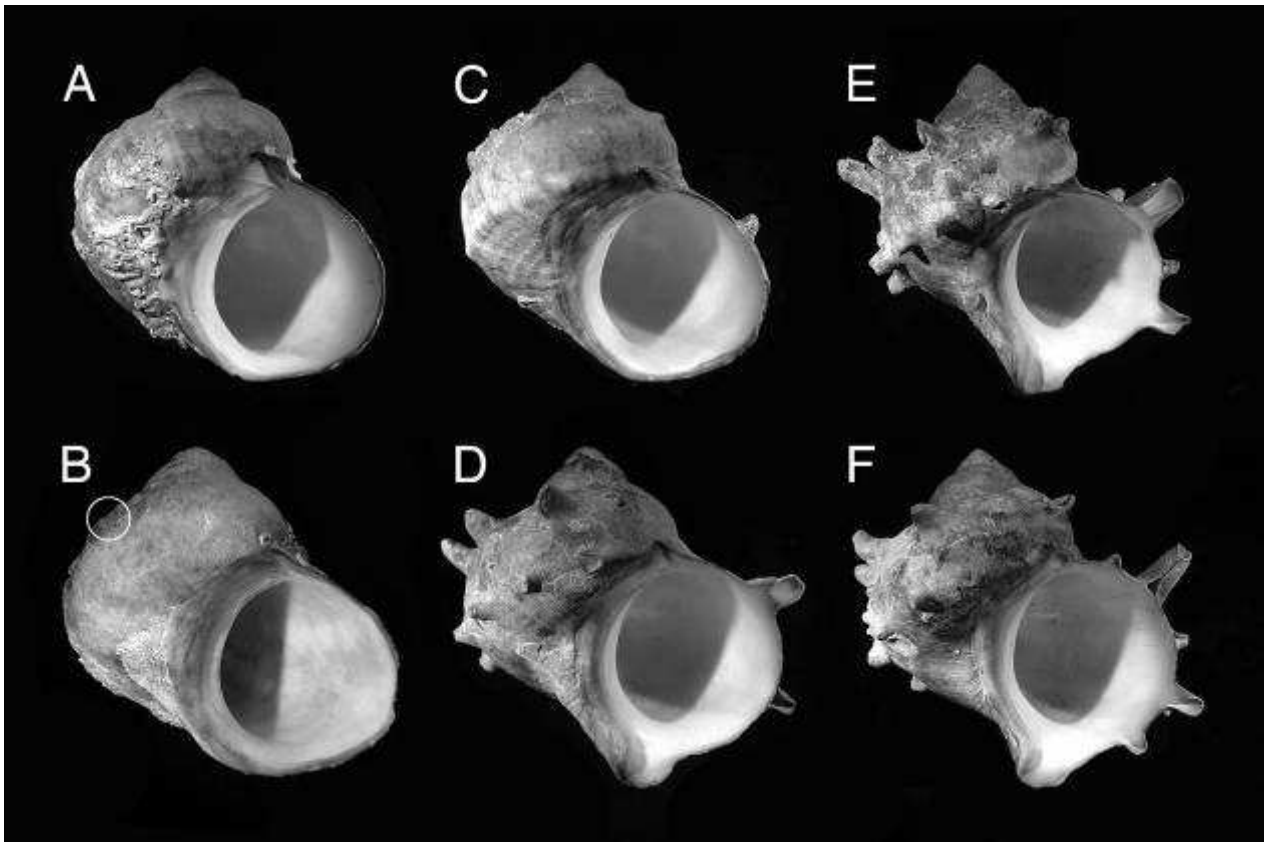
University of New England, National Marine Science Centre, Coffs Harbour

While it is a well documented fact that *Turbo militaris* shells display marked variability in external morphology, mainly with respect to the presence or absence of spines, recent studies at Coffs Harbour have indicated that this variability can be extreme. Most published descriptions of *T. militaris* indicate that there are both smooth and spiny forms - the latter generally having two rows of spines on the body whorl - as well as forms that inter-grade between these two extremes (e.g. Wilson, 1993; Beechey, 2007). However, in our current research into patterns of distribution of turbinids in the Solitary Island Marine Park (SIMP), we have found a much wider range of morphological variation. This is illustrated in the six photographs appearing below which show a gradation from a completely smooth shell (A) through to one with five rows of spines on the body whorl (F). To make the comparison as valid as possible, we have selected shells of similar size (shell heights between 75-81 mm). The shells vary not only in terms of the number of spines they bear, but also in the development of the anterior canal which is almost non-existent in smooth forms

but prominent in spiny forms.

On his web pages, Des Beechey indicates that different forms are commonly found next to each other on the same shore (Beechey, 2007). Our results confirm this but also show that the ratio of smooth to spiny forms is site-dependent and variable at a site over time. For example, surveys conducted in the lower intertidal region of five headlands in February 2007 indicated that spiny-shelled specimens comprised from 32-65% of the population. These figures changed at most sites, quite dramatically in some cases, by our next survey in April (e.g. Ararawarra Headland - 49% in Feb., 25% in April). Interestingly, we have yet to find smooth specimens subtidally where robust, spiny forms predominate (e.g. C-F).

Preliminary inspection of a random sample of 60 specimens from subtidal sites across the SIMP indicates that morphology is not simply a function of sex. There was a 1:1 sex ratio in this sample with both sexes displaying the full range of external shell morphology (from 2-5 spines). In our continuing work, we plan to quantify the range of variation in *T.*



A - No spines, shell height 79 mm, Station Creek; **B** - 1 row of incipient spines (circled), 78 mm, Station Creek; **C** - 1 row of spines, 75 mm, Station Creek; **D** - 2 rows of spines, 79 mm, South West Solitary Island; **E** - 3 rows of spines, 77 mm, Split Solitary Island; **F** - 5 rows of spines, 81 mm, South Solitary Island.

militaris shells using geometric morphometric analysis and will determine if shell morphology is correlated with key environmental gradients. These investigations will focus on the strong cross-shelf patterns revealed in the pilot sampling for the project.

References

- Beechey, D. (2007), (updated 1 July 2007). The seashells of New South Wales. Retrieved 19 July 2007 from <http://seashellofnewsw.org.au/index.htm>
- Wilson, B. R. (1993). Australian Marine Shells. Volume 1. Odyssey Publishing: Sydney. 408 pp.



Yes, No, Probably: *Engina australis* in Victoria

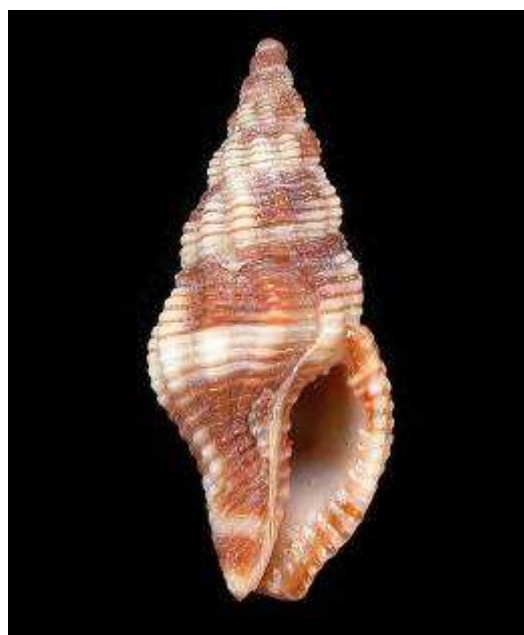
Bob Burn

6 Nantes St, Geelong, Victoria

According to specimens in the Australian Museum, the distribution of *Engina australis* (Pease, 1872) is restricted to NSW, from Ballina in the north to Twofold Bay in the south (Beechey, 1996). The old record of this species from Port Fairy, Western Victoria, (Pritchard & Gatliff, 1898) has never been confirmed.

Soon after the publication of the *E. australis* note, (Beechey, 1996) Dr Geoff MacCauley showed me specimens of an *Engina*-like species that he had collected at Port Fairy, and of which he has subsequently collected more. These specimens were found deep within the crevices between the basalt boulders forming the reefs near Griffith Island. The specimens are very similar to *E. australis* in shape and size, the sculpture is slightly different, and the colour is entirely creamy white or dull white depending on their age. None were alive, though several looked very fresh. Absence of reddish-brown and yellow maculations immediately separate these specimens from *E. australis*. It is possible that they are related to the uncommon NSW *Pisania gracilis* (Sowerby, 1859) and *P. unicolour* (Angas, 1867), both of which are pale fawn in colour (Ponder, 1972; Wilson, 1994). The old Port Fairy record of *E. australis* may well have been based upon specimens similar to those collected by Geoff MacCauley.

Very recently, when sorting shell sand collected in 2005 from the beach at Semaphore, near Adelaide, South Australia, I picked out a half-grown 7 mm long specimen of *E. australis*. Though a little beach rolled, and with a large bore-hole in the body whorl, it is typical in shape, sculpture and colour to NSW shells. Is this an indication that *E. australis* occurs in South Australian waters, or that it may have done so, perhaps briefly, in the not too distant past? The specimen has been deposited in the Museum Victoria mollusc collection.



Engina australis, typical specimen from NSW

References:

- Beechey, D. 1996. Correcting the distribution of *Engina australis* after 98 years. *Australian Shell News* 93:3
- Ponder, W.F. 1972. Notes on some Australian species and genera of the family Buccinidae (Neogastropoda). *Journal of the Malacological Society of Australia* 2(3): 249-265
- Pritchard, G.B. & Gatliff, J.H. 1898. Catalogue of the marine shells of Victoria. Part 1. *Proceedings of the Royal Society of Victoria* 10(2): 236-284.
- Wilson, B.R. 1994. *Australian Marine Shells. Prosobranch Gastropods*. Vol. 2. Odyssey Publishing: Kallaroo, Western Australia. 370 pp.

Correction

In the last issue of this Newsletter, No. 131, there was an error in the article about introduced land snails. On page 11, the two images beside the species at the top of the page are of the last species on the page, and vice versa. You can fix this by cutting out the

images and putting them in the right place, or by cutting out the text and moving that. Whichever way you do it, the text on the back of the page will then be wrong. Alternatively, just write on the page to show how it should be.



Way out of place: *Pseudostomatella papyracea* (Gmelin, 1791) in South Australia

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In 1987, during marine ecological survey work at Port Bonython, upper Spencer Gulf, South Australia, Dr. J.E. Watson (Marine Science & Ecology, Melbourne) sampled the 10-15 m deep subtidal reefs 500 m west of the pier using an air-lift pump. The live-taken molluscan material was separated out and eventually deposited in the Museum Victoria. From this material have been sorted three specimens of a species attributable to *Pseudostomatella papyracea*, a species hitherto not known to occur in South Australia.

P. papyracea is easily distinguished from the South Australian *Stomatella impertusa* (Burrow, 1815) and *S. terminalis* (Verco, 1905) both of which are flattened and ear-shaped, by its globose shape, regularly rounded and coiled whorls, and distinct conical spire. From other species of *Pseudostomatella*, *P. papyracea* is separated by its longer body whorl, more rounded aperture and higher spire (Cernohorsky 1972; Wilson, 1994).

P. papyracea is a tropical Indo-West Pacific species with a wide range across northern Australia, from Rottneest Island, WA, to southern Queensland (Wilson, 1994). It must sometimes extend from the west into South Australian waters, probably not as a viable long term population, but rather as a short-term visitor, lingering on for several years.

References

- Cernohorsky, W.O. 1972. *Marine Shells of the Pacific*. Vol. 2. Pacific Publications, Sydney. 411 pp.
Wilson, B.R. 1994. *Australian Marine Shells. Prosobranch Gastropods*. Vol. 2. Odyssey Publishing, Kalbaroo, Western Australia. 370 pp.



Pseudostomatella papyracea. Specimen from Ningaloo Reef, Western Australia



Typical *Stomatella impertusa*

Globe-Trotting Nudibranch Continues its Australian Journey



The extensive north to south records from NSW of the globe-trotting aeolid nudibranch *Spurilla neapolitana* as reported by Willan (2006) suggested that it would not be long before it was found further afield along the Australian coastline. Such has proved to be the case, with the recent report and photographs of a smallish (35-40 mm long) specimen, found by Joan Hales on 23 April 2007, under a rock in the high intertidal near the bridge abutment at San Remo, Victoria. The specimen was photographed both in the field and later in a container at home, but rapid deterioration meant that it was not preserved.

The San Remo specimen had a pale orange body and oral tentacles. The rhinophores were creamy

white, and the digestive gland in the cerata grey. None of the cerata had curled tips, but considering the stress of collecting and handling, it is not surprising to see in the photographs the cerata straightened out like the tentacles of an anemone. At first glance, the specimen looked like a large, pale *Austraeolis ornata*, but closer examination showed that it lacked the blue spots and rhinophoral annulae of that species.

Reference:

- Willan, R.C. 2006. Globe-trotting nudibranch arrives in Australia. *Australasian Shell News, Malacological Society of Australasia Newsletter* No. 130: 1,3

Bob Burn





East Asian Dove Snail *Mitrella bicincta* introduced into NSW

Des Beechey. Email: desb@austmus.gov.au

The latest issue of *Molluscan Research* contains a paper by Richard Willan and me describing the introduction and establishment of the mollusc *Mitrella bicincta* (Gould, 1860) in Australia. This is a small gastropod, up to 12 mm in length, of the family Columbellidae, quite similar to our native species of *Dentimitrella*. It was introduced to Australia in the early 1960s, and is now established and naturalized in central and southern NSW. The native range of the species is southern Korea, Hong Kong and Japan.

It had been known for a long time that an unidentified columbellid occurred around Sydney. Perhaps the first person to recognize the species was the late Gertrude Thornley, who collected shells around Sydney for 60 years. Gertie had a special interest in the Columbellidae, and in the 1980s and 1990s attempted to organize the Australian Museum collection of that family. Michael Shea tells me that she was aware of the species in the 1970s. She considered it undescribed, and intended to name it "*conmichaeli*", for (the late) Con Moutoudis and Michael Shea.

Scientists and collectors from the 1980s onwards were aware of the species, but were unable to identify it and did not recognize it as introduced. This was largely due to a general lack of knowledge of the southern Australian columbellid fauna. *Mitrella bicincta* is similar in size, shape and habitat to the southern Australian species of the genus *Dentimitrella*. Although these animals are among the most common intertidal gastropods in southern Australia, the group has never been revised, and there has been inadequate documentation for identification of the species. They are variable in shell colour and pattern, so there are many synonyms. Although treated at least partially in popular shell books, the range of

synonyms and lack of definitive species characters has made identification difficult. The Australian Museum collection of columbellids had not been, and is still not entirely, organized to species, inhibiting its use as a reference collection for identification.

Mitrella bicincta was first reported in the Australian literature in 1982, by Robinson & Gibbs in their book *A Field Guide to the Common Shelled Molluscs of NSW Estuaries*. They figured one specimen as representative of the NSW Columbellidae, with an excellent line drawing of *Mitrella bicincta*! It is a comment on the state of the taxonomic knowledge of our molluscan fauna that no one recognized the species as introduced for another 20 years. Patty Jansen figured the species as *Metanachis* sp. in her 1995 book *Seashells of Central New South Wales* and again in her book *Seashells of South East Australia*, published in 2000. One might have thought that the checklist of NSW Molluscs published in 1962 would have defined the fauna sufficiently well that a new species appearing in the state would be recognized. But this was not so, and perhaps illustrates the shortcomings of checklists; without an illustrated and comparative catalogue, it is difficult to recognize the species.

Recognition of the species as introduced came about as I was working on a catalogue of the NSW Columbellidae for my web site. I had correlated all the shell species in the Museum collection with names in Iredale & McMichael's 1962 checklist, and ended up with about 10 species of shells left over. Nine of these were minute or rare deepwater species which seemed to be undescribed, but one was so large, obvious and common that I could not believe that Iredale and McMichael would have overlooked it. Fortunately, Richard Willan of the Northern Territory Museum was visiting, and suggested that the

Queensland Branch of the Malacological Society of Australasia

Seventh National Shell Show

Brisbane, 7th -9th March 2008

Held at two year intervals, the National Shell Shows are a major occasion for everyone interested in shells to view displays of the world's most spectacular shells, to meet with other collectors to exchange views and information, to purchase shells to add to collections or the décor of our houses, or to swap shells with others. For many collectors it provides an opportunity to display shells in the competitive displays. Even if you have never submitted an entry in a shell show before, this is a great opportunity to begin. This event follows very successful Shows in Sydney (2006), Adelaide (2004), and Brisbane (2002).

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surplus species was introduced. Consulting the reference *Marine Molluscs in Japan* (Okutani, 2000) immediately provided illustrations of a species that closely matched the specimens on hand.

Sifting through the unsorted columbellids of the Australian Museum collection revealed about 30 lots of *Mitrella bicincta*. The earliest lot was collected in Sydney Harbour by Neville Coleman in 1964. The range is now from Lake Macquarie on the mid-north coast of NSW to Gabo Island near the NSW-Victoria border. There is also one specimen from much further north at Woody Head near Iluka in northern NSW, collected in 1981. I have heard an unconfirmed report that the species has been collected in eastern Victoria. It is tempting to assume that the species was introduced into Sydney Harbour from ballast water and has spread out from there, but there is no data to support this suggestion. It is just as likely that the introduction was caused by ballast water discharged at sea along the NSW south coast, or in the port of Eden.

In sorting through my own specimens of Colum-

bellidae I found that I had collected a single specimen of *Mitrella bicincta* on Cottlesloe Beach, Perth, when I collected dead shells there in 1994. Shirley Slack-Smith of the West Australian Museum has confirmed that there are specimens in the Western Australian Museum collection, and that it has been collected as beach shells there. These records raise the obvious question: If the species has reached NSW and southwestern WA, where else has it been introduced? The most likely mechanism of introduction is by ballast water, so the possibility exists that the species is in other harbours which receive Asian shipping. The natural distribution of *M. bicincta* - southern Korea, Hong Kong and Japan - covers a fair climatic range, so if climate is a factor determining distribution, many harbours around the world may be suitable habitat.

The habitat of *M. bicincta* in NSW is quite varied. It has been found on the rocky shores exposed to the full force of the Pacific Ocean, and in the quiet waters of Sydney Harbour and Middle Harbour. In Middle Harbour, above the Spit Bridge, where the wave height rarely exceeds 0.5 m, it was found to be common under stones in the low intertidal and abundant on the alga *Sargassum fallax*. It was found under stones at Shark Island in Sydney Harbour, only a few kilometers from the Harbour Bridge. In Japan, the habitat is reported as "Intertidal and subtidal rock bottom" (Okutani, 2000). It is sometimes very common there; a request by Richard Willan to a Japanese colleague resulted in 40 specimens being collected from Kobe at short notice. It apparently has a remarkable depth range; a recent report from Japan (Fujiwara et al, 2007) found the species on sperm whale carcasses at depths of 219-254 m.

What are the implications to be drawn from the currently observed habitats and distributions in Australia and in Asia? Unfortunately, nothing substantial can be said about future spread of the species in Australia, as we know so little about its biology and ecological requirements. Maybe the distribution will be controlled by water temperature, but it is likely that many other factors will be influential in its spread. It



Shells of *Mitrella bicincta*. Figs. 1,2 Shark Island, Sydney Harbour. Fig. 3 Long Reef, Collaroy, Sydney

is an assumption that it has a free-swimming larval stage but this needs confirmation. We don't know what it eats, when and how it reproduces, and what habitats are suitable. We don't know if it will compete with and displace local mollusc species, such as *Dentimitrella tayloriana* which is the most common intertidal columbellid in NSW.

References

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- Fujiwara, Y, et al. 2007. Three-year investigations into sperm whale-fall ecosystems in Japan. *Marine Ecology* 28: 219-232.
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- Okutani, T. (Ed.). 2000. *Marine Molluscs in Japan*. Tokai University Press: Tokyo