The Victorian Naturalist

Volume 127 (6) December 2010

Special issue in memory of Clarrie Handreck

Published by The Field Naturalists Club of Victoria *since 1884*

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ISSN 0042-5184

From the Marine Research Group, FNCV

It has been more than a year since his passing, but memories of Clarrie Handreck remain strong in the minds of all whose lives he touched. His boundless enthusiasm for our coastline, the animals inhabiting it and their conservation was infectious. As anyone who knew him will attest, Clarrie was a natural teacher who never wasted an opportunity to impart some of his knowledge to eager and interested listeners. On the many field trips to the coast that I had the privilege of attending with him, I was always astounded at how Clarrie could name and give a brief life history of nearly every marine invertebrate that was encountered.

With its high percentage of endemic species and wide variety of habitats, the southern coastline of Australia is unique, and ongoing study is required to unlock the secrets of its inhabitants. In its various guises over more than 50 years the MRG has contributed to our understanding of the lives of the animals found in this often harsh environment. Today the MRG continues the work that began with the Group's inception, with an ongoing program of field trips to various localities along our shores, documenting the animals present and adding the species observed to an already impressive database.

Until his 'retirement' in 1996, Clarrie had been the organisational backbone of the Marine Research Group of Victoria, as the group's secretary for more than 20 years, and was instrumental in merging the Group with the Field Naturalists Club of Victoria. Until he was too ill to continue, Clarrie attended and contributed to both MRG meetings, and work days at Museum Victoria.

This special edition of *The Victorian Naturalist* is devoted to increasing our knowledge of the marine fauna of our wonderful coast. It is dedicated to Clarrie Handreck and I for one cannot think of a more fitting way to honour the life of this remarkable man.

Michael Lyons
President, Marine Research Group
Field Naturalists Club of Victoria

Front cover: Clarrie Handreck in his beloved marine environment. Photo by Joan Broadberry.

In memory of Clarrie Handreck

Marine biodiversity studies by Clarrie Handreck and the Marine Research Group

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Abstract
The Marine Research Group (MRG), a special interest group of the Field Naturalists Club of Victoria, make significant contributions to our knowledge of marine biodiversity in Victoria and Australia. Some of those contributions are highlighted, as is the close and productive relationship with Museum Victoria and the role played by a leading member of the MRG, the late Clarrie Handreck. (*The Victorian Naturalist* **127** (6), 2010, 224–227)

Keywords: marine biodiversity, amateur naturalists, taxonomy

This issue of *The Victorian Naturalist* commemorates Clarrie Handreck in a most appropriate way, by bringing together original contributions to our knowledge of marine biodiversity in Victoria. Knowledge of the diversity and natural history of the marine life of our region has been a life-long goal of Clarrie Handreck and of the many like-minded colleagues who make up the Marine Research Group (MRG), a Special Interest Group of the Field Naturalists Club of Victoria (www.fncv.org.au/marine.htm). A number of contributions here add significantly to our knowledge of marine molluscs and pycnogonids, yet these are only the tip of an immense iceberg of knowledge accumulated by Clarrie and his colleagues over many decades. The aim of this article is to show the great value of these contributions; to comment not only on the tip, but on the rest of the iceberg.

A picture of Clarrie is well-painted in the contributions of Chris Rowley and of Michael Lyons. He was a highly motivated naturalist with strong social and environmental morals and a commitment to learning more about marine life, and sharing that knowledge and enthusiasm with others. Clarrie was the unofficial but universally acknowledged 'General' of the MRG, and their values, goals and achievements are so closely shared that it is difficult to speak of one without including the other.

All the enduring qualities of Clarrie and the MRG are in evidence in this volume, and in their wider work: a fascination with natural history; a strong interest in taxonomy; recognising and distinguishing species of marine life; a deep desire to make a permanent record of their knowledge; and, finally, a willingness to impart that knowledge to others. I would like to write a little of these qualities.

The Marine Research Group includes many highly skilled observers whose local taxonomic knowledge, especially of the intertidal and shallow marine fauna, is without peer. Although their achievements are as 'amateurs', that word is accurate only in the sense that they are unpaid. Many have well-deserved national and international reputations in the taxonomic community and have discovered and given scientific names to many new species. Compilation of a complete list of the species they have described would be voluminous and beyond the scope of this article, but a number must be mentioned and I include a few token citations of their published work. Robert Burn, whose initiative has resulted in this volume, has by my count (and including the new species described in this issue) described 61 local species of opisthobranch molluscs (nudibranchs and their relatives). The recently-published checklist (Burn 2006) includes still more new species recognised but awaiting description. Phillip Bock is renowned as a bryozoan (lace coral) taxonomist, expert on both fossil and living forms (Bock and Cook 2004). Mark O'Loughlin has described numerous species of sea stars and holothurians and has collaborated with many overseas colleagues (O'Loughlin and Waters 2004) to better understand the reproduction and genetics of these echinoderms. David Staples is a taxonomist and photographer who is expert in pycnogonids (so-called 'sea spiders' although pycnogonids and arachnids are only distantly related)

(Staples 2002). Jan Watson has an international reputation as a taxonomist expert in hydroids (Vervoort and Watson 2003). Many more could be listed, including many with specialist knowledge of gastropod molluscs including Cypraeidae, Marginellidae, Turridae and others. Many of the above have had parallel careers in related professional fields, but it is in the guise of MRG members that their taxonomic skills have been generated and published. Clarrie Handreck himself did not describe species and, humble to a fault, would claim his 'amateur' status if pressed. Yet he was the catalyst for much work that eventually became published by others. Clarrie knew the local fauna better than most and was often quickest to recognise something apparently new, more than one of which now bears his name in recognition, such as *Pagurixus handrecki*, a hermit crab (Gunn and Morgan 1992). The enthusiasm of Clarrie and colleagues is such that the MRG continues to foster others to gain and share new expertise. The result is to be seen in this issue, with contributions from Joan Hales, Alan Monger, Audrey Falconer and Platon Vafiadis, all having been actively encouraged by Clarrie Handreck. And the Group includes many more individuals besides.

Collectively, the knowledge and published works of the MRG represent a very significant part of Victoria and Australia's capability in marine biodiversity studies. Without MRG members, in most cases there would be no other person in our region with expert knowledge of many kinds of marine invertebrates. None of the staff of Museum Victoria has expertise in the organisms in which MRG members specialise and, in most cases, nor do the staff of other Australian natural history museums. Australia's marine life is so diverse that no realistic museum budget could ever hope to employ sufficient expert scientists. We simply must rely on many honorary experts (I shall desist from using the misleading term 'amateurs') and thus Museum Victoria is very pleased that many MRG members have accepted Honorary Associate status at the Museum. Without the MRG, for many kinds of marine life we would have no-one capable of authoritatively identifying the local fauna, no-one with the ability to describe the new species that are being discovered continually, no-one able to recognise species newly introduced from other harbours. If we want to understand Victoria's marine life fully, we need the MRG.

Another quality that is deeply embedded in the MRG, and was especially evident in Clarrie Handreck, is a desire to make a permanent record of their knowledge. Their many published scientific papers are one way in which this is achieved (a tiny fraction is cited at the end of this article). Many members of the Group were sought out to contribute chapters to the invaluable three volume *Marine Invertebrates of Southern Australia*, which is still the closest thing we have to a comprehensive summary of the marine invertebrate life of southern Australia (Bock 1982; Watson 1982; Burn 1989; Staples 1997). Another was the *Coastal Invertebrates of Victoria – an atlas of selected species*, published in 1984 (Phillips *et al* 1984) but long unavailable until thankfully reprinted in a revised edition in 2006. The *Atlas* was the outcome of a carefully planned survey of Victorian marine life, targeting a carefully chosen list of common and readily identified species which were subject to census throughout the Victorian coast. Clarrie was a prime architect of the field work demanded by the project and of publication of both editions. The *Atlas* was a far-sighted project which generated data invaluable to science and to environmental managers, and anticipated by decades the current efforts to make distribution maps of species ranges available via websites such as Online Zoological Collections of Australian Museums (OZCAM; www.ozcam.org.au) and the Atlas of Living Australia (ALA; www.ala.org.au). The collections and databases of Museum Victoria (and other Australian museums) are the irreplaceable data source on which OZCAM and ALA, and the MRG's 1984 *Atlas* are based. And it is these collections that are the other permanent legacy of Clarrie Handreck and the MRG. Clarrie and his colleagues always embraced the philosophy that is the reason for existence of natural history museums and their collections: no new species, no scientific paper, no distribution map, can be considered authoritative unless linked to preserved specimens sitting on the shelf of a museum collection. Those specimens are preserved in perpetuity

and are always available for critical study by researchers throughout Australia and the world. Clarrie Handreck and his colleagues laboured prodigiously over many years to ensure that this source of verification would be as complete and useful as possible, and the MRG continues that effort still, contributing many volunteer hours every week to help care for Museum Victoria collections and to build associated database records.

This article does not attempt to be a history of the MRG, yet a short historical digression is called for. Initially, the Marine Research Group existed as a group known as the Marine Study Group of Victoria, which had its inaugural meeting on 4 February 1957. Clarrie Handreck was not among the founding members, but I think first became active in the Group in the early 1970s. The Marine Research Group of Victoria was inaugurated on 25 March 1980 by amalgamation with the Underwater Research Group of Victoria, a contemporary group of individuals with an enthusiasm for natural history who were also SCUBA divers. On 10 February 1997, a special General Meeting approved the dissolution of the Marine Research Group and simultaneous merger with the Field Naturalists Club of Victoria.

With so many shared goals, it was natural that Clarrie and the then Marine Study Group of Victoria would form an early relationship with the then National Museum of Victoria (now Museum Victoria). Many present and past staff at the Museum, notably Sue Boyd and CC Lu, have been active in continuing to support the close relationship with the MRG, but it is another of my predecessors at the Museum, the late Dr Brian Smith, who deserves special mention for having the vision and confidence to initiate the relationship. It was Brian who commenced, in July 1967, monthly Saturday 'Museum Workdays' in which the Marine Study Group of Victoria would work alongside Museum staff to simultaneously build their own expertise and the collections of the Museum. Brian, himself an expert in land snails, recognised that the Museum would never be able to employ scientific staff with expertise in all kinds of animals. He also recognised the genuine knowledge and enthusiasm for marine life that was displayed by members of the Malacological Society of Australasia, Marine Study Group of Victoria and Underwater Research Group of Victoria, whom he met at local meetings. (The Malacological Society of Australasia remains an active organisation with many members in common with the MRG.) Throughout the early evolution of the Group it was Brian Smith who fostered the enthusiasm and development of members and encouraged them to specialise and to publish their discoveries. In later years, it was Clarrie Handreck who most often took the initiative to marshal the considerable forces of the MRG in support of Museum Victoria collections. It is a pleasure to report that the tradition continues with a new generation of MRG members, including contributors to this special issue. The 'Museum Workdays' initiated by Brian Smith in 1967 continue to this day: 43 years and counting.

In my opinion, the reason that the MRG continues to flourish and to publish is due to another quality of Clarrie Handreck and founding members: they all had and still have an eager willingness to impart their knowledge and skills to others, and are always generous with their time. Clarrie and at least one other member, Mark O'Loughlin, were professional educators and at times took their students on trips to remote places that would be impossible in today's more tightly managed schools, but were no doubt formative for those lucky students at the time. Many MRG colleagues have similar skills as teachers of natural history. To join them on a foray on the rock platform at low tide was to see infectious enthusiasm for their subject. Worthy environmental morals were also displayed: there was no collecting without good reason and, of course, a valid permit. It is no wonder that so many newcomers to the field responded positively to a teaching style that somehow simultaneously achieved both humility and authority. This legacy is clearly evident in the current membership of the MRG, and in this special issue.

None of this would be possible without a deep fascination with natural history, for it is that enthusiasm that is behind all the achievements of Clarrie Handreck and of the MRG, as it is of the Field Naturalists Club of Victoria and naturalists everywhere. That enthusiasm, shared by both professional biologists and honorary

experts everywhere, is what makes the close relationship between the MRG and Museum Victoria a natural and productive partnership. Long may it continue.

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Received 1 December 2010; accepted 2 December 2010

Clarrie Handreck pictured at the microscope, Cape Conran MRG extended field trip, February 2006.

Recollections of Clarrie Handreck

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I commenced my position in the Museum of Victoria's Invertebrate Zoology Department in December 1988. Though I was yet to meet Clarrie Handreck, I soon discovered that his name frequently cropped up in conversation around the department, often in an air of reverence. Unbeknown to me at the time, Clarrie was a member of the Marine Research Group of Victoria (MRG), a group of volunteers who came into the Museum one Saturday per month, to work in the Invertebrate Zoology collections, then located in the basement (more affectionately known as the 'dungeons') of the old National Museum of Victoria in Russell Street. These monthly 'museum workdays' were initiated by the late Dr Brian Smith in 1967 as a way of maintaining the MRG team during the winter months, when it was too cold for field work. All came together once a month to share their knowledge and expertise and to undertake vital curatorial and collection-based projects. Museum workdays are still a prominent fixture on the FNCV-MRG calendar.

My first encounter with Clarrie (and many of the MRG team) was not until the following year when I was asked to fill in as supervisor on one of the workdays. It was here that I discovered first hand the finely tuned machine that was (and still is) the MRG, and at its helm was Clarrie Handreck. In reality there was probably little need for my presence. Everyone had their job and knew exactly what to do. This group included as broad a cross-section of the community as one could hope to see, with one thing in common — an insatiable interest and curiosity about our marine environment. Some were generalists, keen to learn as much as they could, whilst others were highly-regarded experts, equally as keen to impart as much as they could. The lab hummed along with a frenzy of activity, much the same as it had some one hundred and fifty times beforehand, since 1967. At the end of the day, as if by magic, all the specimens, lab equipment and paraphernalia were quietly and efficiently put away and the lab was left pretty much as it was found that morning. Throughout the day, Clarrie was on hand to offer guidance, encouragement and direction to those who needed it; thoughtful and insightful opinion to those who sought it; and when required, simply roll up his sleeves and muck in. Over the following 12–18 months, I saw Clarrie only on the odd occasion, usually just popping in to drop something off for one of the curators, or perhaps visit the library to check out a reference. In 1991, Clarrie retired from his position as a primary school principal and commenced regular volunteer work in earnest. It was during this period that I had the privilege to really get to know and work with him.

It is difficult to put an accurate figure on Clarrie's contribution to the Museum. He commenced at a time prior to any formal volunteer programme or the keeping of attendance records. As far as I can ascertain, his association with the Museum most likely would have started around the same time he joined the MRG, in 1971. According to our 'official' records, Clarrie clocked up an estimated 12 500 hours of volunteer work. (The actual figure may be a lot higher!) He is in a select group of only four Museum volunteers to have passed the 10 000 hour milestone, and is currently still the longest serving volunteer on record. The official figures tell only part of the story. It was Clarrie's infectious enthusiasm and incredible work ethic that elevated him beyond the realms of a mere mortal volunteer. Here was a man whose work ethic could put many a full time member of staff to shame. I often had to remind myself that Clarrie actually was a *retired* man, offering his services gratis! Though 'retired', Clarrie still maintained a strict regime. If he said he would be in by 9:00 am, then you could set your watch by him. Lunch and coffee breaks were kept to a minimum and there was no leaving early at

the end of the day. Clarrie would work right up to the absolute last possible minute, allowing *just* enough time to clean up and leave in time to catch his train home. He most likely would have arrived on the station platform just as the train was pulling in! On the rare occasion when Clarrie was running late or unable to come in, he would always phone to apologise and promise to make up for lost time. (And he did!) Regardless of the task he was given, Clarrie gave 110%.

Clarrie was a committed conservationist with a broad knowledge and deep respect for the natural world. He was passionate about the collection and the data associated with it. Collection data is an important resource for environmental managers. For this reason, he saw the data written on specimen labels as a huge untapped resource waiting to be set free, and the only way to set it free was to 'get it onto the database'. He often said that the 'specimen data was not much good to anyone if it wasn't on the database'. In 1992, Clarrie began a 17-year obsession with databasing specimen data. Lot by lot, he began the monumental task of chipping away at the backlog of collection registrations. Clarrie and Denys Phillips worked together, and initially focused on entering data from the old hand-written register books. Not content with this alone, they also topped up alcohol, relabelled, re-housed, re-named and re-organised specimens if required. Clarrie appreciated that many hands make light work and so encouraged other volunteers to use the database. Since many of our volunteers had little or no experience with databases, Clarrie wrote a beginner's user manual, which he updated from time to time. In order to standardise database entries he compiled a comprehensive 48 page index detailing frequently used localities, donors, collectors and information on field expeditions. The index also included an alphabetical listing of Victorian coastal localities, complete with latitudes and longitudes, and a section covering projects of the MRG and its forerunner, the Marine Study Group.

In 1998 the Museum was on the move. Construction of the new Carlton Gardens complex was well underway, but not due for completion until 2000. Meanwhile, the National Gallery of Victoria wanted to press ahead with its own refurbishment program at its St Kilda Road complex and was in need of a temporary exhibition venue. The solution? Bring forward Museum of Victoria's exit from the Russell Street campus! With the move to Carlton Gardens still another two years away, the plan involved relocating the Museum's staff and collections to various temporary premises around Melbourne within a tight time frame. To ensure the relocation went off without a hitch, huge resources were channelled into the aptly named Accelerated Relocation Project. Since the collections were going to be moved, the Museum quickly adopted the position that every effort would be made to ensure that they were in a fit state to be moved. The Museum also seized on the opportunity not only to prepare collections for moving, but to actually improve on their standards of curation. It was Clarrie's meticulous attention to detail and intimate knowledge of the collection that made him the natural choice to be employed as part of a team to prepare the Natural Sciences spirit collections for relocation. Along with his fellow Collection Preparation Officers, the entire spirit collection was assessed, re-curated, re-labelled, re-sorted and packed into steel unit trays. The effort put into this preparation ultimately paved the way for their successful relocation to our temporary premises at Abbotsford and the subsequent relocation to the new Melbourne Museum at Carlton Gardens. The relocation of Natural Sciences collection was achieved on time and on budget. The excellent condition of the collection today stands as testament to the huge efforts of Clarrie and the team.

During the 'Abbotsford' period (December 1998–August 2000), Clarrie was one of few volunteers who continued their regular activities, yet despite all the disruptions he somehow still managed to register 4610 specimen lots.

In late 2000, the Invertebrate collection was finally settled into its new permanent home at Melbourne Museum. The following years would prove to be Clarrie's most productive. Once again he threw himself into the seemingly endless task of collection registration. One of his first projects was the registration of at least one representative of every species of marine chiton and gastropod held in the spirit collection. Unfortunately, in December 2001

Clarrie was diagnosed with an aggressive prostate cancer and given an initial prognosis of around two years. Not being one to quietly fade away, Clarrie upped the ante. Instead of giving his usual 110%, he was now operating at 120%!

With the completion of his first project behind him, Clarrie embarked on his most ambitious project yet. Phase two would see the *complete* registration, curation and re-organisation of all marine chitons and gastropods in the spirit collection. With help from the relevant experts, Clarrie began by first compiling a detailed index of all species represented in the collection, complete with current nomenclature, synonymies, bibliographic references and shelf locations. The end result was a two volume index which became the 'Bible' for anyone entering data, or putting specimens away in the collection. Clarrie and fellow volunteer Catherine Guli powered their way through registering the spirit collection. In 2004, with the introduction of the Museum's new database system EMu, Clarrie decided that it would be more efficient if Catherine was to concentrate on data entry, whilst he concentrated on handling and labelling the specimens. What was perhaps not evident to many people was the amount of time Clarrie put into compiling lists, checking nomenclature, synonymies and spelling errors at home, in preparation for his next registration session. Every hour spent at the museum was at least matched in time spent at home. Even more astonishing was that much of this project was undertaken in between rounds of intensive radiotherapy or chemotherapy treatments. In typical Clarrie fashion, he was able to forecast the dates his 'good days' would fall on, and organise his diary accordingly. Together with Catherine, Clarrie was able to see the project through to completion.

Apart from his museum volunteer commitments, Clarrie also continued to provide leadership for the MRG, and importantly provided a crucial link between the MRG and the Museum's curatorial and collection management staff. By 2009 the cancer was taking its toll, and in April that year when he was physically no longer able to carry on, Clarrie reluctantly ceased regular volunteer work. Still keen to keep a hand on progress, an extremely frail Clarrie continued to call into the museum from time to time, if only briefly to pass on his latest list of updates or amendments to Catherine.

Always modest about his achievements, Clarrie often understated his contributions to the Museum and, much to the frustration of his colleagues, shied away from many attempts to formally recognise him. Clarrie always insisted that any achievements were the result of a team effort. He frequently described his role as 'just doing the hack work, so that the experts could be freed up for more important things'. In reality, he could not have been further from the truth. In his last five years, Clarrie and a band of volunteers and staff registered approximately 18 900 lots of specimens. In total, he was directly or indirectly involved in the registration of approximately 29 300 lots. There would be very few specimens that have not been handled personally by Clarrie at some time. In recognition of his contributions, the holothuroid *Aposolidium handrecki* O'Loughlin & O'Hara, 1992 and the hermit crab *Paqurixus handrecki* Gunn & Morgan, 1992 are named in his honour. In 2001, he was honoured with a High Commendation in the category of Lifetime Achievement at the 2001 Victorian Coastal Awards for Excellence.

I knew Clarrie only in the context of his museum work. It was not until I attended his funeral that I began to appreciate that he was a man with many interests and talents, contributing as freely and productively to these as he did to his museum work. Clarrie was universally admired and respected, and is sadly missed by all.

Acknowledgements
Many thanks to Sue Boyd, Catherine Guli, Aaron Lawrence and Platon Vafiadis for their assistance and helpful comments.

Received 19 August 2010; accepted 4 September 2010

Melanochlamys handrecki sp. nov.: an addition to the opisthobranch fauna (Mollusca: Gastropoda) of south-eastern Australia

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Abstract

A new infaunal species *Melanochlamys handrecki* (Aglajidae) is described from coastal embayments of central Victoria and western Tasmania. The new species is compared with its local congener *Melanochlamys queritor* and the New Zealand *Melanochlamys lorrainae*. (*The Victorian Naturalist* **127** (6), 2010, 231–235)

Keywords: Aglajidae, new species, south-eastern Australia, lower intertidal

Species of the genus *Melanochlamys* Cheeseman, 1881, like all members of the bubble-shell family Aglajidae, have a reduced internal shell hidden away in the posterior or posterior-dorsal part of the body. The shell is fragile, white, and in shape closely resembles the top or posterior quarter of the common temperate Australasian bubble-shell *Bulla quoyii*. With few exceptions, species of the family lack radular teeth in the pharynx; instead of teeth on a ribbon acting as a 'pick-up and conveyor belt' for the passage of food to the stomach, aglajids suck in live prey and 'pressure pass' it to the stomach where it is digested. Aglajid prey includes acoel, polyclad and polychaete worms, shelled opisthobranchs, other species of the family Aglajidae, even their own species, and nemerteans which are ingested just as a human would suck in a length of spaghetti (Rudman, 1972b).

Gosliner (1980) includes eight species in *Melanochlamys*. Since then three species have been synonymised with others (Burn, 1974; Chaban and Martynov, in Kantor and Sysoev 2006) and the status of some remains doubtful. One species is common in south-eastern Australian low intertidal and shallow subtidal waters. *Melanochlamys queritor* (Burn 1957) (Fig. 1), described in this journal a little over 50 years ago, ranges from southern New South Wales to southern Western Australia including Tasmania (Burn 1989). A rare and presently

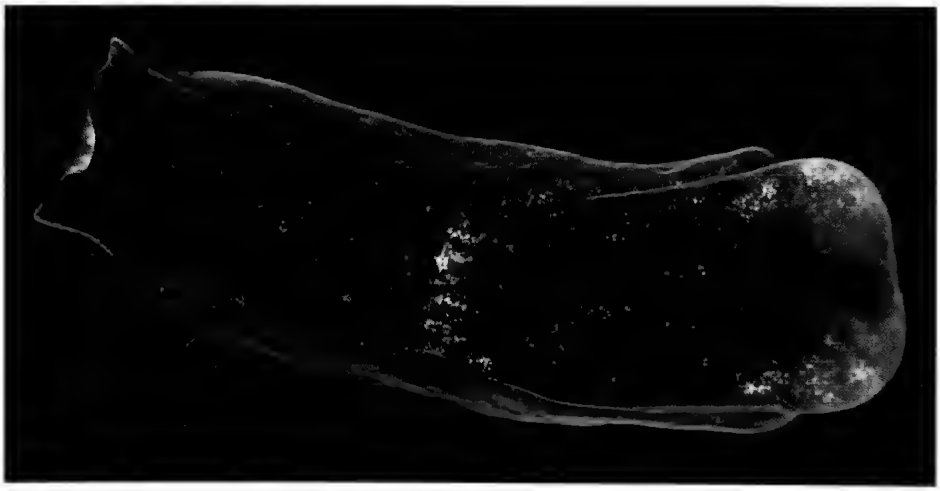

Fig. 1. *Melanochlamys queritor* - dorsal view of live specimen from Eagle's Nest, Inverloch.

undescribed species of the genus is listed from the Bass Strait area (Burn 2006). A third, newly found, species is described herein.

All material has been deposited in Museum Victoria, Melbourne.

Melanochlamys handrecki sp. nov. (Figs 2–4)

Material

Shallow Inlet, Waratah Bay, South Gippsland, Victoria, 38°51'S, 146°09'E, collected by members of the Marine Research Group, FNCV: 18 March 2009, 1 specimen, 15 mm long, alive (dissected Paratype MV F169259); 7 March 2001, 5 specimens, 4, 6, 6, 7, 14 mm long alive (14 mm specimen Holotype MV F169257, four smaller specimens Paratypes MV F169258).

Habitat

Found at low tide in areas of clean sand surrounding small *Zostera* beds. Specimens burrow just below the sand surface and are not visible except for the track they leave behind. The sand areas are densely populated with polychaete worms, which form semi-consolidated sand tubes that project one or two millimetres above the surface.

Description

Live animal to 15 mm long, almost 6 mm at its widest, and about 4 mm high. Body elongate oval, a little wider towards the posterior, and much depressed. Head shield half length of the body, wider and shallowly arcuate in front, narrowly truncate behind, shallowly grooved along mid-line. Anterior edge of head shield thickened and grooved. Visceral hump narrower in front where it emerges from beneath the tightly adpressed posterior flap of the head shield, becoming wider as it frees from the parapodia, and terminating in a pair of short rounded lobes. Lower lateral edges of visceral hump overhang indented groove along body wall. Thin margin of parapodia very closely adpressed to body sides at about two-thirds body height. In section, parapodia narrowly curved out from body, together with the indented groove forming a wide siphonal canal along each side. Foot broad, a little wider in front, rounded behind. Eyes not visible dorsally or laterally. On each side of mouth is a small cream quadrangular pad from which short hyaline sensory bristles intermittently project. Posterior to each pad, a large brown cuticularised patch (Hancock's organ).

Pharynx approximately one quarter of body length, ovoid, muscular. Penial sheath with an internal muscular flap, with a short free posterior penial papilla, and a single prostrate gland. Shell with broad outer lip, the upper edge projecting as a sharp point that is housed within the right posterior lobe of the visceral hump; inner whorls broadly conical and very fragile.

Fig 2. *Melanochlamys handrecki* – dorsal view of live Paratype, MV F169259.

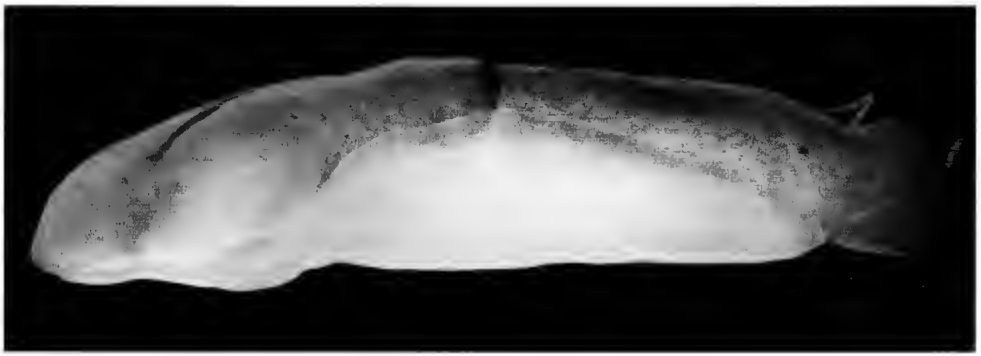

Fig 3. *Melanochlamys handrecki* – left lateral view of live Paratype. MV F169259.

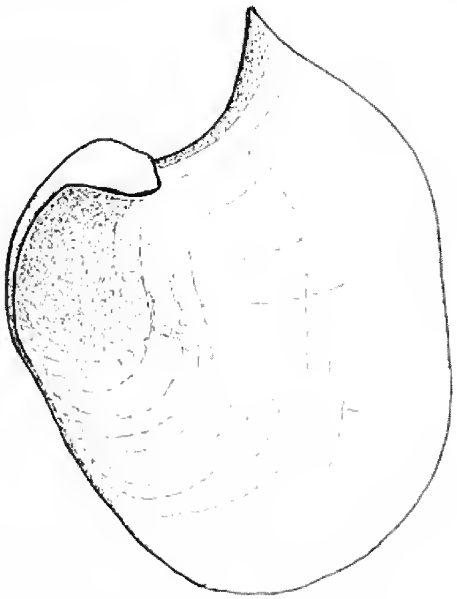

Fig 4. *Melanochlamys handrecki* – internal view of shell of dissected Paratype, approximately 3.5 x 2.5 mm.

Dorsal surface of head shield and visceral hump almost black. Orangeish viscera visible within left side of visceral hump. Parapodia light grey dorsally, becoming much paler ventrally, to dull white on the sole. Small specimens are paler dorsally.

Discussion

Melanochlamys handrecki is readily separated from its local congeners by the broad depressed body, the closely adpressed, narrowly curved parapodia that do not reach high up the body sides, the broader outer part of the shell with projecting point, the large brown Hancock's

organs, and the grooved anterior edge of the head shield. In *Melanochlamys queritor*, the body is cylindrical, the parapodia rise higher and are held closer to the body sides, the shell is more posterior within the visceral hump and is smaller and more tightly coiled, the Hancock's organs are not colour differentiated, and the eyes are visible anterior-laterally in the groove separating head shield from foot. *Melanochlamys* sp. (Burn, 2006), known only from one or two specimens, has a cylindrical body like that of *Melanochlamys queritor*, but differs from that species and *Melanochlamys handrecki* by the presence of a cuticularised stylet arming the penial tip, and an opaque white body sparsely spotted with brown. (Coleman, 2001, p 119, lower right hand figure).

The six live specimens of *Melanochlamys handrecki* were very uniform in colouration, except that the smallest specimens were not as dark grey on the dorsal surfaces. *Melanochlamys queritor* varies considerably in colour. Typically it is black with a bluish sheen from the minute cilia that cover the body, with lighter cream anterior corners and posterior edge of the head shield, but grey, brown and almost cream animals, plain or mottled, have been observed over the years. Brown mottled specimens were described as *Melanochlamys henri* Burn, 1969 but were later synonymised with *Melanochlamys queritor* (Burn 1974).

Details of the penial sheath, size of the pharynx and shape of the shell of *Melanochlamys lorrainae* (Rudman 1968) from northern New Zealand are similar to these features in *Melanochlamys handrecki*. Initially described from a white animal (Rudman 1968), additional specimens range from white to mottled grey with paler anterior and posterior ends (Rudman 1972a). Specimens of *Melanochlamys lorrainae* figured on the 'Sea Slug Forum' (Rudman 2010) are creamy white with sparse grey mottling confined to the median line of the head shield, and all over the sole and parapodia. One specimen shown has very dark grey terminal lobes of the visceral hump. *Melanochlamys lorrainae* is separated from *Melanochlamys handrecki* by its more cylindrical body, and much paler colouration.

Supplementary Notes

Subsequent to the completion of this paper, a larger and differently coloured specimen of *Melanochlamys handrecki* was submitted to the writer for examination. The following observations were made of the specimen, which was maintained alive for 11 days in a large flat bowl with sand from its habitat at one end.

The specimen was found by Trevor McMurrich at the end of a sand track in 60 cm water depth at Curlewis, Outer Corio Bay, Port Phillip Bay (38°10'S, 144°31'E) on 29 July 2010. Several additional animals were seen at the same time, including an apparently mating pair. All were much the same size, the collected specimen measuring 30 mm in length and 11 mm in breadth. All were glossy black dorsally, making the margins of the posterior flap of the head shield and of the parapodia very difficult to distinguish. The anterior corners of the head shield and the sole of the foot were a more smoky black colour, and the inner surface of the parapodia was pale blue-grey. The sole of the foot of the collected specimen was demarcated from the parapodia along each side by a narrow shallow muscular groove, otherwise it matched exactly the description above, even to the presence of short hyaline sensory bristles each side of the mouth.

Melanochlamys handrecki creates a mucous tube to protect its body as it burrows through the sandy substrate approximately 3 mm below the surface. It is only rarely visible from above. The mucous tube collapses immediately behind the moving animal, resulting in a distinctive shallow groove, 11–12 mm wide, narrowly deeper in the mid-line and margined each side by a 2–3 mm high ridge. Five days after collection, the specimen laid a small, soft spherical hyaline egg-mass 13 mm in diameter, anchored by a very short stout holdfast to a mucous-bound mass of sand grains buried in the sediment surface. Numerous very small but well spaced oval egg capsules, 440 x 320 µm in size, each containing a single creamy white egg, measuring 380 x 220 µm, were clustered within an approximately 9 mm diameter sphere within the egg-mass. This egg-mass is very similar to

that of *Melanochlamys cylindrica* from New Zealand, but in that species the eggs appear to fill the whole of the egg-mass and the holdfast is a long slender thread (Rudman 1972a).

Melanochlamys handrecki has also been found in Macquarie Harbour on the west coast of Tasmania. Nine small preserved specimens, 2–5 mm in length, are present amongst Museum Victoria material sorted from three bottom samples located within the Harbour, taken during a survey carried out in August – September 1995. The median groove is well marked on the head shield in all specimens, which though now uniformly decoloured still show signs of brownish pigmentation of the Hancock's organs. Unfortunately, the shell has decalcified within each specimen.

Acknowledgements

The writer is grateful to Val Stajsic, Margaret Rowe, Audrey Falconer and Leon Altoff for discovering the living specimens of *Melanochlamys handrecki* and bringing them to his attention, to Leon Altoff and Plato Vafiadis for photography, and to Audrey Falconer for typing the manuscript. This paper and species is dedicated to the memory of the late Clarrie Handreck (1936–2009), who, had he been well enough, would have greatly enjoyed the two days in March 2009 that the Marine Research Group, FNCV spent surveying the wonderful marine fauna of Shallow Inlet.

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Received 9 September 2010; accepted 28 October 2010

One Hundred and One Years Ago

THE TASMANIAN NATURALIST.—The October issue of this journal contains an excellent article, entitled " Guide to the Mollusca of Tasmania, adapted for Young Students," by Mr. W. L. May, which has the additional advantage of being illustrated by drawings of thirty-three species of Tasmanian shells. As the conchology of Victoria and Tasmania is very similar, the article should be useful to beginners here. Copies of the journal can be obtained from the hon. sec. Tasmanian Field Naturalists' Club, Hobart, at a cost of sevenpence (including postage).

From *The Victorian Naturalist* **XXVI**, p. 83, November 9, 1909

In memory of Clarrie Handreck

Pycnogonids (Sea spiders): lists of the littoral and shallow water species of Victoria and King Island

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This note is based on the pycnogonid collections made by members of the Marine Research Group (MRG) of the Field Naturalists Club of Victoria and its predecessors (the Underwater Research Group and the Marine Studies Group of Victoria). Records date back to the late 1940s and includes specimens gathered by current and former members, in many cases independently of Group activities.

Most records have been collected anonymously under the umbrella of the MRG. Records are derived from field research along the entire Victorian coastline including bays, inlets and estuaries. As for almost all invertebrate groups the Ninety Mile Beach is devoid of coastal records. The collection represents species found in the low-intertidal zone, sometimes in tidal pools but mostly in knee-deep water immediately adjacent to the exposed coast. Most specimens found in the intertidal zone are small; their size enabling them to shelter in damp areas beneath rocks, algal mats and in crevices mainly in association with algae, polychaete worms, anemones and encrusting bryozoans. Only three species recorded, *Ammothea australiensis* Flynn, 1919, *Ammothella biunguiculata* (Dohrn, 1881) and *Pycnogonum aurilineatum* Flynn, 1919 are consistently recorded from the true intertidal zone but these are also well known from local shallow waters. Many of those species collected from near-shore are also found in deeper water, typically associated with sponge surfaces, soft bryozoans and hydroids. Collections by Group members are invariably supported by excellent data that provide a solid basis on which to focus further ecological research into this neglected group.

These records also include species collected on the King Island expedition in March 1980 (marked 'K' on the list) and the Southern Port Phillip Survey (1986–1993) replicating the work of J Bracebridge Wilson a century earlier. Species recorded from King Island are also represented along the Victorian coastline. Because the Southern Port Phillip Survey collection was sampled from deeper water using both naturalist dredge and SCUBA, this material is listed separately.

Each species record may consist of multiple specimens. Of the 47 species recorded, 17 are either new or undescribed.

Acknowledgements

Without detracting from the magnificent contribution by individual members to our knowledge of the Victorian pycnogonid fauna, I am sure no one will take exception to my acknowledging the outstanding contribution by Clarrie Handreck. Clarrie's enthusiasm and dedication to the task of expanding our knowledge of the Victorian coastal fauna was nothing short of extraordinary.

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Received 23 September 2010; accepted 4 November 2010

Appendix 1. Littoral and shallow-water pycnogonids of Victoria and King Island (K)

AMMOTHEIDAE (13 species, 5 new).
Achelia assimilis (Haswell, 1885). 15 records.
Achelia shepherdi Stock, 1973. 23 records.
Achelia sp. nov. 'C'. (K) 22 records.
Achelia sp. nov. 'F'. 1 record.
Achelia transfugoides Stock, 1973. 1 record.
Ammothea ovatoides Stock, 1973. 5 records.
Ammothea australiensis Flynn, 1919. (K) 74 records.
Ammothella biunguiculata (Dohrn, 1881). 8 records.
Ammothella cf. *stauromata* Child, 1982. 1 record.
Ammothella sp nov. 'A'. 1 record.
Ammothella sp. nov. 'B'. 4 records.
Nymphopsis bathursti Williams, 1940. 26 records.
Nymphopsis sp. nov. 'B'. 4 records.

ASCORHYNCHIDAE (2 species)
Ascorhynchus compactus Clark, 1963. (K) 5 records.
Ascorhynchus longicollis (Haswell, 1885). 2 records.

NYMPHONIDAE (3 species, 2 new)
Nymphon aequidigitatum Haswell, 1885. 13 records.
Nymphon sp. nov. 'A'. 1 record.
Nymphon sp. nov. 'C'. 5 records.

CALLIPALLENIDAE (16 species, 5 new)
Anoropallene sp. nov. 3 records.
Callipallene emaciata (Dohrn, 1881). 2 records.
Callipallene emaciata unnamed sub. sp. Stock, 1954. 5 records.
Cheilopallene sp. nov. 2 records.
Pallenoides sp. nov. 1 record.
Parapallene australiensis (Hoek, 1881). 1 record.
Parapallene sp. nov. 2 records.
Propallene vagus Staples, 1979. 15 records.
Pseudopallene sp. nov. 'A'. 5 records.
Pseudopallene pachycheira (Haswell, 1885). 1 record.
Pseudopallene spp. Unidentified juveniles. 2 records.
Pseudopallene watsonae Staples, 2004. 1 record.
Pycnothea flynni Williams, 1940. 5 records.
Stylopallene cheilorhynchus Clark, 1963. 3 records.
Stylopallene dorsospinum Clark, 1963. 1 record.
Stylopallene longicauda Stock, 1973. 1 record.

PYCNOGONIDAE (1 species)
Pycnogonum aurilineatum Flynn, 1919. 11 records.

PALLENOPSIDAE (1 species)
Pallenopsis macneilli Clark, 1963. (K) 20 records.

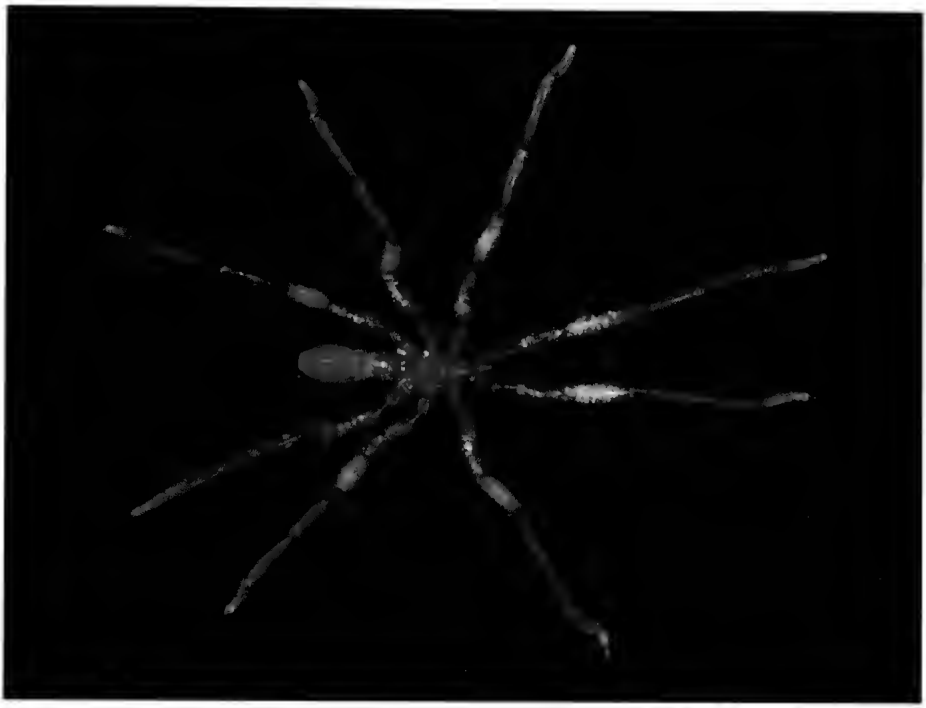

Fig. 1. *Ammothea australiensis* Flynn, 1919. West Head, Flinders. Found on underside of rock on reef flat at low water. Photo by John Chuk. Leg span to about 20 mm. Most often a pale-straw colour but variable. Typically recorded from under boulders and protected crevices. There is a particularly strong association with the polychaete worm Galeolaria on which it has been observed feeding but also recorded from algal sortings and sievings. Australian distribution: Garden Island W.A. to Port Jackson N.S.W. and Tasmania.

Appendix 1. (Cont.) Littoral and shallow-water pycnogonids of Victoria and King Island (K)

PHOXICHILIIDAE (4 species, 2 new)
Anoplodactylus evansi Clark, 1963. 25 records.
Anoplodactylus cf. *pycnosoma* (Helfer, 1938). 16 records.
Anoplodactylus sp. nov. 'B'. 1 record.
Anoplodactylus sp. nov. 'C'. 2 records.
Anoplodactylus juvenile. Undetermined species (1 record)

Appendix 2. Southern Port Phillip Survey

AMMOTHEIDAE (6 species)
Achelia assimilis. (Haswell, 1885). 3 records.
Achelia shepherdi Stock, 1973. 1 record.
Ammothea ovatoides Stock, 1973. 8 records.
Tanystylum cf. *orbiculare* Wilson, 1878. 1 record.
Nymphopsis bathursti Williams, 1940. 1 record.
Nymphopsis sp. nov. 2 records.

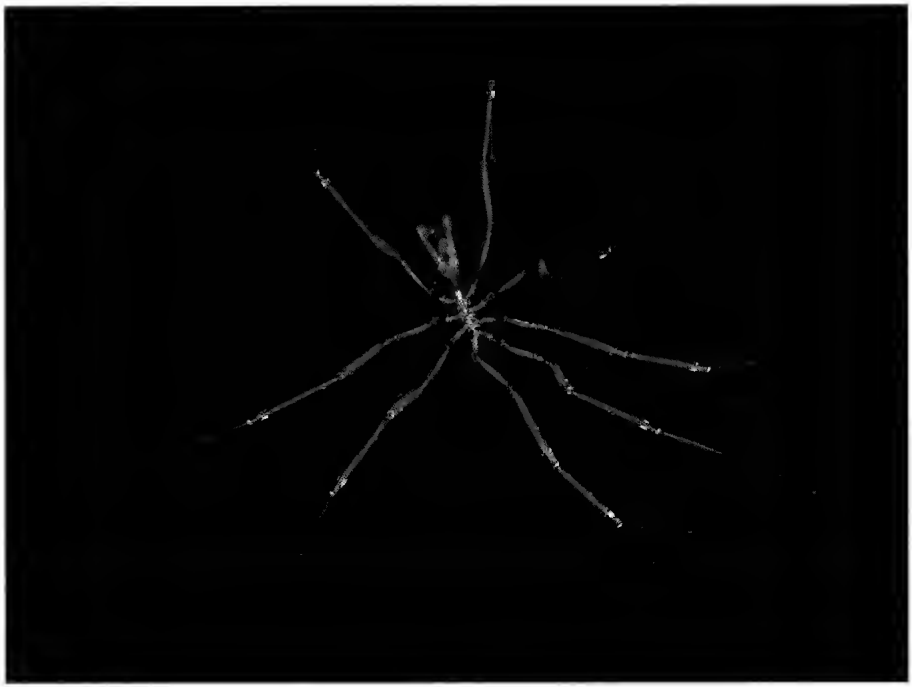

Fig. 2. *Nymphon aequidigitatum* Haswell, 1884. Kitty Millar Bay, Phillip Island. Collected from underside of intertidal rock at low water. Photo by John Chuk. Leg span to about 40 mm. This species can be locally common, often found in isolated populations. Colour varies from almost clear to yellowish orange. Eggs are of a similar colour. Found intertidally beneath rocks but more commonly subtidally on hydroids and algae. Australian distribution: Gulf St Vincent S.A. to Cape Byron N.S.W. and Tasmania.

Appendix 2. (Cont.) Southern Port Phillip Survey

ASCORHYNCHIDAE (1 species)
Ascorhynchus longicollis (Haswell, 1885). 4 records.

CALLIPALLENIDAE (9 species, 3 new)
Callipallene emaciata (Dohrn, 1881). 4 records.
Callipallene sp. nov. 'A'. 1 record.
Callipallene sp. nov. 'B'. 2 records.
Cheilopallene sp. nov. 'A'.1 record.
Parapallene obtusirostris Clark, 1963. 3 records.
Parapallene avida Stock, 1973. 2 records.
Pseudopallene (unidentified protonymphon) 4 records.
Stylopallene cheilorhynchus Clark, 1963. 2 records.

NYMPHONIDAE (1 species)
Nymphon singulare Stock, 1954. 1 record.

PYCNOGONIDAE (1 species)
Pycnogonum carinatum Staples, 2002. 4 records.

In memory of Clarrie Handreck

The intertidal Turrids of Victoria

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Abstract
Descriptions are given of the various species of the gastropod molluscan family Turridae likely to be encountered in the intertidal region of Victorian shores. (*The Victorian Naturalist* **127** (6), 2010, 240–245)

Keywords: Mollusca, Turridae

Introduction

The Turridae forms one of the largest of all molluscan families, there being as many as four thousand species world-wide and about four hundred recorded from Australian seas. A great percentage of these shells are found only in deep water and it is probable that there are a large number still to be described. The waters around the south-eastern Australian coastline are no exception and there are numerous species that have been collected in the last few years that await formal description and naming. Because of this, and also the fact that so many turrids are small, most being less than 15 mm in length, they are not at all well-known or represented in collections. For the same reasons, accuracy of identification is difficult to achieve for many collectors.

In general, Turrids (along with the Conidae and the Terebridae) are predatory molluscs, with a rapid-strike, chemically-aided system that paralyses their prey. Cones, with their venomous harpoons, are best known for this. However, a similar system is used by all the families in the Superfamily Conoidea (to which the turrids belong). An anterior elongation of the buccal tube and radula is modified to form large marginal teeth that are specialised for hypodermic injection.The shells are generally spindle-shaped with a large body whorl. The main shell character is the posterior 'turrid-notch' or sinus on the aperture — sometimes a deep slit on the outer lip, sometimes an obscure concavity. Size range is from 1 mm to about 160 mm in length. In Victoria, the biggest are about 35 mm long, the smallest 1 or 2 mm.

In 1993, a paper by Taylor, Kantor and Sysoev described work on the foregut anatomy of the Superfamily Conoidea, and assigned the group to five different families. Further study by others has not been successful in replicating this work and so there is still not a general consensus regarding the family status of the turrids. For simplicity, this paper therefore retains the 'traditional' family and genera for the species described below.

Of the hundred or so taxa recorded from Victoria, relatively few live intertidally. A number of different species live below low tide level and dead specimens can sometimes be found in the sand at the water's edge. For those who have an interest in the turrids, the following are brief descriptions of species most likely to be found alive when collectors are fossicking on our rock platforms. Without exception these shells live at or near low tide level and below, and so are best searched for around the edge of the rock platforms, where they live under stones among the algae that grow there.

Etrema bicolor (Angas, 1871)

(Fig. 1)

Shell solid and very narrow. Whorls rounded, sculptured with radial ribs crossed by concentric narrow ridges, slightly nodulose at the points of intersection. Outer lip with a strong varix behind and denticulate within; the posterior sinus is not particularly prominent. Colour creamy, with the base of the body whorl chocolate brown. The apex and interior of the aperture are brown. Length 6–7 mm. Range: Port Jackson, NSW, Tasmania and westward to near Perth, Western Australia. In Victoria, the FNCV Marine Research Group has recorded it from Inverloch, San Remo and Torquay.

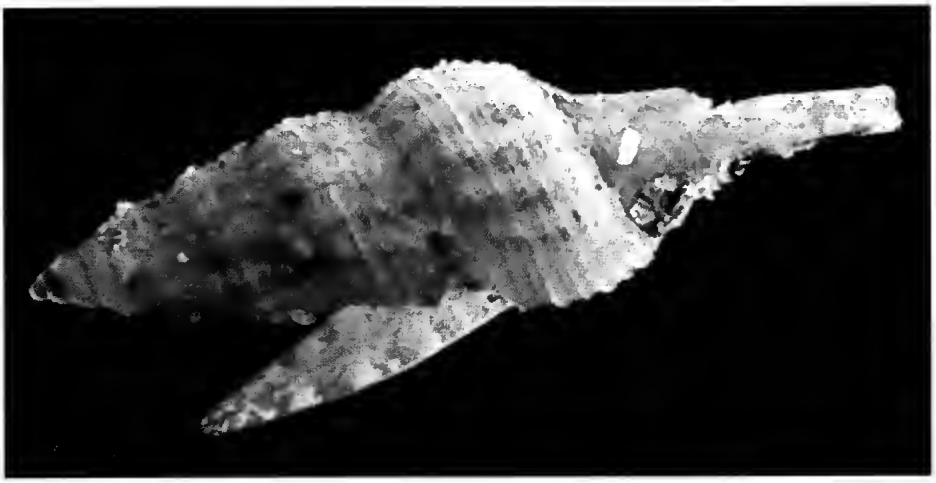

Fig. 1. *Etrema bicolor* Inverloch. Photo by Joan Hales.

***Etrema denseplicata* (Dunker, 1871)**
(Fig. 2)
Shell solid and comparatively broader than *E. bicolor*. Sculpture of strong axial ribs, about 18 on the body whorl, and quite strong spiral threads that override the ribs. Lip of the aperture thick, denticulate within; posterior sinus prominent. Colour fawn but living specimens purplish, occasionally white-banded; apex purple. Length about 13 mm, width 4-4.5 mm. Range: Tasmania, Bass Strait, central Victoria and into South Australia. Not uncommon in Western Port, particularly Flinders and Shoreham.

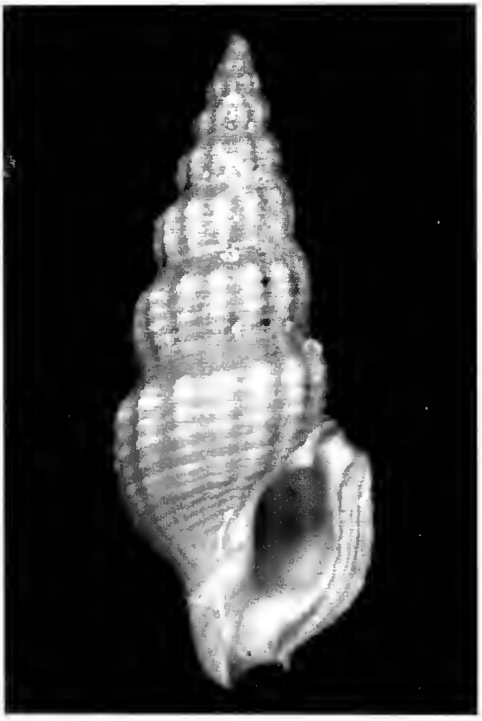

Fig. 2. *Etrema denseplicata* off Cowes. Photo by Platon Vafiadis.

***Austrodrillia beraudiana* (Crosse, 1863)**
(Fig. 3)
Shell solid, with 6 mature whorls; sutures deeply impressed and sinuous. Sculpture of eight or nine thick rounded ribs which start a quarter of the way down the whorl; the ribs do not line up on adjacent whorls, and taper off towards the bottom of the body whorl. They are crossed by faint white spiral striations. The sinus is small and callused. Colour greyish brown with white knobs on the ribs. Interior of aperture purplish brown. Length 12–15 mm. Range: northern NSW to western Victoria and northern Tasmania. Probably the least uncommon of the family in Victoria, particularly in Western Port, but also recorded from Walkerville, Inverloch, Point Lonsdale, Aireys Inlet and Port Fairy.

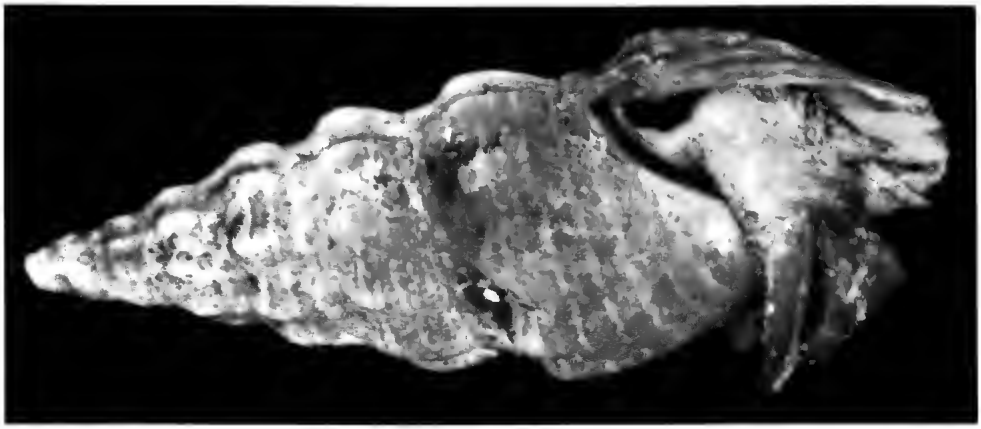

Fig. 3. *Austrodrillia beraudiana* Cat Bay, Phillip Island. Photo by Platon Vafiadis.

***Guraleus alucinans* (Sowerby, 1896)**
(Fig. 4)
Shell attenuate, with seven to eight angulate whorls. Sculptured with thick and rounded axial ribs and numerous close, fine spiral grooves. Body whorl less than equal in length to the spire and somewhat attenuated at the base; aperture fairly wide, with a small posterior sinus. Colour creamy white with interrupted thin spiral brown lines on the spire, a thicker line on and above the angle of the spire whorls and at the centre of the body whorl. Length 6–10 mm. Range: Victoria, South Australia and probably Tasmania. In Victoria, it is found mainly in Western Port (various localities),Torquay, Clifton Springs and also Portland. There is considerable confusion with this species, considered by many workers to be a synonym of the next species, *G. pictus*, and also *G. vincentinus* (Crosse and Fischer 1865), a species that is also found in NSW.

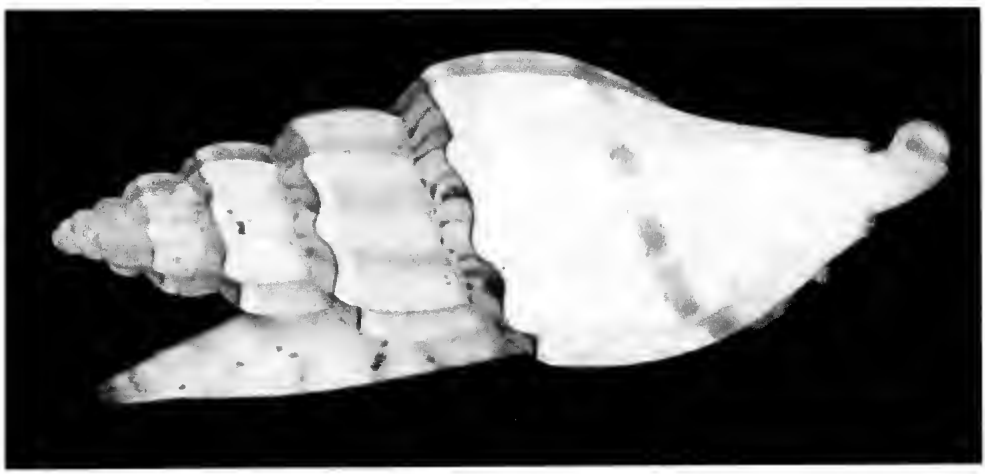

Fig. 4. *Guraleus alucinans* Portland. Photo by Platon Vafiadis.

***Guraleus pictus* (Adams and Angas, 1864)**
(Fig. 5)
Shell attenuate with sculpture of oblique axial ribs, eight per whorl, gradually fading out on the base of the last whorl; slightly angled at the upper third of the whorls. The axial ribs have wide interspaces covered with faint spiral striations. The aperture is equal to the spire length – comparatively longer than in typical *G. alucinans* (above); posterior sinus small. Colour creamy with a hroad chocolate brown band beneath the shoulder. There is also a band of paler brown hetween the ribs immediately below the sutures. Length to about 17 mm. Range: southern Queensland to Victoria, Tasmania and central South Australia. Our records are from Inverloch, Shoreham, Point Nepean and Portland.

***Paramontana rufozonata* (Angas, 1877)**
(Fig. 6)
Shell solid, with six convex whorls. Sculptured with axial ribs, crossed by transverse ridges that become sharply and prominently nodulose on the ribs. Outer lip with a varix and denticulated. Posterior sinus moderate. Colour white with a zone of double interrupted chestnut lines near the base of the last whorl and similar chestnut markings here and there on the upper portions of the whorls. Length 5 mm, width 1.5 mm. Range: central NSW to Victoria, Tasmania and west as far as the south of Western Australia. In Victoria, it is found at Port Albert, San Remo, McHaffie Point on Phillip Island, Portarlington, Port Fairy and Portland.

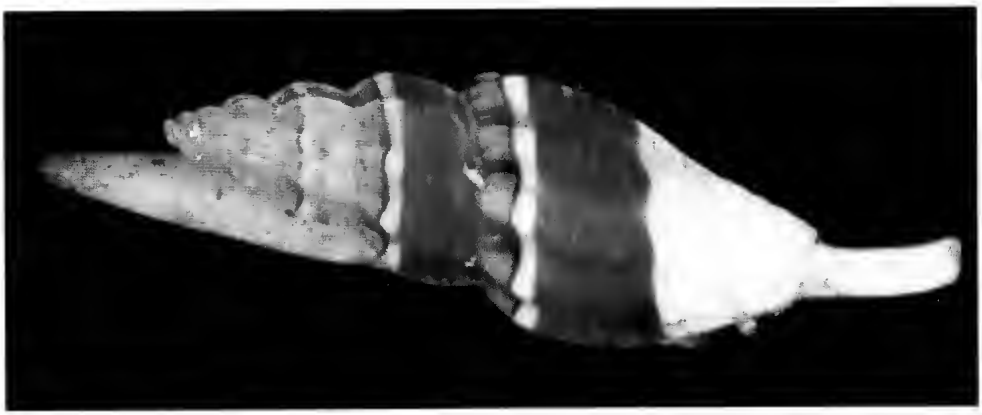

Fig. 5. *Guraleus pictus* Portland. Photo by Platon Vafiadis.

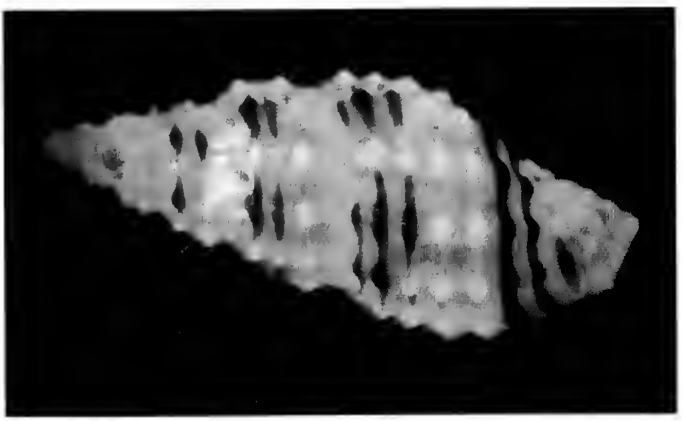

Fig. 6. *Paramontana rufozonata* Harmers Haven. Photo by Joan Hales.

***Macteola anomala* (Angas, 1877)**
(Fig. 7)
Shell solid with five whorls, sharply angled at the upper part. Sculptured with rather distant axial ribs that are quite stout, rounded and nodulose at the angle in the whorls. There are also fine spiral ridges, which are seen to be delicately grained when viewed under a lens. The outer lip is gently curved and the columella has a callus; posterior sinus not at all prominent. Colour white with a brownish-orange band spotted with black encircling the last whorl and appearing just above the sutures on upper whorls. Length to 11 mm. Range: central NSW to Tasmania, Victoria and as far as South West Australia. This beautiful little shell is sometimes to be found living along the north shores of Bellarine Peninsula, Victoria.

***Daphnella botanica* Hedley, 1918**
(Fig. 8)
Shell solid and contracted at the base. The apex, of up to three whorls, is beautifully reticulated with a diagonal lattice of fine threads. The six adult whorls are sculptured with numerous spirals, about 40 on the body whorl and 12 on the penultimate, with smaller threads between the larger ones. There are also small, sharp axials, about 80 per whorl and these override the spirals to form minute beads at the intersections. The aperture is half the length of the shell and has a narrow and deep notch. The columella has a thin callus. Colour buff with darker brown splashes. Length up to 20 mm. Range from central Queensland to Tasmania, Victoria, South Australia and as far as Western Australia. Occasionally recorded at Inverloch and San Remo, in Victoria.

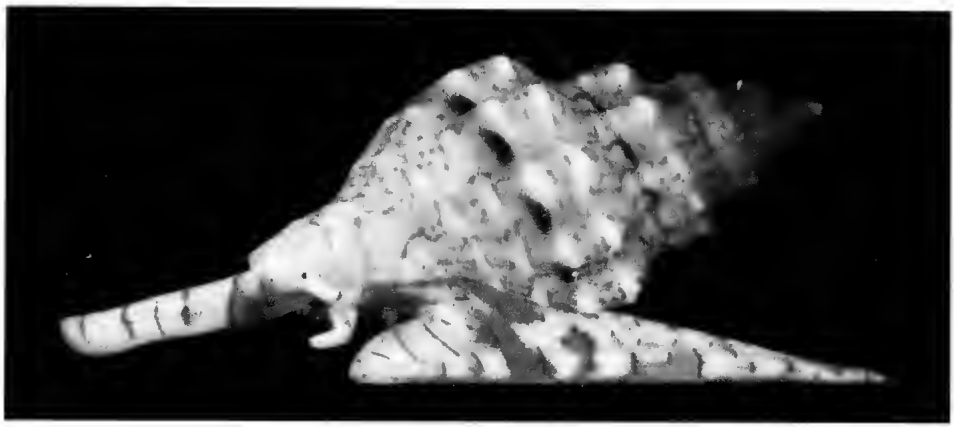

Fig. 7. *Macteola anomala* Portarlington. Photo by Leon Altoff.

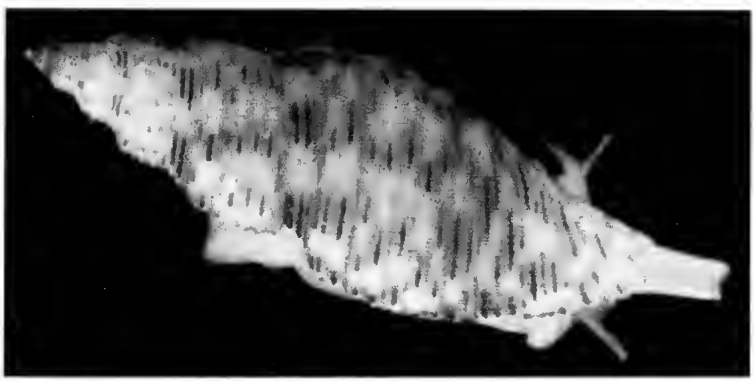

Fig. 8. *Daphnella botanica* Inverloch. Photo by Joan Hales.

***Turrella morologus* (Hedley, 1922)**
(Fig. 9)
Shell thin and slender, the upper whorls with a sloping shoulder meeting a perpendicular periphery at a sharp angle. The major sculpture is of prominent longitudinal ridges, about 9 to 12 on the last whorl. Narrow spiral cords cross these ridges, latticing the spaces between them, with about 20 spirals on the last whorl. From 3 to 10 minute threads are packed between the cords; these spirals cover the whole shell and, under a lens, can be seen to be made up of strings of minute grains. The aperture is narrow, the sinus broad and shallow. Colour pale brown, length about 8 mm, width about 3 mm. The range is from southern NSW to central Victoria, generally in fairly deep water. Recorded from mud flats at about low tide level at Toora, Victoria.

Acknowledgements
This study began some years ago when Clarrie Handreck invited the author to 'sort out' the turrid collection in Museum Victoria. As soon as the work started, it became apparent that the family needed substantial study in order to obtain and be certain of the accuracy of names for the many species involved. This study has continued, with great encouragement from Clarrie and other members of the Marine Research Group of the FNCV. My thanks go to the following MRG members who supplied me with photos of all the species described above: Joan Hales, Frank Steuart, Leon Altoff, Audrey Falconer and Platon Vafiadis.

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Received 9 September 2010; accepted 11 November 2010

Fig. 9. *Turrella morologus* Toora. Photo by Leon Altoff.

In memory of Clarrie Handreck

Rediscovery of the seaweed limpet *Naccula parva* in Victorian waters

Audrey Falconer and Robert Burn
Marine Research Group of the Field Naturalists Club of Victoria

Abstract
After an lapse of 90 years, the small limpet *Naccula parva* is again reported as living on the seagrass *Amphibolis antarctica* at Portland, western Victoria. (*The Victorian Naturalist* **127** (6), 2010, 246–247)

Keywords: small limpet, seagrass, live specimens, western Victoria

Ninety years ago in 1920, Melbourne pharmacist and amateur conchologist Charles Gabriel (1897-1963) and family holidayed at Portland, western Victoria, where he studied the marine molluscan fauna. Shortly afterwards, he and Gatliff wrote a paper (Gatliff and Gabriel 1922) listing 10 additions to the marine molluscan fauna of Victoria, all from Portland. Among them was the small limpet *Nacella* [now *Naccula*] *parva* Angas 1878 'found living on the seaweed *Cymodocea* [now *Amphibolis*] *antarctica*' (Wire Weed or Sea Nymph). Apart from Cotton (1959) who included Port Fairy, Victoria, as the easternmost point of distribution of *Naccula parva*, and Valentine (1965) who found a posterior fragment from quaternary fossil beds at Port Fairy, which is thought to have been from a species of *Naccula*, the authors are unaware of any further records of the species from Victorian waters.

During the Marine Research Group's extended field trip to the Portland area in February 2007, the fauna in the lower intertidal *Amphibolis antarctica* beds at Anderson Point were carefully sampled for their fauna by running small (120 – 150 mm diameter) kitchen sieves through the lower wiry stems and upper leafy fronds. Much to the delight of the authors each found one live specimen of *Naccula parva*. Both shells were about 5 mm long, with the bluntly pointed apex projecting just beyond the anterior edge of the shell. The live animals were a bright light green colour, which undoubtedly made them impossible to see when positioned upon the darker green leaves of *Amphibolis*. The shell has a medial row of pale bluish spots, and although transparent, it appears green from the colour of the animal within. Both specimens are now deposited in the marine invertebrate collection, Museum Victoria, registration number F126956.

Hickman (2005) studied living *Naccula parva* at Esperance, southern Western Australia. There she found live specimens on three species of the seagrass *Posidonia* as well as on *A. antarctica*, and commented (Hickman 2005: 226-227):

> Live individuals were most common on *Posidonia australis*, occurring on the clean lower portions of the blades and between the leaf sheath and the blade. Animals were able to crawl either forward to backward. Animals excavate the blade surface with the radula and feed on chloroplasts in the epidermis.

Esperance specimens had a cream-coloured mantle within the shell, in marked contrast to the bright green of the Portland animals. Hickman (2005: 221) also noted that:

> identification of the Patellogastropod limpets on Australian seagrasses is hampered by lack of photographic illustrations in the literature and conflicting accounts of the diagnostic features associated with the available species names.

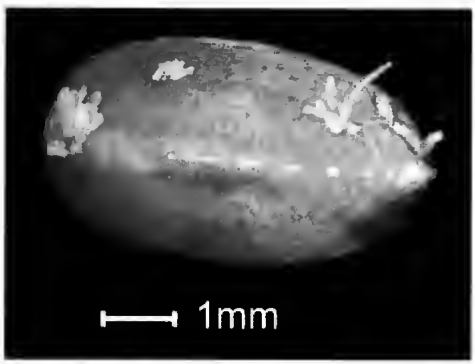

Fig. 1. Dorsal view of live *Naccula parva*, Anderson Point, Portland, 23 February 2007

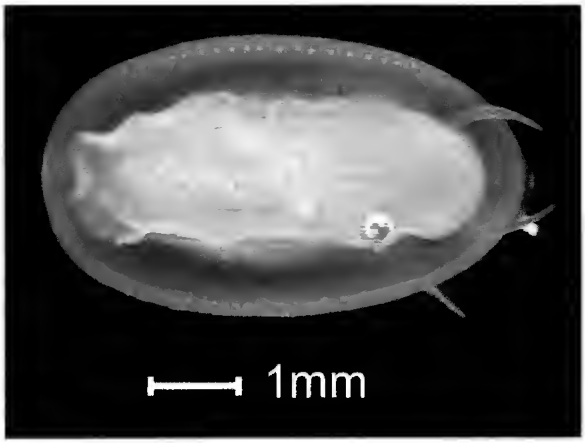

Fig. 2. Ventral view of live *Naccula parva*, Anderson Point, Portland, 23 February 2007

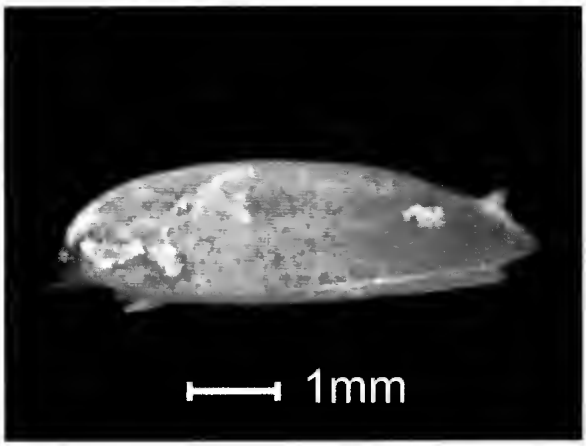

Fig. 3. Left lateral view of live *Naccula parva*, Anderson Point, Portland, 23 February 2007

The authors are therefore pleased to provide dorsal (Fig. 1), ventral (Fig. 2) and lateral (Fig. 3) images of the live Portland animals, and to again report *Naccula parva* from Victorian waters.

Acknowledgements
We thank Leon Altoff for photographing the specimens. This note is dedicated to the late Clarrie Handreck, who shared our delight that day upon discovery of the specimens.

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Received 10 June 2010; accepted 21 October 2010

In memory of Clarrie Handreck

A list of the intertidal opisthobranchs of Harmers Haven, South Gippsland

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Abstract
Over a period of 12 years, records have been kept of the molluscs, including opisthobranchs, seen during surveys at Harmers Haven, Victoria. An annotated list of the sixty-four opisthobranch species recorded to date is presented, with selected images. (*The Victorian Naturalist* **127** (6), 2010, 248–254)

Keywords: opisthobranchia, Harmers Haven, sea slugs, littoral, Bunurong Marine Reserve

Harmers Haven is a small coastal locality about 6 km south of Wonthaggi, South Gippsland, Victoria, adjacent to the western end of the Bunurong Coastal Reserve. A rocky reef lies along the shore providing some protection from the swells and occasional storms from Bass Strait.

Opisthobranchs belong to the Phylum Mollusca, Class Gastropoda. Surveys of the intertidal reef began in 1997 with one survey each year until 2001. More regular surveys have been undertaken recently, particularly since 2005, covering from the high to the low intertidal zones but predominantly the mid-intertidal zone due to accessibility. The areas surveyed are approximately 8 km south-east of the outlet pipe of the desalination plant currently being constructed. For various reasons, such as tide height, tide time, and weather, some surveys have been of much shorter duration than others.

The habitat surveyed is another variable. A number of species are very habitat specific. If various species of the green alga *Caulerpa* are not examined then *Edenttellina typica* or *Midorigai australis* will not be found. *Ascobulla fischeri* has been found only in the sand at the base of *Caulerpa brownii*. The sea grass *Amphibolis antarctica* hosts another opisthobranch community. Many of the nudibranch species are found hiding under rocks or crawling on algae.

It should also be noted that initially very few, if any, opisthobranchs could be identified with confidence, but as knowledge has increased so has the ability to find and identify many of the more common species. New records are constantly being added. The current number of species recorded is 64. Many species have been found only once, the majority between two and six times with a few species, as noted below, often encountered.

The unnamed species have been given the numbers allocated by Burn (2006). An asterisk indicates additional species recorded by the FNCV Marine Research Group.

Acknowledgements
I am greatly indebted to Robert Burn for confirming names for the species that have been found. Without his continuing assistance most species would have remained nameless. His advice on habitats and differentiating characteristics has been invaluable. The members of the FNCV Marine Research Group have been most helpful. Leon Altoff and Audrey Falconer forwarded Harmers Haven data gathered by MRG members. Images and input from Platon Vafiadis have also assisted in identification.

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Received 10 June 2010; accepted 7 October 2010

Appendix 1. List of untertidal opisthobranchs

ORDER CEPHALASPIDEA
Family Cylichnidae
Tornatina sp. 1
An unnamed species with opaque white blotches in the white shell. Common.
Tornatina sp.
An unnamed species with a translucent, broadly domed protoconch. Rare.
Family Philinidae
Philine sp. 1
An unnamed small orange species.
Philine sp. 2
An unnamed even smaller white species with minute white spots (Fig. 1).
Family Aglajidae
Melanochlamys queritor (Burn, 1957)
Noalda exigua (Hedley, 1912)
Family Haminoeidae
Haminoea maugeansis Burn, 1966
A small bubble shell commonly found in intertidal rock pool algae.
Family Diaphanidae
Colpodaspis sp. 2
An unnamed tiny dark brown species.
Diaphana tasmanica (Beddome, 1883)
This rare species has been located a number of times recently. It has been recorded between November and April in rock pool algae (Fig. 2).
Family Runcinidae
Runcina australis Burn, 1963
Runcina sp. 1
An unnamed minute dark species with posterior external shell.
Family Ilbiidae
Ilbia ilbi Burn, 1963
An inhabitant of rock pool algae where it is quite common in summer and autumn.

Fig. 1. *Philine* sp. 2 – 4 mm in length.

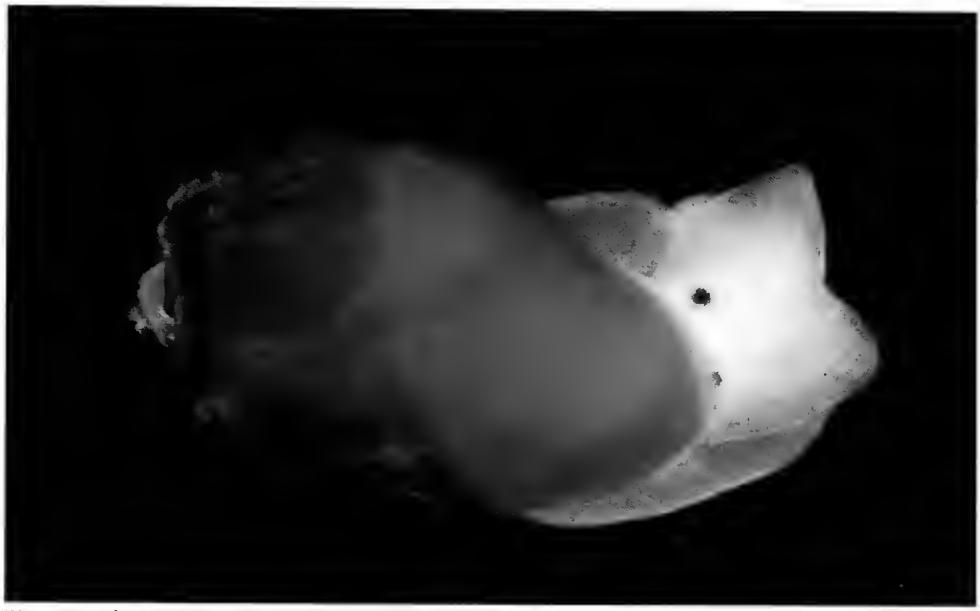

Fig. 2. *Diaphana tasmanica* - shell 1.5 mm in length.

ORDER SACOGLOSSA
Family Volvatellidae
Ascobulla fischeri (A. Adams & Angas, 1864)
Family Oxynoidae
Oxynoe viridis (Pease, 1861)
Roburnella wilsoni (Tate, 1889)
Family Juliidae
Edenttellina typica Gatliff & Gabriel, 1911
From about November to May this bivalved gastropod species is common on *Caulerpa brownii.*
Midorigai australis Burn, 1960
Common in late summer and autumn but less frequent than the previous species.
Tamanovalva babai Burn, 1965
This species is the least common of the bivalved gastropods intertidally.
Family Plakobranchidae
Elysia coodgeensis Angas, 1864
A small species that can be found all year.
Elysia furvacauda Burn, 1958
A red-brown species with minute white, yellow and blue dots. Appears to be reasonably common from January to April.
Elysia maoria Powell, 1937
Elysia sp. 1
An unnamed brown species with a pair of tongue-like lobes projecting from each parapodial margin. Common and appears to be present all year.
Elysia sp. 3
An unnamed greenish species.

Family Caliphyllidae

Polybranchia pallens (Burn, 1957)

Not common but easily overlooked due to the camouflage of its leafy cerata.

Family Limapontiidae

Ercolania sp. 4

An unnamed black species with red ceratal tips and white stripe to each rhinophore.

Hermaea sp. 2

An unnamed reddish-brown species.

Placida dendritica (Alder & Hancock, 1843)

This species can often be found if the host alga *Codium fragile* is located.

Placida sp.

An unnamed species that is smaller and lighter in colour than the preceding species.

Stiliger smaragdinus Baba, 1949

An uncommon green species with rounded cerata associated with and closely resembling *Caulerpa vesiculifera* (Fig. 3).

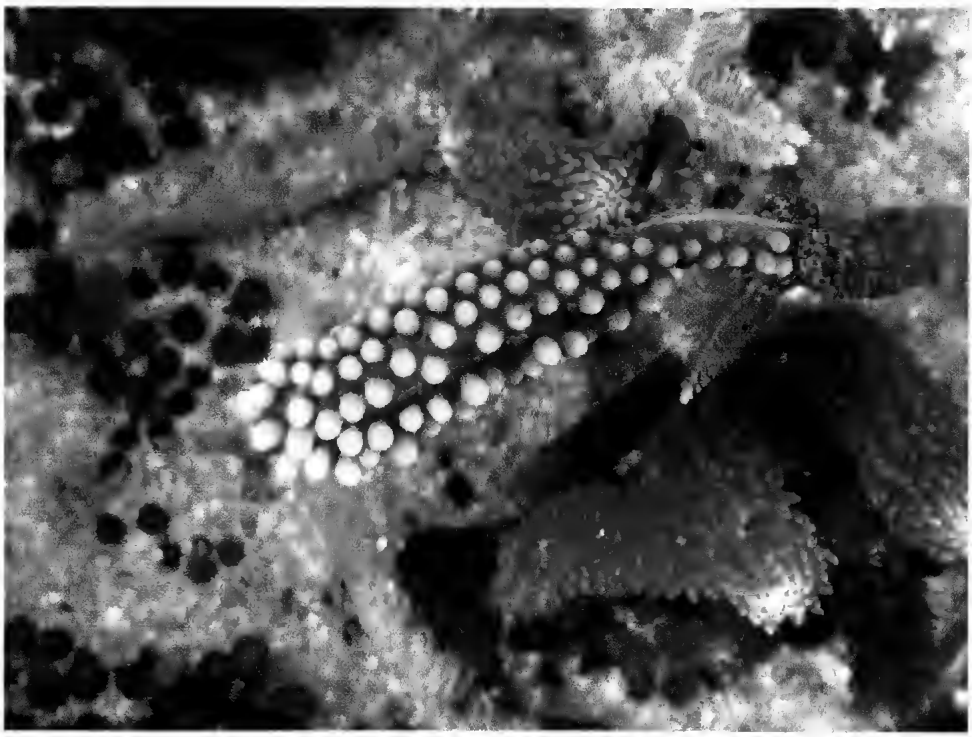

Fig. 3. *Stiliger smaragdinus* – 35 mm.

ORDER ANASPIDEA

Family Aplysiidae

Aplysia parvula Guilding in Mörch, 1863

A sea hare with dark edges to the parapodia. Found occasionally.

Aplysia sydneyensis Sowerby, 1869 *

ORDER PLEUROBRANCHIDA
Family Pleurobranchidae
Berthella medietas Burn, 1962
A common, pale coloured side-gilled slug under rocks at mid-tide level and below.
Berthella serenitas Burn, 1962
Much less common than *B. medietas*.

ORDER NUDIBRANCHIA
Family Polyceridae
Polycera janjukia Burn, 1962
Family Aegiridae
Aegires exeches Fahey & Gosliner, 2004
Family Dendrodoridae
Doriopsilla carneola (Angas, 1864)
This is a common intertidal species found under rocks. Colour varies from white through shades of yellow to deep orange.
Family Actinocyclidae
Hallaxa michaeli Gosliner & Johnson, 1994
Family Chromodorididae
Ceratosoma brevicaudatum Abraham, 1876
An attractive brightly coloured species up to 100 mm in length.
Chromodoris epicuria (Basedow & Hedley, 1905)
Noumea haliclona (Burn, 1957)
Family Doridida e
Doris cameroni (Allan, 1947)
A common dull yellow species with dark spots in the top of the nodules on the mantle.
Family Discodorididae
Hoplodoris nodulosa (Angas, 1864)
Jorunna hartleyi (Burn, 1958) (Fig. 4).
Jorunna cf. *pantherina* (Angas, 1864)
Jorunna sp. 1
An unnamed white species with black spots.
Paradoris dubia (Bergh, 1904)
Platydoris galbana Burn, 1958
This species is listed under the *Flora and Fauna Guarantee Act, 1988*. It has been found only once, on the underside of a low intertidal rock.
Trippa albata Burn, 1962
Sclerodoris tarka Burn, 1969
Family Tethydidae
Melibe australis (Angas, 1864)
Melibe maugeana Burn, 1960
Family Zephyrinidae
Caldukia affinis (Burn, 1958)
Family Madrellidae
Madrella sanguinea (Angas, 1864)
Only small patches of the bryozoan, *Mucropetraliella elleri*, on which this bright orange-red species feeds, seem to occur in the area, but the nudibranch has been recorded four times.

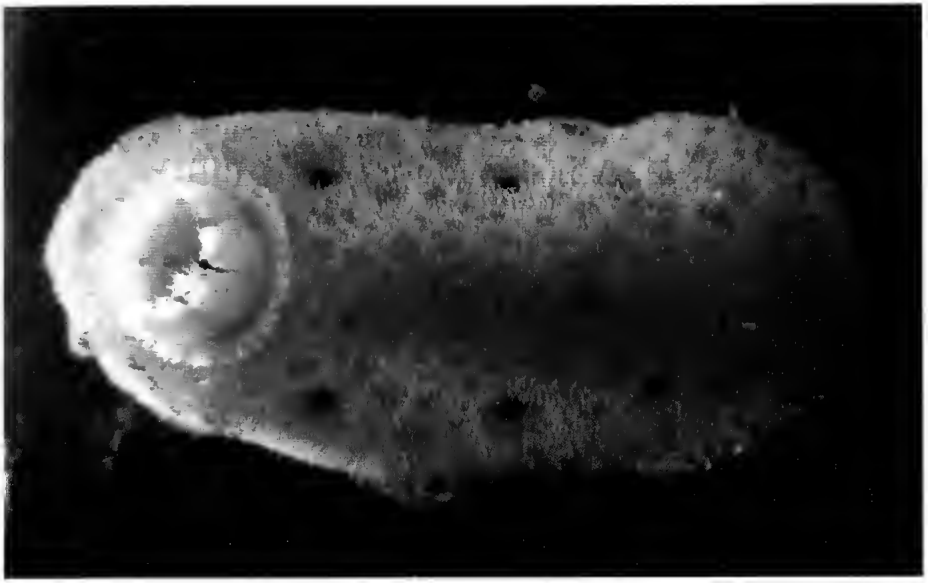

Fig. 4. *Jorunna hartleyi* – 25 mm.

Family Flabellinidae
Flabellina poenicia (Burn, 1957)
Flabellina sp. 2
An unnamed purple species with orange cerata.
Family Aeolidiidae
Anteaeolidiella foulisi (Angas, 1864)
Spurilla macleayi (Angas, 1864)
The most commonly encountered species in the intertidal zone. It hides under rocks but juveniles are sometimes found on seaweed. It is present all year.
Family Facelinidae
Austraeolis ornata (Angas, 1864)
Another species that is frequently found under rocks.
Cratena lineata (Eliot, 1905) (Fig. 5).
Facelina newcombi (Angas, 1864)
Facelina sp. 2
An unnamed pinkish species with yellow rings on cerata.
Palisa sp.
An unnamed pale species with white markings.
Phyllodesmium macphersonae (Burn, 1962)
Phyllodesmium serratum (Baba, 1949)
Family Tergipedidae
Trinchesia sp. 3
An unnamed small fawn species on *Amphibolis antarctica*, sometimes present in large numbers in late summer.

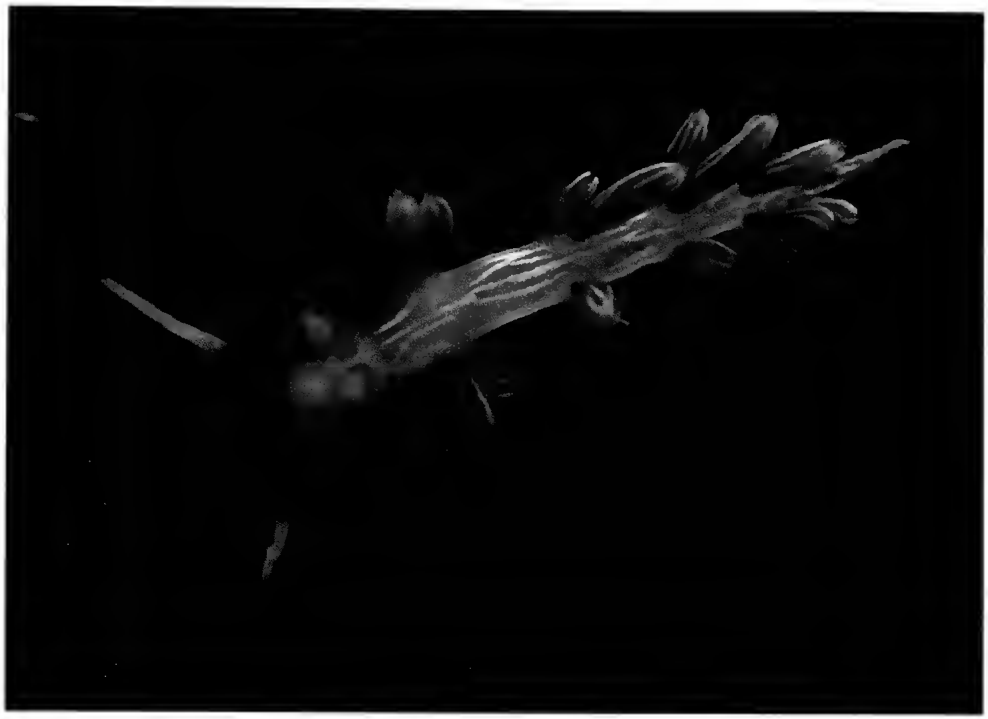

Fig 5. *Cratena lineata* – 7 mm.

One Hundred and One Years Ago

ADDITIONS TO THE FISH FAUNA OF VICTORIA. No. 2.

BY J. A. KERSHAW, F.E.S., National Museum.
(*Read before the Field Naturalists' Club of Victoria, 13th Sept., 1909.*)

LOPHOTES CRISTATUS, Johnson.

In the early part of last month, Mr. W. H. Baldwin, while riding along the shore about 20 miles east of Apollo Bay, noticed what appeared to be a strange fish floundering about in the shallow water. On dismounting, he found it to be a fish about 4 feet long, with an unusually square-shaped head, surmounted by a long, erect spine, and large and slightly prominent eyes, giving to it a rather fierce appearance.

Being afraid to handle it, for fear, as he explained, of being poisoned, he endeavoured to land it by means of a stockwhip he was carrying. Finding the animal altogether too lively, however, he secured a net, by means of which he succeeded in capturing it without serious injury.

The specimen was forwarded to the National Museum, where it arrived in a perfectly fresh and firm condition, although a week had elapsed since its capture.

It proved to be a fine example of a species of the extremely rare Crested Band-fish, *Lophotes*, five species of which have, so far, been described. Of these *L. cepedianus*, Giorna, and *L. siculus*, Swains., are recorded from the Mediterranean; *L. cristatus*, Johnson, from Madeira; *L. capellei*, Temm. and Schl., from Japan; and *L. fiskei*, Günth., from Cape Colony, South Africa, and New Zealand. Of the species already described, the specimen here dealt with agrees most closely with *L. cristatus*, Johnson,* and I have little hesitation in referring it to that species.

From *The Victorian Naturalist* **XXVI**, p. 83, November 9, 1909

The living morphology of the marine snails *Incisura remota* (Iredale, 1924) and *Sukashitrochus atkinsoni* (Tenison Woods, 1877) (Vetigastropoda: Scissurellidae)

Platon Vafiadis

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Abstract
The collection of living specimens of the minute scissurellid gastropods *Incisura remota* (tredale, 1924) and *Sukashitrochus atkinsoni* (Tenison Woods, 1877) has enabled, for the first time, a report on the external morphology of these species. General discussion of the family Scissurellidae is also provided. (*The Victorian Naturalist* **127** (6), 2010, 255–265)

Keywords: Head-foot, operculum, southern Australia.

Introduction

This paper reports on the living morphology of the scissurellid species *Incisura remota* (Iredale 1924) and *Sukashitrochus atkinsoni* (Tenison Woods 1877), both having been described on shell features alone (Tenison Woods 1877; Iredale 1924). The family Scissurellidae Gray 1847 is a world-wide family comprising minute molluscs whose shell possesses a slit in the body whorl. At maturity the slit remains open to the outer lip in some groups, whilst in others it is closed by the outer lip to form a foramen. A spiral groove called the selenizone represents earlier positions of the slit (exceptions are seen in the genera *Ariella* Bandel, 1986 which has a foramen but no selenizone, and *Coronadoa* Bartsch, 1946 which lacks selenizone and slit/foramen — see Geiger 2003; Geiger and Sasaki 2009). The slit facilitates exhalent water movement from the gills and release of waste and reproductive products (Wilson 1993) and is functionally analogous to the slit present in the Pleurotomariidae, the line of open holes in the Haliotidae, and the single hole, midline slit or internal dorsal groove of the Fissurellidae. Typical of such primitive groups, the scissurellid mantle cavity is bilaterally symmetrical, with paired gills and cardiac auricles, osphradia, hypobranchial glands and kidneys, but a single right gonad (Hickman 1998). Sexes are separate and fertilisation is external (Hickman 1998).

As at 2003 there were about 150 described Scissurellidae species, with many more awaiting description (Geiger 2003). Six species occur in Victorian waters: *Incisura remota*, *Incisura auriformis* Geiger & Jansen, 2004, *Scissurella cyprina* Cotton & Godfrey, 1938, *Sinezona beddomei* (Petterd 1884), *Sukashitrochus atkinsoni* and *Sukashitrochus pulcher* (Petterd 1884) (see Geiger and Jansen 2004b; Macpherson and Gabriel 1962).

Methods

Specimens were studied in dishes of seawater using a stereomicroscope at magnifications up to ×45, under fluorescent lighting. Photography used a Canon 300D digital SLR camera with a Canon MP-E65mm f/2.8 1-5X macro photo lens and ring flash, mounted on a stand with a remote shutter release. Shells were drawn at the Marine Invertebrate Laboratory, Museum Victoria, using a stereomicroscope fitted with a drawing tube. Specimens were preserved in 70% ethanol.

Taxonomic placement of examined species

The classification below for the species discussed herein is based on Bouchet and Rocroi (2005) and Geiger (2003). Generic diagnoses are provided by the latter, and synonomies by Geiger and Jansen (2004b).

Family Scissurellidae Gray, 1847
Subfamily Scissurellinae Gray, 1847
Genus *Incisura* Hedley, 1904
Type species: *Scissurella lytteltonensis* Smith, 1894
Incisura remota (Iredale, 1924)
Genus *Sukashitrochus* Habe & Kosuge, 1964
Type species: *Scissurella carinata* A. Adams, 1862
Sukashitrochus atkinsoni (Tenison Woods, 1877)

Abbreviations
a – examined alive; c – complete specimen (shell, operculum, and whole animal), preserved in 70% ethanol; LS: Lynton Stephens collection; MV – Museum Victoria; PV – Platon Vafiadis collection; s – empty shell (beach collected); SEM: scanning electron microscope.

Results
***Incisura remota* (Iredale, 1924) (Figs. 1–3)**
Material examined:
Victoria: Loch Ard Gorge, Victoria, on shallow sub-littoral algae, 16/2/2005 (2c, a, MV F113334). Popes Eye, Port Phillip Bay, Victoria, sub-tidal, 6-12m, on mixed benthic samples: 19/4/2008 (2c, MV F162108), 19/10/2008 (4c, a, MV F162109), 7/11/2009 (24c, MV F162110). Western Port Bay: Point Leo: 12s, 2005-2006 (LS); Honeysuckle Point, Shoreham: 10s, 2005-2006 (LS); Flinders: 2s, 2004-2005 (LS); Cat Bay, Phillip Island, Victoria, in shell sand: 4s, 18/10/2000 (PV); Silverleaves Beach, Phillip Island: 4s, 2006 (LS).

Shell
Length to 1.2mm (Wilson 1993, as *I. vincentiana* (Cotton 1945)). Shell thin, transparent to semi-opaque. Number of whorls approximately 2.5. Protoconch detail not discernible under light microscopy. Spire flattened, body whorl large and auriform in some specimens, in others more globose. Selenizone short, extending

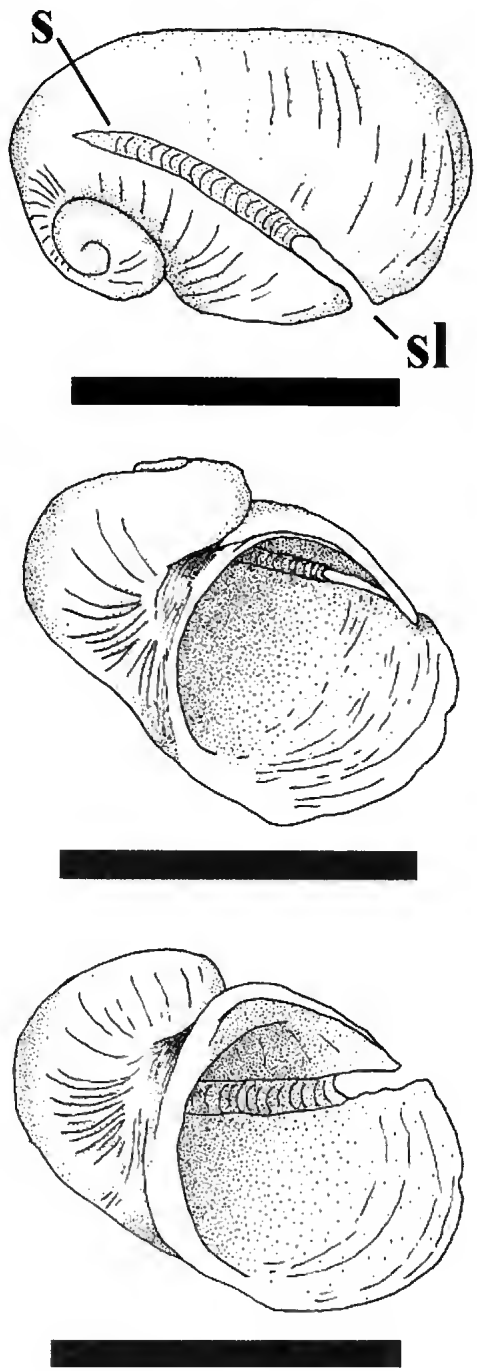

Fig. 1. Shell (Cat Bay, Phillip Island, Victoria, 18/10/2000, PV). Key: s—selenizone, sl—slit. All scale bars: 1.0mm. Drawings by Platon Vafiadis.

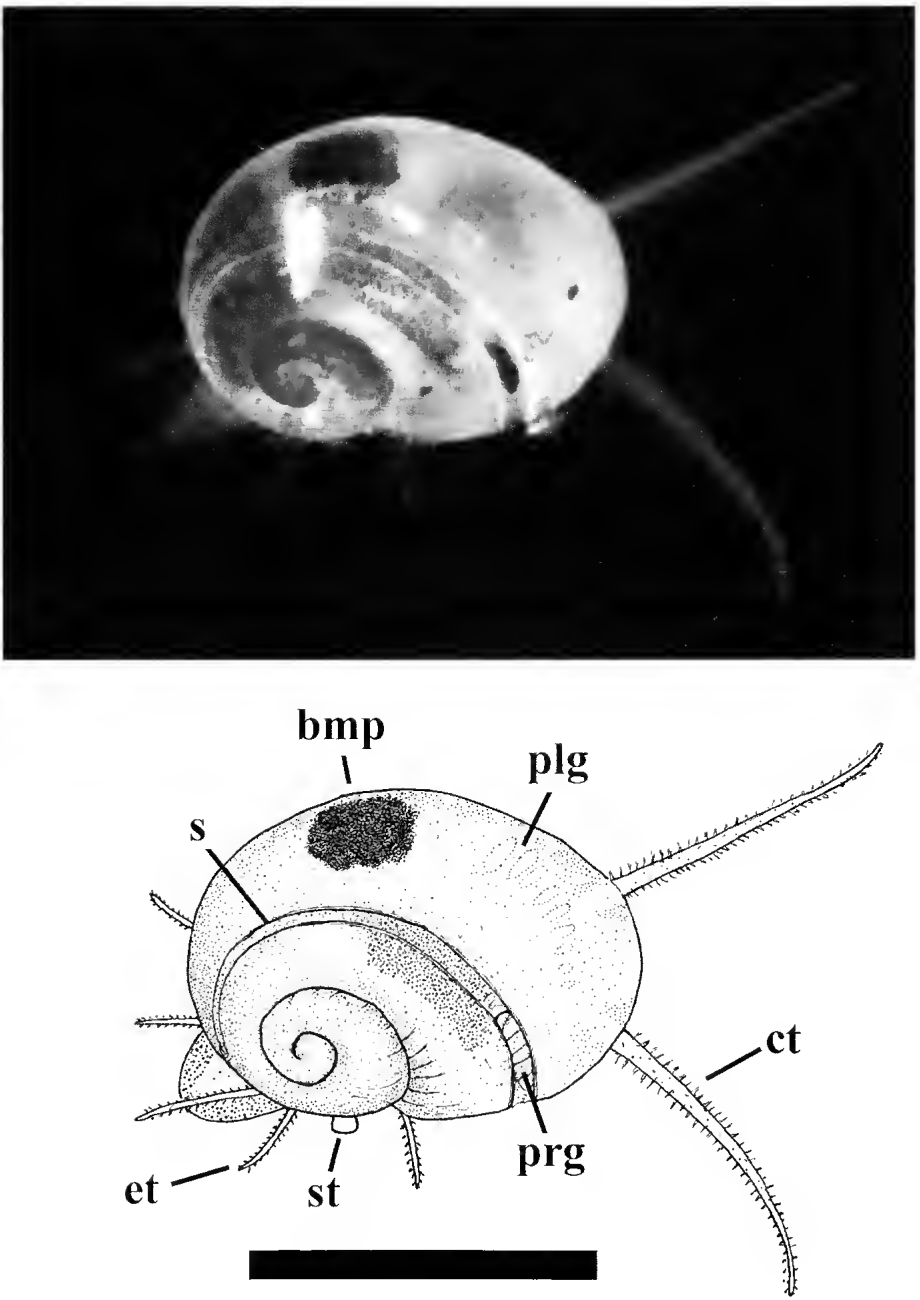

Fig. 2. *Incisura remota* (Iredale, 1924) Living animal, Popes Eye, Port Phillip Bay, Victoria (MV F162109). Key: bmp—black mantle pigmentation, ct—cephalic tentacle, et—epipodial tentacle, plg—pinnules of left gill, prg—pinnules of right gill, s—selenizone, st—smooth tentacle. Scale bar: 1.0mm. Photo/drawing by Platon Vafiadis.

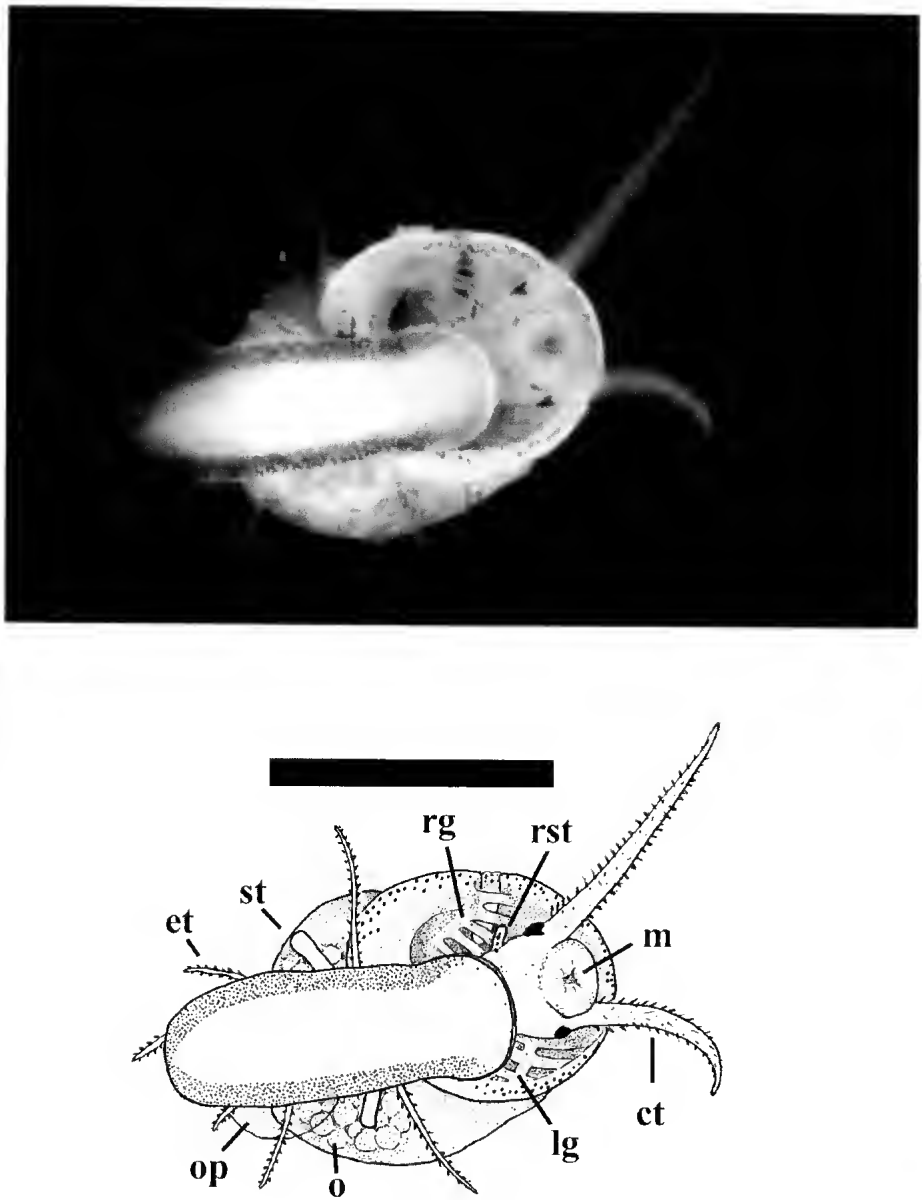

Fig. 3. *Incisura remota* (Iredale, 1924) Living animal, Popes Eye, Port Phillip Bay, Victoria (MV F162109), depicting a different specimen from that of figure 2. Key: ct—cephalic tentacle, et—epipodial tentacle, lg—left gill, m—mouth, o—ova, op—operculum, rg—right gill, rst—right subocular tentacle, st—smooth tentacle. Scale bar: 1.0mm. Photo/drawing by Platon Vafiadis.

to just over half a whorl in some specimens, not elevated, shallow. Slit open. Shell smooth except for microscopic growth lines and faint axial subsutural ribs. Umbilicus narrow, bordered by a low rib. Aperture large, ovate. Operculum thin, transparent, concentrically ridged and covers less than half of apertural area.

Animal

Animal opaque to semi-opaque white. Dense black mantle patch dorsally, persisting after alcohol preservation, with lighter black region around distal selenizone and yellow tissue beneath spire, all visible through shell. Cephalic tentacles long and densely micro-papillate. Eyes black, each at outer base of cephalic tentacle, no eye stalks. Snout and mouth yellowish. Snout rounded, displaying some black spotting, with the pharyngeal apparatus visible centrally. Peri-oral region and mantle edge around aperture speckled thinly in black. Head posterior and inferior to each eye bears short, blunt, smooth, club-like processes, one on each side (sometimes spotted in black), which Bourne (1910) calls sub-ocular tentacles, of which the right side in one specimen is duplicate, hearing two such processes closely applied to each other. Sub-ocular tentacle on right side more anteriorly placed compared to left. Dorsum of posterior head speckled finely and confluently brown. Neck lobes and cephalic lappets lacking. Two gills in roof of mantle cavity, stoutly bi-pinnate, left passing dorsally over the head and larger than right. No pallial tentacles observed protruding from slit. Eggs creamy yellow-white, visible though shell. Three pairs of tapering, micro-papillate epipodial tentacles, with a shorter, dorsoventrally flattened, blunt, smooth tentacle-like structure behind each first epipodial tentacle, its relationship to the latter not examined to detail, but may represent an enlarged basal sensory papilla (see also comments below under *S. atkinsoni*). Basal epipodial sensory papillae otherwise not seen, but could not be definitively excluded. Foot smoothly rounded at both ends. Margin of the dorsal foot lined with black, this under high magnification composed of fine, densely aggregated black spots. Dorsal foot and body marked with black on the right and left sides, and black pigmentation also present around opercular margin. Sole white and smooth. Anterior foot margin not examined closely, but photographs suggest it bears a transverse slit representing an anterior pedal gland. Foot can be longitudinally folded. When crawling, anterior foot does not project beyond snout; in some specimens, posterior foot projects beyond the shell margin. Animal crawls with a slightly jerky motion.

Distribution

Southern Australia, from central NSW south and west to Shark Bay, Western Australia, including Tasmania, at 0–50 m, on algae (Geiger and Jansen 2004b).

Remarks

Gieger (2003) and Geiger and Jansen (2004b) provide SEM images (of the same shell) of *I. remota*, including protoconch detail. *Incisura auriformis* Geiger & Jansen, 2004, the only other *Incisura* recorded from Victoria, is distinguishable by the closed slit (Geiger and Jansen 2004b). The New Zealand species *Incisura rosea* (Hedley, 1904) and *Incisura lytteltonensis* E. A. Smith, 1894 are also similar, but the former has peri-umbilical spiral lirae and a different protoconch microsculpture (Geiger and Jansen, 2004b) while the latter is more auriform with a very short slit and selenizone (see Geiger (2003) where, contrary to caption, *I remota* is in left column, and *I. lytteltonensis* in right column).

Bourne (1910) studied the New Zealand species *I. lytteltonensis*, noting sensory micro-papillae on each of the cephalic tentacles arranged in two rows on either side, three pairs of micro-papillate epipodial tentacles, micro-papillae on the mantle edges and digiform processes lining the mantle slit. Bourne (1910) reported no smooth processes between the first and second epipodial tentacles, as seen here in *I. remota*. The eyes of *I. lytteltonensis* bear a lens and a cornea, and the right sub-ocular tentacle in the single sectioned male was 'enlarged and spatulate in form' rather than digiform (Bourne, 1910). *I. lytteltonensis* has an anterior pedal gland opening 'on the anterior face of the foot in the groove between it and the lower surface of the snout', and many small posterior pedal glands, each opening via its own duct to the posterior sole (Bourne, 1910: 30). Observations herein on pedal gland openings in *I. remota* are insufficient, but photographs suggest that the anterior pedal gland opens to a transverse slit on the anterior foot margin, as in *S. atkinsoni* (see below). Bourne (1910) considered move-

ment in *I. lytteltonensis* of 12 mm in 15 minutes to be rapid. *I. remota* can comfortably move 1 mm in 10 seconds, or 90 mm in 15 minutes, assuming a sustained effort along a straight line.

***Sukashitrochus atkinsoni* (Tenison Woods, 1877) (Fig. 4–9)**

Material examined:

New South Wales: Huskisson: 2s, 8/3/2006 (LS); Quarantine Bay, Two Fold Bay: 1c, a (MV F162111), 1s (PV), both shallow sub-tidal, from amongst sand/silt and *Heterozostera* seagrass, 21/9/2009; Victoria: Western Port Bay: San Remo: 2s, 9/11/2004 (LS); Point Leo: 7s, 2004-2006 (LS); Tasmania: Black River estuary: 10s, 17/10/2003 (PV).

Shell

Length to 2.5 mm (Wilson 1993). Depicted shell has 3 whorls. Dead shell white, semi-opaque. Living shell yellowish-white, semi opaque to opaque. Protoconch smooth on light microscopy. Selenizone extends a little over one whorl, edges prominently raised to form a concave groove; slit enclosed distally to form an elongate foramen. Whorls shouldered, selenizone comprising the shoulder. Area between suture and selenizone with spiral lirae and fine oblique axial sculpture. Whorl anterior to selenizone concave and bearing spiral ribs crossed by fine oblique-axial riblets, bordered abapically by a stronger spiral rib. Below the latter, spiral ridges encircle the prominent umbilicus, themselves crossed by fine oblique axial riblets. Umbilical floor a thin shelf with axial growth lines merging to the columella. Operculum circular, thin, transparent, bearing close concentric sculpture, about two thirds of apertural area.

Animal

Animal white, yellowish beneath apex. Snout bilobed, moderately long. Cephalic tentacles semi-translucent, long, tapering, retractile, somewhat dorso-ventrally flattened and densely micro-papillate. A black eye present at lateral base of each cephalic tentacle. No eye stalk. Postero-inferior to each eye is a solidly cylindrical, smooth, blunt lobe, similar in size on each side. Flattened neck lobes are lacking, as are cephalic lappets. Two gills in roof of mantle, visible on apertural inspection, left

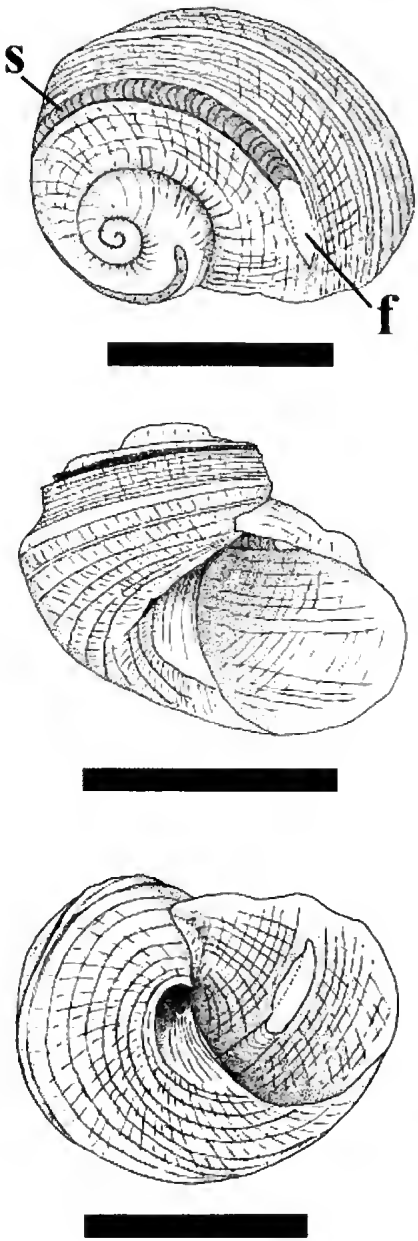

Fig. 4. *Sukashitrochus atkinsoni* (Tenison Woods, 1877) Shell (Black River estuary, Tasmania, 17/10/2003, PV). Key: s—selenizone, f—foramen. All scale bars: 1.0 mm. Drawings by Platon Vafiadis.

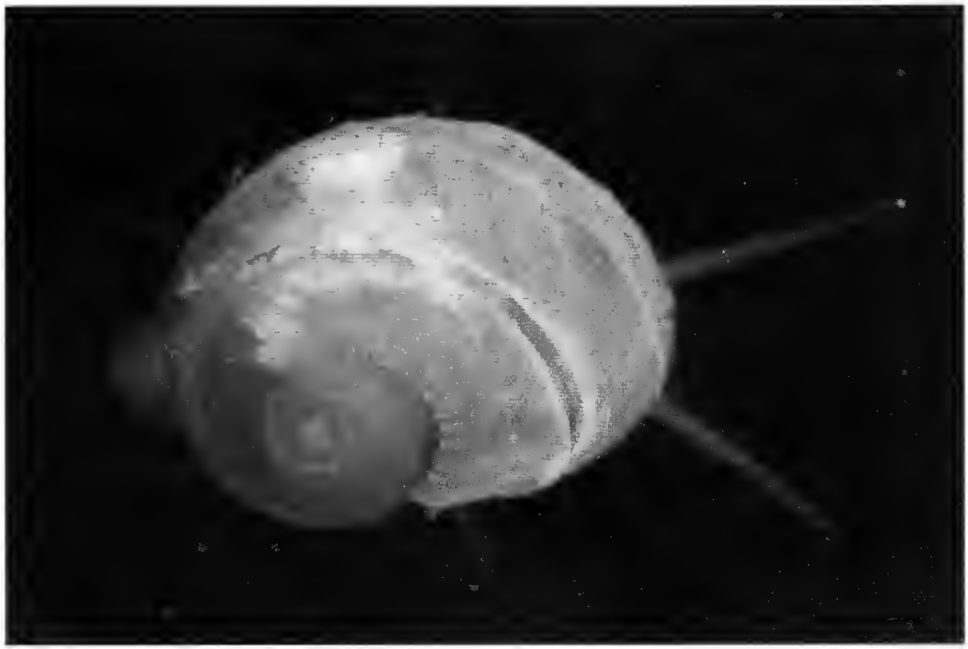

Fig. 5. *Sukashitrochus atkinsoni* (Tenison Woods, 1877) Living animal, Quarantine Bay, New South Wales (MV F162111). Photo by Platon Vafiadis.

gill passing dorsally over head, and larger than right. Gills thickly bi-pinnate and semi-opaque. Medial pinnules longer than lateral pinnules. Lateral pinnules of right gill very short and rudimentary; medial pinnules of right gill extend across distal portion of slit. No pallial tentacles observed. Three pairs of epipodial tentacles, these being thin, tapering, mobile, semi-translucent and densely micro-papillate. From the postero-lateral aspect of each first epipodial tentacle arises a dorso-ventrally flattened, translucent, smooth, bluntly rounded tentacle, long but shorter than first epipodial tentacle. This structure, absent on other epipodial tentacles, may be a (greatly enlarged) basal sensory papilla. Basal epipodial sensory papillae otherwise not seen, but could not be definitively excluded. Third pair of epipodial tentacles longer than anterior pairs. Foot bluntly square anteriorly, rounded posteriorly, with a deep transverse slit at anterior margin, representing a pedal gland. Sole smooth with no visible openings or slits. When crawling, posterior foot protrudes slightly behind posterior shell margin, and epipodial tentacles visible. Crawls with a smooth gliding motion.

Distribution

Found mainly in temperate southern Australia, but ranges from north-east Queensland south and west to north-east Western Australia, including Tasmania, at 0–165 m, under stones, on algae (Geiger and Jansen 2004b) or among *Heterozostera* seagrass (as herein).

Remarks

Geiger and Jansen (2004b:48–50) provide SEM images of several specimens of *S. atkinsoni* including protoconch detail.

Haszprunar (1988) reported on the animal of a *Sukashitrochus* sp., noting large black eyes on short eyestalks, a small 'setose tentacle' (termed epipodial) fused to each eyestalk, with three epipodial tentacles behind this, an operculum on the left side of the foot, and a laterally compressed metapodium which, when flapped with the animal inverted, could generate bursts of swimming. Hasegawa (2004) observed similar swimming behaviour in Japan in *Scissurella staminea* (A. Adams 1862), an undescribed *Scissurella* and *Sinezona plicata* (Hedley, 1899), noting the animals to have

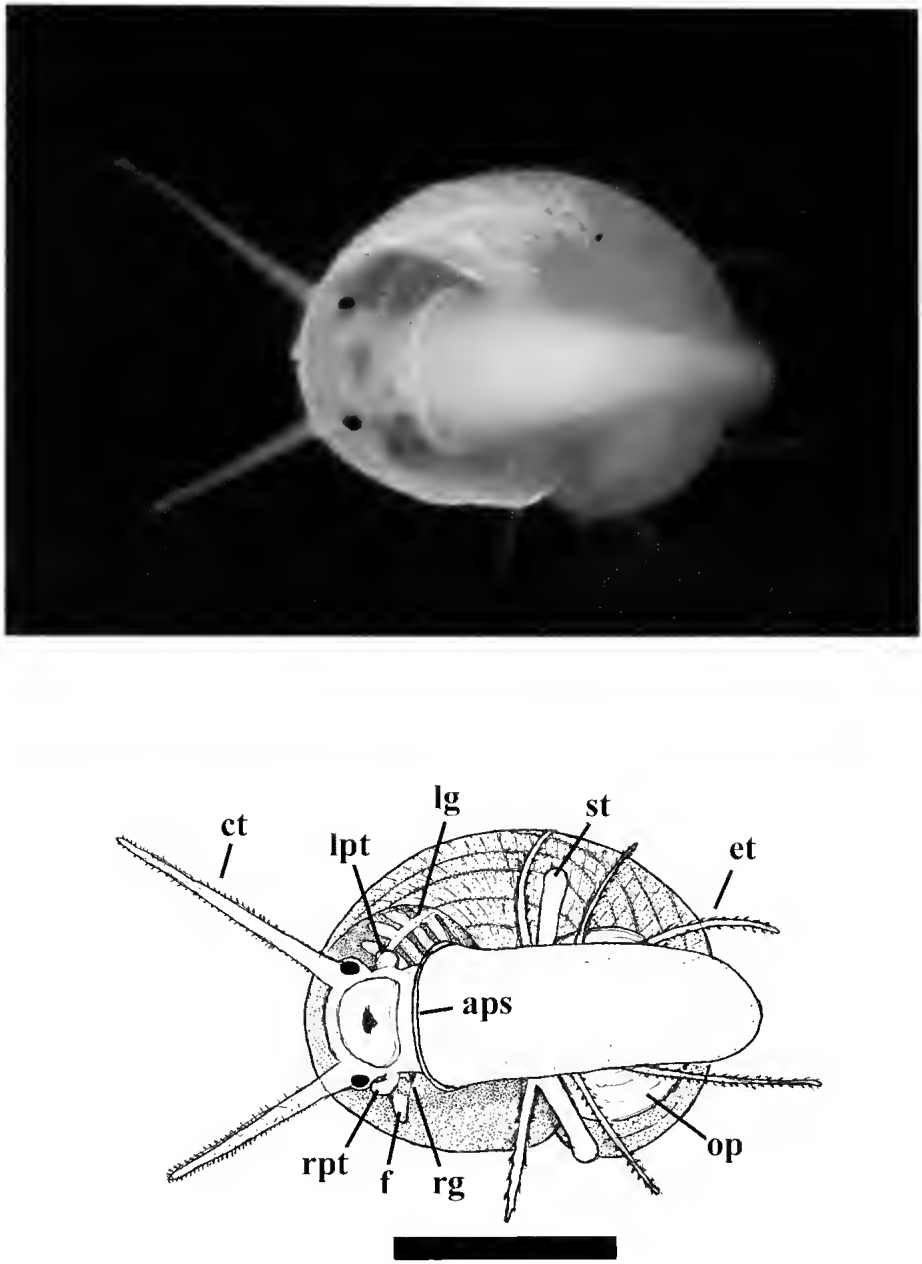

Fig. 6. *Sukashitrochus atkinsoni* (Tenison Woods, 1877) Living animal, Quarantine Bay, New South Wales (MV F162111). Key: aps—anterior pedal slit, ct—cephalic tentacle, et—epipodial tentacle, f—foramen, lg—left gill, lpt—left post-optic tentacle, op—operculum, rg—right gill, rpt—right post-optic tentacle, st—smooth tentacle. Scale bar: 1.0mm. (Photo/drawing by Platon Vafiadis.)

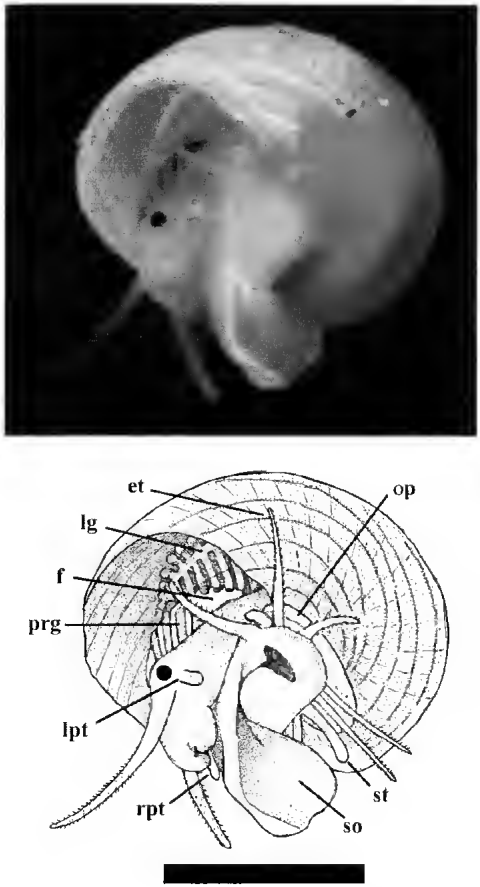

Fig. 7. *Sukashitrochus atkinsoni* (Tenison Woods, 1877) Living animal, Quarantine Bay, New South Wales (MV F162111). Key: et—epipodial tentacle, f—foramen, lg—left gill, lpt—left post-optic tentacle, op—operculum, prg—pinnules of right gill, rpt—right post-optic tentacle, so—sole, st—smooth tentacle. Scale bar: 1.0mm. (Photo/drawing by Platon Vafiadis.)

large eyes and a laterally compressed foot with operculum on the left side. Hickman and Porter (2007) reported swimming in *Scissurella spinosa* Geiger & Jansen, 2004, noting it to have a white head and foot, large black eyes on short eyestalks, reddish-orange eggs in females, a fine line of purple-black pigment granules bordering the sole, and a laterally compressed metapodium (see also Discussion below). Although Geiger (2003) did not dispute Haszprunar's (1988) generic diagnosis of his *Sukashitrochus*, it is questionable for three reasons: first, the similarity of his animal to the swimming species of other genera as discussed; second, Haszprunar's (1988) lack of mention of spiral basal keels on his shell; and third, the lack in *S. atkinsoni*, as reported herein, of a modified foot, left-sided opercular displacement and swimming behaviour.

Discussion and concluding remarks

Little is known on the anatomy, biology and ecology of scissurellid gastropods, with most data based on shell and radula characteristics. Information is, however, gradually becoming available. Reports on swimming in scissurellids (Haszprunar 1988; Hasegawa 2004; Hickman and Porter 2007) note the animals attracted in large numbers to light in order to spawn (Hasegawa, 2004; Hickman and Porter, 2007). Hickman and Porter (2007) observed mass swarming (tens of thousands of snails) and mass broadcast spawning of *S. spinosa* in and around light traps in French Polynesia, the traps being 2 metres off the sea floor. The animals swam to them using the modified metapodium. Male to female numbers were equal. Shells were not sexually dimorphic. Females bore red-orange eggs released from the apertural margin only, whilst males released pale white clouds of sperm through both the foramen and apertural margin (Hickman and Porter 2007). Fifty specimens of *Sinezona plicata* (Hedley, 1899) were also collected in the light traps (Hickman and Porter 2007), confirming Hasegawa's (2004) observation of swimming in this species. Whether Hasegawa's (2004) undescribed swimming *Scissurella* was *S. spinosa* is speculative.

Hickman (1999) reported sexual dimorphism and contact pairing in active *I. auriformis* from Rottnest Island, Western Australia, with the smaller male positioned on the spire and upper body whorl (but adapical the selenizone) of the female, with the right or both cephalic tentacles extending across the female's foramen but never obstructing it (suggesting that eggs are fertilised as they emerge through the foramen). The smaller males lacked selenizone and slit/

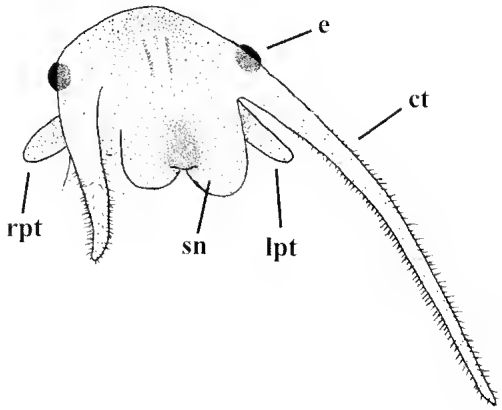

Fig. 8. *Sukashitrochus atkinsoni* (Tenison Woods, 1877) Living animal, Quarantine Bay, New South Wales (MV F162111t).
Key: ct—cephalic tentacle, e—eye, lpt—left post-optic tentacle, rpt—right post-optic tentacle, sn—snout. Drawing by Platon Vafiadis.

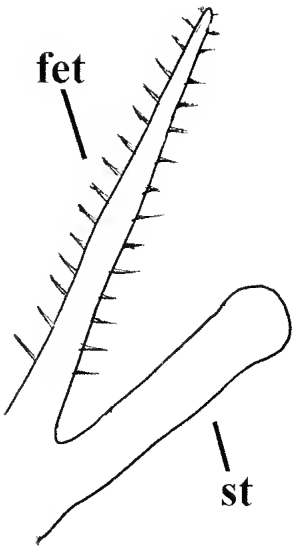

Fig. 9. *Sukashitrochus atkinsoni* (Tenison Woods, 1877) Living animal, Quarantine Bay, New South Wales (MV 162111). Schematic diagram, ventral aspect, of left front epipodial and smooth tentacle.
Key: fet—front left epipodial tentacle, st—smooth tentacle. Drawing by Platon Vafiadis.

foramen, but females at comparative sizes also lacked these features. Possible causes of sexual dimorphism include differential growth rates, differential mortality, or protandry (Hickman, 1999). Burn (2010, unpubl. pers. comm.) observed similar contact pairing in *I. remota* from subtidal algal samples collected 5 February 2006 from Popes Eye, Port Phillip Bay, but notes were not taken on the relative features of the smaller, presumably male, shell.

The Anatomidae McLean 1989, recently separated from Scissurellidae (Geiger and Jansen 2004a), are a closely allied family for which anatomical information is available for comparison to the work herein. The Anatomidae have an open slit with the selenizone placed peripherally on the whorl, and, with rare exceptions, occur only in deep water (Geiger and Sasaki, 2009). They are represented in Victoria by *Anatoma tobeyoides* Geiger & Jansen, 2004 and *Anatoma australis* (Hedley, 1903), species known only from their shell (Geiger and Jansen, 2004a). The South African *Anatoma yaroni* Herbert, 1986 has papillate cephalic tentacles, with each eye on a very short stalk, a non-papillate post-optic tentacle (analogous to Bourne's (1910) subocular tentacle), a non-papillate neck tentacle (interpreted as analogous to the neck lobes of other vetigastropods), one to two micro-papillate pallial tentacles that can protrude through the slit, three pairs of micro-papillate epipodial tentacles (the most anterior

tentacle dividing basally to form 'two tentacles', presumably of similar morphology) with the second and third each bearing a large basal sensory papilla, a papillate mantle edge bordering the slit and two delicate gills similar to those of the northern hemisphere *Anatoma crispata* (Fleming, 1828) (Herbert, 1986). *Anatoma crispata* bears micro-papillate cephalic tentacles, smooth post-optic and neck tentacles (one of each), interpreted as epipodial by Fretter and Graham (1962), and, additionally, at least three pairs of micro-papillate epipodial tentacles, micro-papillate pallial tentacles that can protrude through the slit and two delicate gills with filamentous pinnules (Fretter and Graham 1962). Geiger (2006) shows the preserved animal of *Anatoma janetae* Geiger, 2006 having four pairs of epipodial tentacles and no eyes (owing to its existence at great depth).

It is hoped that simple observations as presented here will contribute to a better understanding of the overall biology of the minute but striking species of this family.

Acknowledgements

I thank Ken Bell, Robert Burn and Lynton Stephens for valued guidance and critical review of the manuscript. Living *Incisura remota* were obtained from Jeanette Watson and Robert Burn (subtidal) and the Marine Research Group of the FNCV (intertidal). Robert Burn shared his unpublished observations of living *I. remota*, and, together with Lynton Stephens, supplied several major references. Lynton Stephens provided dry specimens from his personal collection for study. The Marine Invertebrate Department at Museum Victoria made accessible their microscopes and library, for which I am very grateful. I thank Corey Whisson of the Western Australian Museum for kindly sending me the Hasegawa reference. An anonymous reviewer provided helpful feedback. I also acknowledge and remember the late Clarrie Handreck, whose kindness, guidance and support have made this work also a fruit of his own labours.

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Received 10 June 2010; accepted 28 October 2010

Australian Natural History Medallion 2010

Donald PA Sands *OAM*

Dr Don Sands is presented with the Austalian Natural History Medallion 2010, by Professor Lynne Selwood, President of the Royal Society of Victoria. (Photo by Joan Broadberry).

The winner of the 2010 Australian Natural History Medallion is Dr Donald PA Sands *OAM*, an Honorary Research Fellow with CSIRO Entomology in Brisbane. Although Don retired in 1997, following a career that spanned 30 years as an entomologist at CSIRO, he has continued to he actively involved in a number of major projects that focus on insect conservation. These projects include ecological studies on the natural history of insects and their food plants, and their interactions. This work often takes place within the context of involvement with local community groups.

Since 2004 Don has visited the United States regularly and participated in several biological control projects with staff from the US Department of Agriculture. These natural history projects have included: feasihility studies for controlling American fruit flies with Australian parasitoids associated with the family Oleaceae; surveys of insect herbivores of *Lygodium* ferns (mainly *L. microphyllum*) on Cape York, northern Queensland, Papua New Guinea, Northern Territory and northern Western Australia; development of methods for rearing and testing for European insect herhivores of an invasive weed, giant grass *Arundo*; and the development of new methods to rear a diaspid scale insect and a gall-forming wasp, for use against the target weed. Don's contributions to the rearing of a diaspid scale insect have been acknowledged as saving more than a million dollars in the US.

Dr Sands has a long-standing interest in fire ecology, which has led to his measuring the

impacts of fire on insect biodiversity, initially in New South Wales and then in Papua New Guinea, during a period with the PNG Department of Agriculture, Stock and Fisheries. This focus was continued in Brisbane, where Don monitored the butterflies of Mount Coot-tha for several years, observing major detrimental effects including loss of Lepidoptera species and plants from deliberately lit and 'controlled burns' conducted by the local Council. This work resulted in the publication in 2005 of an advisory document on fire management (a 'Fire Code'), which Don co-authored.

Between 2007 and 2009 Don presented a series of invited lectures in Queensland, NSW and Victoria, on insects and fire ecology. He was an invited participant in the Queensland reviews of threatened species, in the 'Back on Track' seminars and a member of the Conservation Committee (2003-2009). His views were presented also at an insect/fire workshop in Victoria in 2009, which was sponsored by DPI and La Trobe University.

Don's dedication to public education and involvement in natural history studies is evident in his own commitment in these areas. He was a founding member of The Hut Environmental & Community Association (THECA) at Chapel Hill in Queensland, which has sponsored a series of biennial community workshops on a range of environmental topics. Don has assisted in the organizing of these workshops, provided presentations, and published articles in the THECA newsletter. He is also a member of the Moggill Creek Catchment Group and has participated in their habitat and plant nursery activities.

Dr Sands is a regular speaker to a range of natural history groups, including natural history societies, garden clubs, native plant societies and entomological societies. In the past 10 years he has given numerous presentations, including public talks and PowerPoint presentations at environmental events, where he emphasized the importance of the identities and ecology of insects in implementing all conservation programs. Don has also led exploratory and natural history expeditions to places of interest for studying Lepidoptera, including Iron Range (several visits including 2007); Cape York Peninsula (2005); and Flinders Ranges, South Australia (2006).

He is no less committed in his written output for both scholarly and popular audiences. His published work comprises more than 120 refereed articles, books and chapters, of which about 27 have been puhlished within the past 10 years. These more recent papers have concentrated on the natural enemies of insects and weeds, methods for safety testing agents as biological control agents, and taxonomic and insect conservation projects. In the same period, Don has also authored a further 15 popular articles on these subjects, published in newsletters and community publications. These works include *Conservation of Birdwing Butterflies*, published in 2002, which Don edited with Sue Scott.

Don's work on the conservation of the Richmond Birdwing butterfly began in the 1990s, as a conservation endeavour involving schoolchildren. This project enjoyed some success; in 2005 heightened awareness and requests from the community induced Don and Sue to form a new Group, the Richmond Birdwing Recovery Network Inc. (RBRN) involving members of the community in recovery of the butterfly and its rare food plant. Between 2005 and 2009, RBRN grew to have more than 400 members and promoted a number of measures aimed at conserving the iconic butterfly species. These included planting food plant vines to re-establish corridors for the butterfly; studies on in-breeding depression occurring in fragmented habitats; propagation by nurseries of the rare food plant for hahitat rehabilitation; and education programs. Don served as President of RBRN until mid 2009.

Don Sands was nominated for the Australian Natural History Medallion by the Australian Entomological Society for his contribution to biodiversity, conservation and education.

Gary Presland
40 Willliam Street
Box Hill, Victoria 3128

Australian Natural History Medallion Trust Fund

Donations were gratefully received during 2010 from the following:

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David Cheal	30.00

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The medallion is awarded annually to a person who is considered to have made the most significant contribution to the understanding of Australian natural history in the last ten years.

Gary Presland
Secretary
ANHM Committee

Museum Victoria field guides

Museum Victoria's series of field guides to the marine life of Victoria is so *a propos* of the theme of this issue of *The Victorian Naturalist* that it should not fail to be mentioned here. What follows is less a review of the books making up the series than an overview of the series itself, a series of booknotes relating to the constituent parts. The Editors thank the publisher of this series, Museum Victoria, in particular the Managing Publisher Patty Brown, as well as Dr Mark Norman, Head of Science at Museum Victoria, both of whom willingly and readily provided material for the purpose of making readers aware of this series.

Drawing on the wide expertise of the institution's staff—curators and collection managers—as well as Museum Victoria's vast collections, the series provides both an introduction to the subject and a source of further detailed information about the range of marine fauna to be found around our coast, and in adjacent waters. To date four volumes have been published, and four more are scheduled for release in the coming months.

These field guides are aimed at naturalists, beachcombers and environmental scientists; the intent is to enable observers in these groups to identify the marine animals most commonly found along the shore or in shallow waters along the Victorian coast. The series aims to cover the common animals, each book dealing with a different group.

Titles in the series published so far include:

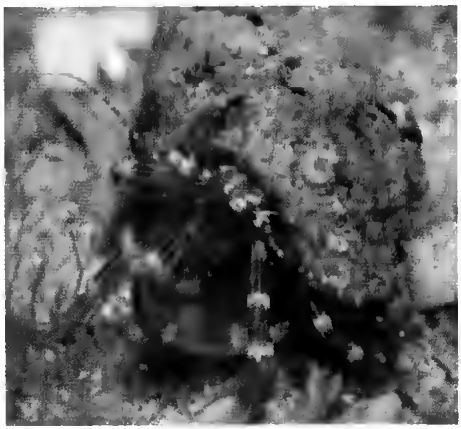
- *An introduction to marine life* by Robin Wilson, Mark Norman and Anna Syme;
- *Crabs, hermit crabs and allies* by Gary CB Poore ;
- *Barnacles* by Gary CB Poore;

The forthcoming titles are:

- *Shrimps, prawns and lobsters* by Gary CB Poore (available in early 2011);
- *Sponges* by Lisa Goudie, Mark Norman and Julian Finn;
- *Bivalves* by Sue Boyd and Mark Norman;
- *Nudibranchs* by Robert Burns;
- *Sea Spiders* by David Staples;
- *Seastars and relatives* by Mark O'Loughlin and Tim O'Hara;
- *Feather Corals* by Jan Watson;
- *Lace corals* by Phil Bock.

In each of the guides, descriptions of the species are accompanied with full colour illustrations and detailed drawings, for easy recognition. Also included are maps, comprehensive reference information, scientific and common name indexes and a glossary.

Museum Victoria is to be commended for this magnificent series of books on a part of the natural world that is a source of fascination, but at the same time a source of mystery, to many people.

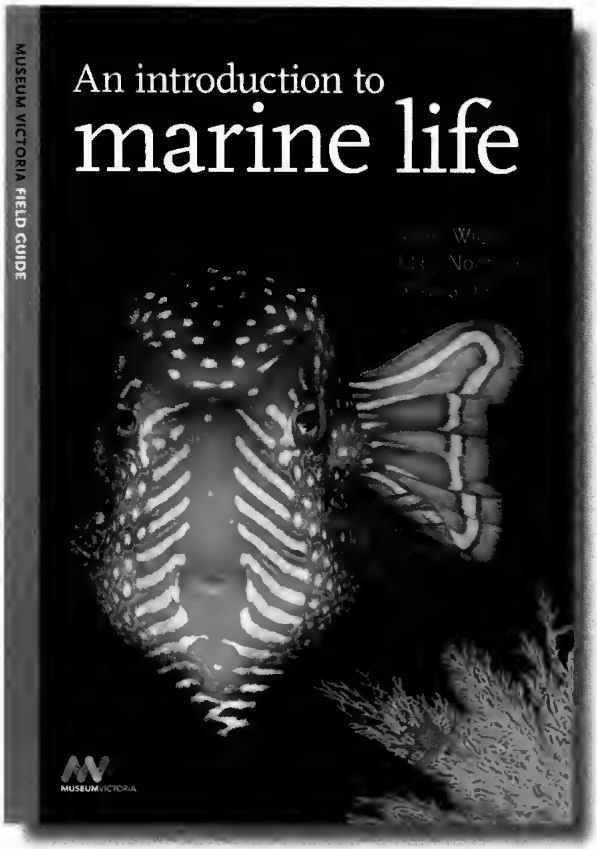


Clarrie's Hermit Crab *Pagurixus handrecki*. Photo reproduced from page 49 of *Crabs, hermit crabs and allies*, with permission of the publisher.

An Introduction to Marine Life

by Robyn Wilson, Mark Norman and Anna Syme

Publisher: *Museum Victoria Publishing, 2007. 176 pages, paperback, colour photographs. ISBN 978 0 9758370 5 4. RRP $19.95*



For many people, the first experience of marine environments is amazement at the bewildering variety of life in the oceans. Without experience or a good guide, the untrained observer cannot identify easily the many different marine plants and animals; cannot tell the difference between a shrimp and a prawn.

Sea anemones and corals, sea stars and sea urchins, octopuses and squids are just a few marine creatures that we never encounter on land or in freshwater. Many other creatures are even less familiar, and it is often difficult for those interested in marine life to learn more about them. The aim of this introductory book is to introduce the diversity of life in the seas and to help newcomers to marine biology recognise the main kinds of marine organisms. The examples selected in this introductory guide focus on Victoria and southern Australia. The emphasis is on animals and plants that are commonly seen by divers, snorkellers, beachcombers, rock poolers, and by anyone with an interest in marine life.

This *Guide* has a simple and easy-to-follow layout, and is divided into two major sections. The first section comprises a series of nine Quick Guides, which are grouped around particular themes. The first four Guides compare and contrast types of creatures that often puzzle people new to identifying marine life:

1 – plants and plant-like animals
2 – organisms that make coral-like growths
3 – worms, slugs and similar animals
4 – jellyfish and other floating animals

The next two Quick Guides treat groups of commonly-encountered marine life:

5 – beach-washed remains and skeletons
6 – species commonly used as fishing bait

The last three treat potentially dangerous and introduced species:

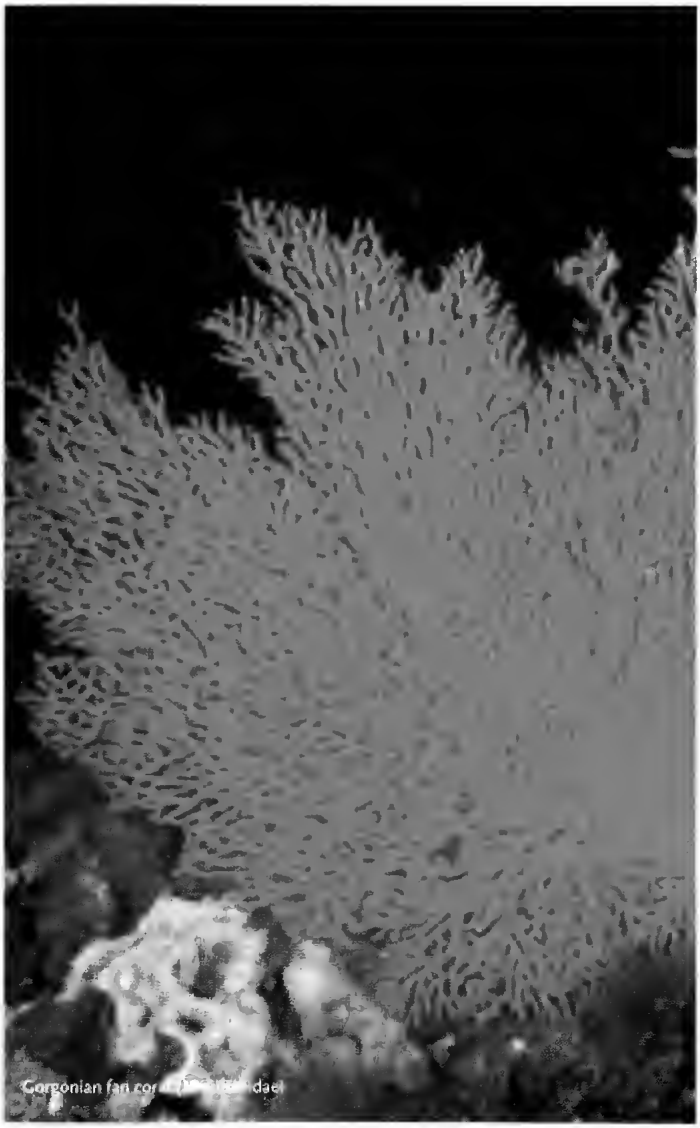
7 – hazardous marine life – stings and venoms
8 – hazardous marine life – poisons, bites and other dangers
9 – introduced species

This first part of the book can be used to help readers find the scientific name and classification for many common creatures.

The second major section of *An Introduction*

is the Gallery of Marine Life, in which all commonly encountered marine creatures are treated in their correct classification. The Gallery of Marine Life covers all creatures that are already mentioned in the Quick Guides, but now related organisms are grouped together. Each Phylum, Subphylum or Class is described and illustrated with local examples. Tips on identification and comments on diversity and ecology are also provided. Those readers who wish to identify marine invertebrates to a greater level of detail are directed to the 'Further Information' at the end of the book, where pointers are provided to relevant publications and other resources.

This initial book in the series of guides is produced in stunning colour, as indeed are all of the volumes in the series.

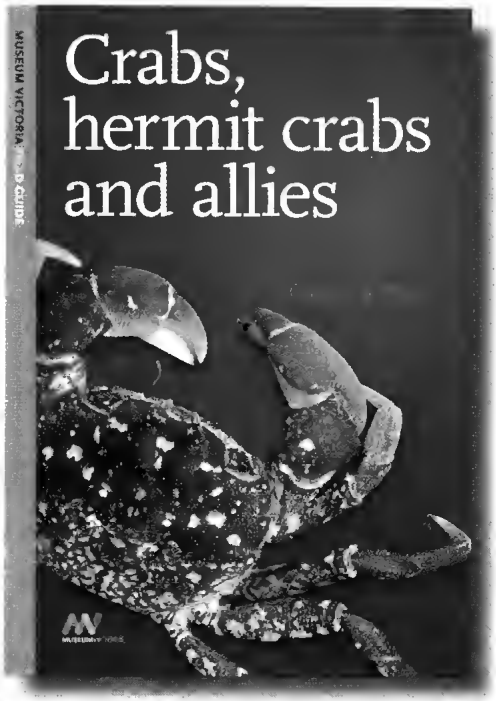


Gorgonian fan coral. Photo reproduced from page 44 of *An Introduction to Marine Life*, with permission of the publisher.

Crabs, hermit crabs and allies

by Gary CB Poore

Publisher: *Museum Victoria Publishing, 2007. 68 pages, paperback, colour photographs. ISBN 978 0 9758370 4 7. RRP $19.95*



Crabs, hermit crabs and allies is the second title of a new series of Museum Victoria field guides to marine life. This guide will familiarise the amateur naturalist, beachcomber, diver and others who have an interest in the marine environment of crabs, hermit crabs and their close relatives. It looks at their environments, what these creatures do, how they behave, their ecology and their diversity.

This guide is a practical and comprehensive guide for the amateur and professional naturalist

Giant Spider Crabs swarm in Port Phillip Bay. Photo reproduced from page 15 of *Crabs, hermit crabs and allies*, with permission of the publisher.

Barnacles

by Gary CB Poore and Anna Syme

Publisher: *Museum Victoria Publishing, 2009. 78 pages, paperback, colour photographs. ISBN 978 0 9803813 5 1. RRP $19.95*

This guide is the third in the series of introductory books on Victoria's marine life and is about marine barnacles. It covers barnacles of mainly south-eastern Australia and begins with information about their biology, habitats and diversity.With a variety of habitats and many distinctive animals, the marine environments of south-eastern Australia fascinate amateur naturalists and divers alike. Field guides such as this one (as well as others in this series) can be helpful in answering questions for those wishing to learn the names and the biology of these animals and to discover what they are called.

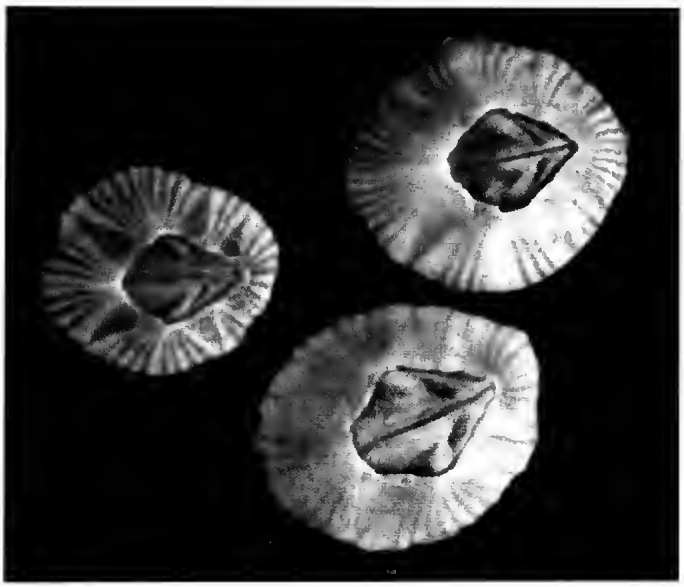
Barnacles are one of the most abundant and obvious animals found in the intertidal zone – that area covered by water at high tide and exposed at low tide. Other barnacles, those that live in the open seas, may be found on the beach. All are enigmatic creatures.

The authors note that barnacles hold a special place in the minds of marine ecologists and evolutionary biologists, because of a connection with Charles Darwin. The famous biologist is credited, along with Alfred Russell Wallace, with formulating the theory of natural selection, which he subsequently set out in Origin of Species. Throughout his life Darwin worked on the taxonomy and biology of barnacles; even today his works remain the basis of our understanding of this group of animals.

General information about the biology, habitats and diversity of barnacles in the region of Victoria is followed by descriptions and photographs of the twenty commonly found species. A key is provided for the identification of common barnacles in this region. This guide also deals with some of the rarer and less visible barnacles, including those that are parasitic on other animals. At the end of the book, a bibliography of relevant references has been compiled for those seeking further information about barnacles.

A description of each animal is accompanied by a colour photograph. A key is also provided for easier identification of common barnacles, with some of the more rare and less visible animals related to barnacles. The endmatter includes both a scientific and common name index, further references and a glossary.

Secret Four-plated Barnacle *Austrominius covertus*. Photo reproduced from page 36 of *Barnacles*, with permission of the publisher.

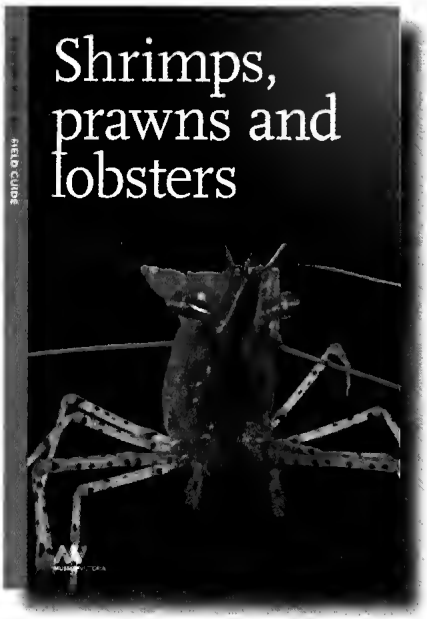


Striped Barnacle *Amphibalanus Amphitrite*. Photo reproduced from page 38 of *Barnacles*, with permission of the publisher.

Shrimps, prawns and lobsters

by Gary Poore

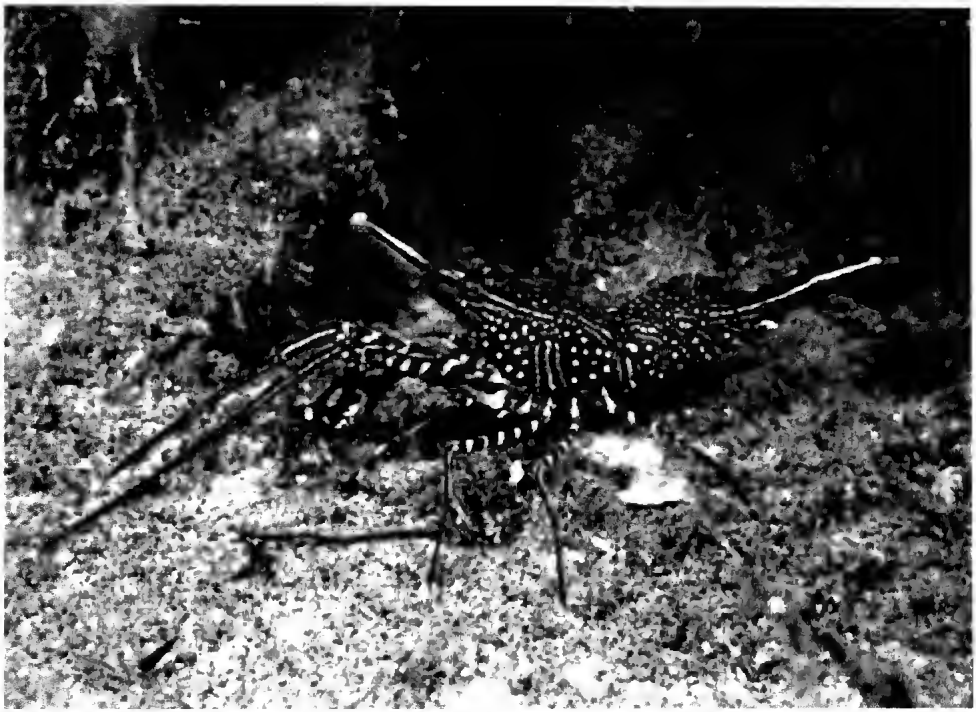
Publisher: *Museum Victoria Publishing, 2009. 78 pages, paperback, colour photographs. ISBN 978 0 9803813 4 4. RRP $19.95*



For most of us, shrimps, prawns and lobsters immediately bring to mind something edible and tasty. Some species are edible but many are small inconspicuous inhabitants living on our shores and in shallow water.

This guide, the fourth in the marine series, focuses only on those small crustacea species known as shrimps prawns and lobsters, and kindred animals, that inhabit marine environments close to shore. These are the species that are likely to be encountered by divers, naturalists and members of the beach-going public, around the Victorian coast. As with other titles in this series, this book is profusely illustrated in colour and includes a description of each animal, as well as information about each animal's behaviour, diversity and ecology. It also includes a glossary of unfamiliar terms.

The Double-banded Hinge-beak Shrimp, *Rhynchocinetes kuiteri*, is one of the most colourful and largest shrimp seen by divers in Victorian waters. Photo reproduced from page 65 of *Shrimps, prawns and lobsters*, with permission of the publisher.



Serrated Hinge-beak Shrimp *Rhynchocinetes serratus* Photo reproduced from page 67 of *Shrimps Prawns and Lobsters*, with permission of the publisher.

American Bumble-bee Shrimp *Gnathophyllum cf. american.* Photo reproduced from page 82 of *Shrimps Prawns and Lobsters*, with permission of the publisher.

Slender-spined Porcupine Fish. Photo reproduced from page 114 of *An Introduction to Marine Life*, with permission of the publisher.

Caulerpa flexilis (Caulerpales) Photo reproduced from page 35 of *An Introduction to Marine Life*, with permission of the publisher.

Soldier Crab *Mictyris platycheles*. Photo reproduced from page 39 of *Crabs, hermit crabs and allies*, with permission of the publisher.

Australasian Nature Photography: ANZANG Sixth Collection

edited by South Australian Museum

Publisher: *CSIRO Publishing, Collingwood, Victoria, 2009. 144 pages, paperback, colour photographs. ISBN 9780643097193. RRP $39.95*

What a pleasure it is to peruse the images in this book, to drool over animal behaviour, marvel at animal portraits and thoroughly enjoying all the quality photographs of nature subjects in Australia, New Zealand, Antarctica and New Guinea reproduced here.

ANZANG is an annual competition of photographs of nature subjects. In 2009 over 1500 photographers from around the world entered the competition in 10 different categories. This book is a compilation of the best photographs in each category.

The first photo is that of the overall winner. This is where judges considered the photographic technique and the aesthetic, artistic and unique qualities of all images.

Next presented is the portfolio prize awarded to the photographer who entered the best portfolio of six or more entries. The photographs by the portfolio winner are all of marine creatures, both in an out of the water.

Following these are the best photos in the categories of entry, beginning with the winner and runner-up in each section. Details given for each photo include the name of the photographer, a title, a paragraph about how the photographer was able to capture the image, where it was taken and details about the camera, model, lens, aperture, shutter speed and supporting equipment used. For the winner in each category there is a short comment by the judges and including why the photo appealed to them.

The first category is animal behaviour where the subjects must be engaged in natural activity. A complete range of species has been presented from birds, to mammals, to invertebrates (terrestrial and marine), from tiny to big—leafhopper nymphs tended by ants, to Keelbacks devouring Cane Toads, a Willie Wagtail attacking an Osprey, to a Humpback breaching, and more. What an appetiser for the next category of Animal Portrait.

In this section the subject must be photographed close-up and occupy at least 30% of the frame. Considering that the subject of the winning photo in this section is a Red-bellied Black Snake the judges' comment 'A brave shot of a dangerous animal ...' is particularly apt. From this impressive start follow many other great portraits: a squid, various birds, a crab, butterflies, an eyehall photo of a Silvereye, stink bugs on a lime tree, mantids, a reptile and a frog.

The Wilderness Landscape category is a collection of photos in which there is minimal evidence of human interference. There are some wonderful ice sculptures from Antarctica featured here as well as intriguing photos of reflections, time exposure of waterfalls, a sand dune at sunset and a pelican at dawn.

The next category is Threatened Animals and Plants. All entries in this category must be accompanied by an official reference verifying the subject's threatened, rare, vulnerable or endangered status. This section can be of a subject in portrait, natural activity or natural habitat.

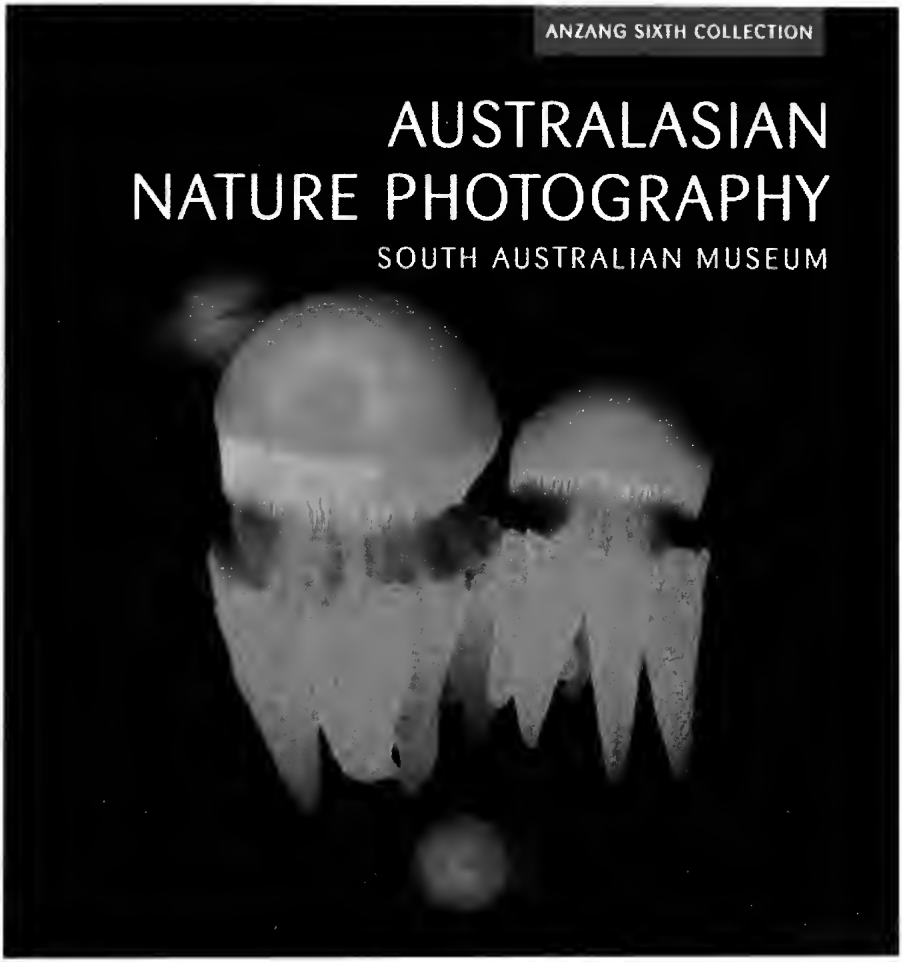
Other categories are: Botanical subject, as portrait or habitat shot; Underwater subject (with the jellyfish on the book's cover as the winner in this section); a category for Black and White including images from all categories; Interpretive Photography, which is designed for photographers who wish to experiment graphically with their images; Our Impact with subjects relating to the danger of plastic bags at sea, impact of fences and pollution.

The last category is for Junior Photography for those under 18. Some stunning images have been captured—starfish, frog, echidna and a butterfly on a crocodile's back—many beautiful images, some with a long lens and some close-up.

I read through every paragraph on every photo and was amazed at the lengths to which many of these photographers would go to get their photos. The results speak for themselves.

This is a beautiful book of wonderful images, an inspiration to all the wanabes who own cameras. Essentially a coffee table book, it is much more than that. Many of these images would be ideal as artwork on a wall, to replace the arty paintings or abstracts that are often seen in built environments.

Anne Morton
10 Rupicola Court
Rowville, Victoria 3178



Thank you from the Editors

The Victorian Naturalist could not be published, and would not be successful, without the enormous amount of time and effort given voluntarily by a large number of people who work behind the scenes.

As always we particularly thank our authors, too numerous to name, who provide us with excellent material for publication.

One of the most important editorial tasks is to have papers refereed. The Editors would like to say 'thank you', therefore, to the following people who refereed manuscripts that were published during 2010:

Melanie Birtchnell
Emma Carlos
Chantal Carrigan
John Chuk
Nick Clemann
Matt Dell
Margaret Elrick
James Fitzsimons
Maria Gibson
Martin Gomon
Dean Hewish
Richard Marchant
Jenny Martin
Kelly Miller
Sharon Morley
Tim New
Anneke Veenstra-Quah
Rob Wallis
Neville Walsh

The Victorian Naturalist publishes articles for a wide and varied audience. We have a team of dedicated proofreaders who help with the readability and expression of our articles. Our thanks in this regard go to:

Andrea Ballinger
Lucy Bastecky
Arthur Carew
Chantal Carrigan
Leon Costermans
Ian Endersby
Aaron Floyd
Ken Green
Pat Grey
Murray Haby
Virgil Hubregtse
Michael McBain
Geoffrey Paterson
Jo Schofield
Rob Wallis

Sincere thanks go to our reviewers for 2010 who provided interesting and insightful comments on a wide range of books and other materials:

Nick Clemann
Ian Endersby
Maria Gibson
Peter Gill
Sarah Lloyd
Anne Morton
Dale Nimmo
Gary Presland
Michael Weston
Desley Whisson

On the production side, thanks are due to:
Ken Bell, who prepares the annual index,
Virgil Hubregtse for editorial assistance,
Hali Ferguson for printing the mailing labels,
Dorothy Mahler for administrative assistance, and
Printers, BPA Print Group, especially Tom Markovski.

Guidelines for Authors – *The Victorian Naturalist*

The Victorian Naturalist welcomes the submission of papers presenting original and significant research. When preparing a paper for publication, please follow the journal style as closely as possible.

Submission of a manuscript will be taken to mean that the material has not been published, nor is being considered for publication, elsewhere, and that all authors agree to its submission.

Authors may submit material in the form of Research Reports, Contributions, Naturalist Notes, Letters to the Editor and Book Reviews. All Research Reports and Contributions are peer reviewed by external referees. A ***Research Report*** is a succinct and original scientific paper written in a form that includes an abstract, introduction, methods, results and discussion. Research Reports should be written in third person. A ***Contribution*** may consist of reports, comments, observations, survey results, bibliographies or other material relating to natural history. The scope of a contribution is broad in order to encourage submission of material on a wide range of topics and in a range of styles. This allows inclusion of material that makes a contribution to our knowledge of natural history but for which the traditional format of scientific papers is not appropriate. ***Naturalist Notes*** are generally short, personal accounts of observations made in the field by anyone with an interest in natural history. These notes also may include reports on excursions and talks, where appropriate, or comment on matters relating to natural history. ***Letters to the Editor*** must be no longer than 500 words. ***Book Reviews*** are usually commissioned, but the editors also welcome enquiries from potential reviewers.

Guidelines for presentation of papers

If submitting by post, three copies of the manuscript should be provided, each including all tables and copies of figures. If submitting by email, only a single copy is necessary. Original artwork and photos can be withheld by the author until acceptance of the manuscript. Manuscripts should be typed, double spaced with wide margins and pages numbered. Please indicate the telephone number (and email address if available) of the author who is to receive correspondence. Submission of manuscripts should be accompanied by a covering letter.

The ***title*** should be concise, interesting and informative and not stated as a question.

Research reports and contributions must he accompanied by an ***abstract*** of not more than 150 words. The abstract should state the scope of the work, give the principal findings and be sufficiently complete for use by abstracting services.

A maximum of five ***Keywords*** should be included, following the Abstract in Contributions and Research Reports.

References are cited chronologically in the text by author and date. All references in the text must be listed in alphabetical order at the end of the paper. Entries in this list must correspond to references in the text.

An electronic version and one hard copy of the manuscript are required upon resubmission after referees' comments have been incorporated. Documents should be in Microsoft Word. **The bibliographic software 'EndNote' should NOT be used.**

Abbreviations

The following abbreviations should be used in the manuscript where appropriate (italicised as indicated): *et al.*; pers. obs.; unpubl. data; pers. comm. (followed by a date); 'subsp.' for subspecies.

Units

The International System of Units (SI units) should be used for exact measurement of physical quantities.

Figures and Tables

All illustrations (including photographs) are considered as figures and will be laid out to fit the width of a page (115 mm) or a column (55 mm) width. **It is important that the legend is clearly visible at these sizes.** Photographs should be of high quality/high contrast which will reproduce clearly. They may be colour slides or colour or black-and-white prints, or digital images. Line drawings, maps and graphs may be computer generated or in black Indian Ink on stout white or tracing paper. The figure number and the paper's title should be written on the back of each figure in pencil. If a hand-drawn figure is scanned it must be done at **a minimum of 300 dpi resolution**.

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Tables must fit into 55 mm or 115 mm. If using a table editor, such as that in MS Word, do not use carriage returns within cells. Use tabs and not spaces when setting up columns without a table editor.

All figures and tables should be referred to in the text and numbered consecutively. Their captions must be numbered consecutively (Fig. 1, Fig. 2, etc.) and put on a separate page at the end of the manuscript. Tables should be numbered consecutively (Table 1, Table 2, etc.) and have an explanatory caption at the top.

Please consult the editors if additional details are required regarding document formats and image specifications.

Permits

Papers reporting work that required permits should quote the apropriate permit type and numbers.

Sequence data
All nucleotide sequence data and alignments should be submitted to an appropriate public database, such as Genbank or EMBL. The accession numbers for all sequences must be cited in the article.

Journal style
A style guide for *The Victorian Naturalist* is available on our website. For further information on style, write to the editors, or consult the latest issue of *The Victorian Naturalist* or edition of *Style Manual for Authors, Editors and Printers* (John Wiley & Sons: Milton, Qld).

Authors are advised to note the layout of headings, tables and illustrations as given in recent issues of the journal. A full stop is followed by a **single space**; **single quotation marks** are used throughout.

In all papers, first reference to a species should use both the common name and binomial. This journal uses capitalised common names for species, followed by the binomial in italics without brackets, e.g. Kangaroo Grass *Themeda triandra*. However, where many species are mentioned, a list (in the form of an appendix at the end), with both common and binomial names, may be preferred. Lists must be given in the order provided below under the heading 'Taxonomic names'.

References
References in the text should cite author and year, e.g. Brown (1990), (Brown 1990), (Brown 1990; 1991), (Brown 1995 unpubl.), (Brown and Green 1990), (Brown and Green 1990; Blue 1990; Red 1990). If there are more than two authors for a paper use (Brown *et al.* 1990). All references mentioned in the text should be included, in alphabetic order, at the end of the text under **References** (see examples below). The use of unpublished data is accepted only if the data are available on request for viewing. Pers. obs. and pers. comm. should not be included in the list of references. **Journal titles should be given in full.**

Leigh J, Boden R and Briggs J (1984) *Extinct and Endangered Plants of Australia.* (Macmillan: South Melbourne)

Lunney D (1995) Bush Rat. In *The Mammals of Australia*, pp. 651-653. Ed R Strahan. (Australian Museum/Reed New Holland: Sydney)

Phillips A and Watson R (1991) *Xanthorrhoea*: consequences of 'horticultural fashion'. *The Victorian Naturalist* **108**, 130-133.

Smith AB (1995) Flowering plants in north-eastern Victoria. (Unpublished PhD thesis, The University of Melbourne)

Wolf L and Chippendale GM (1981) The natural distribution of *Eucalyptus* in Australia. Australian National Parks and Wildlife Service, Special Publications No 6, Canberra.

Other methods of referencing may be acceptable in manuscripts other than research reports, and the Editors should he consulted.

Manuscript corrections
Page proofs are sent to the corresponding author for checking prior to publication. At this stage only minor alterations may be made.

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Taxonomic names
Cite references used for taxonomic names. **Checking species names is the responsibility of authors.** The sources we use as references for articles in *The Victorian Naturalist* are listed below. **Authors should refer to the source used for species names in their manuscripts.** For the books, the latest edition should be used.

Mammals – Menkhorst PW (ed) (1995) *Mammals of Victoria: Distribution, Ecology and Conservation.* (Oxford University Press: South Melbourne)

Reptiles and Amphibians – Cogger H (2000) *Reptiles and Amphibians of Australia*, 6 edn. (Reed Books: Chatswood, NSW)

Invertebrates and Fish – ABRS: <http://www.environment.gov.au/biodiversity/abrs/online-resources/fauna/index.html>

Birds – Christidis L and Boles WE (2008) *Systematics and taxonomy of Australian birds.* (CSIRO: Collingwood, Victoria)

Plants – Walsh NG and Stajsic V (2007) *A Census of the Vascular Plants of Victoria*, 8 edn. (Royal Botanic Gardens of Victoria: Melbourne)

Please submit manuscripts and enquiries to:

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Blackburn, Victoria 3130

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Email vicnat@fncv.org.au
Web www.fncv.org.au

The Victorian Naturalist
is published six times per year by the

Field Naturalists Club of Victoria Inc

Patron: His Excellency, the Governor of Victoria

Registered Office: FNCV, 1 Gardenia Street, Blackburn, Victoria 3130, Australia.
Postal Address: FNCV, Locked Bag 3, Blackburn, Victoria 3130, Australia.
Phone/Fax (03) 9877 9860; International Phone/Fax 61 3 9877 9860.
email: admin@fncv.org.au
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Address correspondence to:
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Yearly Subscription Rates – The Field Naturalists Club of Victoria Inc

Membership category		*Institutional*	
Single	$68	Libraries and Institutions	
Concessional (pensioner/Senior)	$52	- within Australia	$120
Family (at same address)	$90	- overseas	AUD130
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