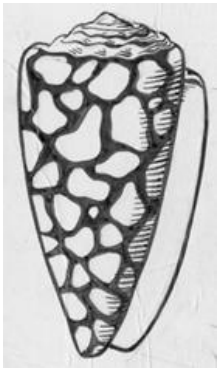

Conus marmoreus Linne

THE MALACOLOGICAL SOCIETY
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VICTORIAN BRANCH BULLETIN

(Mailed to financial members of the Society within Victoria)

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VIC. BR. BULL. NO. 302 JUNE- NOVEMBER 2020

NOTICE OF MEETING

Our Annual Meeting is due to be held on Tuesday 17th November at the Melbourne Camera Club Building, cnr. Dorcas & Ferrars Sts South Melbourne at 8pm.

This meeting will only go ahead if COVID-19 restrictions are lifted . Members will be advised

Due to COVED-19 restrictions the 18th August and 20th of October meetings were cancelled.

This issue is No.3 for the year instead of the usual 5 .

The next Bulletin is due February 2021.

Currently Branch Bulletin issues from VBB169- 288 can be accessed via the Society's website which includes an index 1-276 . http://www.malsocaus.org/?page_id=91

Bulletins prior to 169 and after 289 can be obtained from the editors in PDF form on request.

Secretary / Treasurer Michael Lyons Tel. No. 0428 600 615

Penion mandarinus & Penion maximus

Whelks of the Buccinid genus *Penion (Austrosipho* in *Marine Molluscs of Victoria*) are represented by two species in Victorian waters: *Penion mandarinus* (Duclos, 1832) and *Penion maximus* (Tryon, 1881). Both species have large shells and are frequently taken by trawlers operating off the south eastern Australian coast. *P. maximus* has the more limited geographic distribution, ranging down the east coast of Australia from southern Queensland to Tasmania, whereas *P. mandarinus* is more widespread, being found in eastern Australia from southern Queensland down to Tasmania and across to the western end of the Great Australian Bight (Wilson 1994).

Penion maximus is the larger of the two species, attaining a size of up to 260mm, and shells are generally obtained from deeper water; however, they can be procured in living condition partially buried in silt, from quite shallow depths (<30 metres) in the relatively turbid waters towards the southern end of their range in the D'Entrecasteaux Channel, south of Hobart. *P. maximus* shells are relatively stable in form and colouration (Fig. F) and are characterised by having a high spire, long siphonal canal and sharply angled whorls.

Penion mandarinus is smaller, attaining a maximum size of around 180mm, and can be found from the intertidal zone down to depths of 600 meters. Shells found intertidally are usually hidden under rocks and amongst weed on reef and (in my experience) are usually juvenile shells to a maximum of around 50-60mm with thin outer apertural lips. The shells of this species are quite variable, which has resulted in a number of different forms being described as separate species, including *Austrosipho oligostira*, *Austrosipho waitei,* and *Austrosipho grandis*; however, Ponder (1973) found it impossible to draw consistent distinctions between the various 'species' and regards them as all the one species.

P. mandarinus are not infrequently encountered whilst diving in Westernport and Port Phillip Bays and although active during the day, are more commonly encountered at night. Specimens are usually larger than those seen intertidally and are found either crawling or partially buried in the sand.

I have found that shells found on open ocean shores and at the southern end of the bays to be the "typical shallow water form" (Fig. C, D) having whorls with shoulders that range from smooth to nodulose and patterned with fine, slightly raised chestnut spiral chords separated by fine straw-coloured interstices, with the early whorls becoming uniform straw coloured as they approach the protoconch. In Westernport they are much more variable.

At Flinders jetty the sand is clean and flushed with clear oceanic water and shells found there are the typical shallow water form. Further into the bay at Stony Point, where the seafloor is siltier, the shells are quite different and range from strongly angulate, uniform off-white coloured shells (Fig. A) to tan shells with wide diffuse brown bands on the shoulder and middle of the body whorl (Fig. B). The small, smooth shouldered *oligospira* (Fig. E) form with a short anterior canal can be found on reef in shallow water at Port MacDonnell.

Both species are carnivorous, but I have never observed them feeding, despite "lifting" nearly every specimen I find to see if they are eating anything. They are preyed upon by the Fasciolariid, *Australaria australasia*. Don Cram illustrated the radulae of the typical shallow water form of *P. mandarinus* from Somers and the *oligostira* form from Port MacDonnell in VBB. 301.

Michael Lyons

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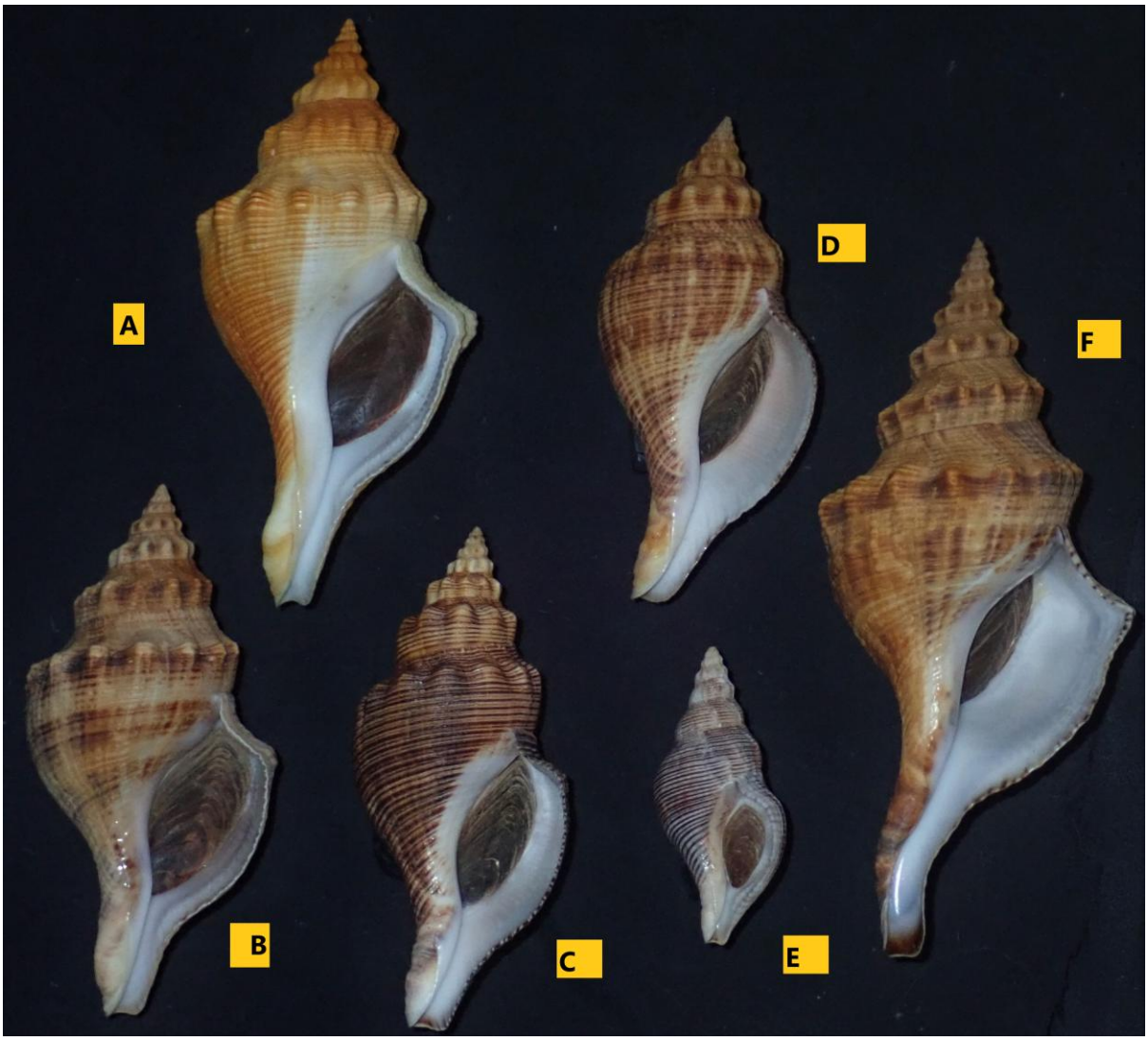

Penion mandarinus - A: uniform white (with substrate infused "rust") 111mm, Stony Point; B: "Brown banded" form 103mm, Stony Point; C: Typical shallow water form 98mm, Queenscliff; D: Typical shallow water form (with smooth whorls) 92mm, Flinders; E: "*oligostira*" form 58mm, Port MacDonnell, S.A.; F: *Penion maximus* 140mm, D'Entrecasteaux Channel, Tasmania

Penion mandarinus out hunting at night, Blairgowrie.

Some noble *Nepotilla* Hedley, 1918 (Gastropoda: Conoidea: Raphitomidae) from Cowes Beach, Phillip Island

Under the right conditions, fine drift lines on the sandy shoreline at Cowes Beach, Phillip Island can yield many interesting micromolluscs. A sample of fine grit from this locality collected on 26 June 2019 was no exception, and the focus here is to show and comment on three species of *Nepotilla* Hedley, 1918 from it: *Nepotilla excavata* (Gatliff, 1906), *Nepotilla microscopica* (May, 1915) and *Nepotilla minuta* (Tenison Woods, 1877). Specimens were photographed via a digital SLR camera attached to a compound microscope, with LED lighting for illumination. Multiple images of a given specimen were taken at different focal planes and collated images were 'stacked' using the program Helicon Focus 7 (Helicon Soft Ltd, 2000-2020). The adult *Nepotilla minuta* specimens shown below were an exception, being large enough to photograph via a digital SLR camera and the Canon MP 65mm X5 macro lens with ring flash.

***Nepotilla excavata* (Gatliff, 1906)**

This is a striking shell but the type drawings in Gatliff (1906; reproduced below) are not very accurate, appearing as though the whorls are flattened with punched-out oblong cavities creating a cancellate pattern, and showing no protoconch or posterior sinus detail (the turretting also seems too extreme). Monger (2014: 67) shows a photograph of the holotype (in Museums Victoria, registration number NMV F.603, from Portsea, Victoria), which looks to be in very good condition.

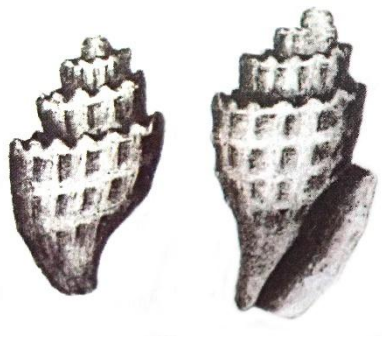

Figure 1: *Nepotilla excavata* type drawing from Gatliff, 1906, plate 1, figs 1 and 2

Two specimens were collected on 29 June at Cowes, both of which are shown below. When fresh, the shell is shiny, semi-opaque, white, with some yellowish-orange colour anteriorly and also at the sutures and protoconch. The protoconch has fine spiral sculpture and is of about 1 and 1/3 whorls before transition (arrowed at lower right image of Fig. 2 below) to teleoconch sculpture occurs. The teleoconch has strong axial ribs that create a rather sharp shoulder close to the suture so that the latter appears somewhat excavate, and the axial ribs are crossed by quite strong spiral ribs creating a cancellate pattern. The posterior sinus is prominent.

Figure 2: *Nepotilla excavata*, Cowes Beach, Phillip Island, 29 June 2019. Shell length 1.4 mm (in the author's collection). Whole-shell images are to scale with each other.

Figure 3: ***Nepotilla excavata*****, Cowes Beach, Phillip Island, 29 June 2019. Shell length 1.5 mm (in the author's collection).**

Nepotilla microscopica **(May, 1915)**

This is another striking species which, as in the case of *N. excavata*, is hard to confidently identify if one relies only on the type drawing (May, 1915, pl. 1, fig 2, reproduced below), which is deceptive in that it depicts the axial ribs as being very narrow (which they are not – they are basally broad and taper to a narrow edge), as well as showing very fine but quite distinct spiral sculpture on the teleoconch (the teleoconch spiral sculpture is not at all distinct and I have never observed it in any examined specimen). In May 2014, staff at the Invertebrate Marine Section of Museum Victoria allowed Alan Monger and myself to photograph some paratypes using their camera-equipped optical microscope (shown below). These seem to agree with the beached material discussed here.

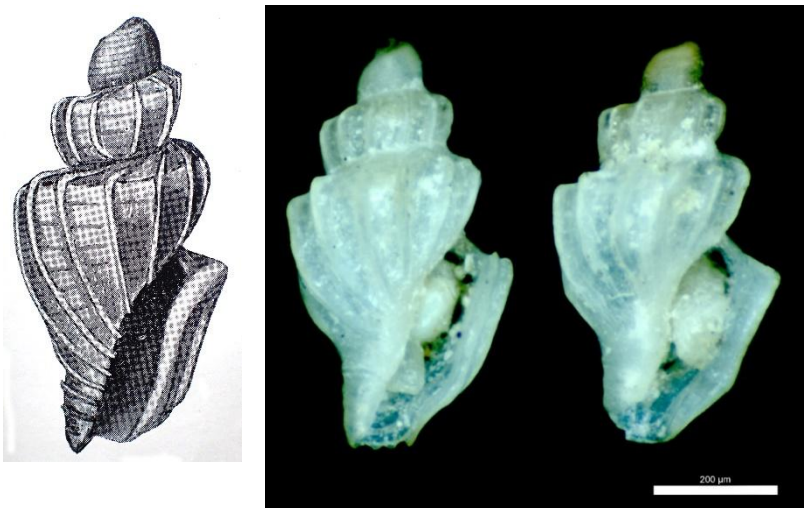

Figure 4: ***Nepotilla microscopica*** **(May, 1915). At far left, type figure in May (1915). At right, photograph of paratypes in the Museums Victoria Collection, registration number NMV F.30496 (NB. the stated scale bar for the photograph is 200 µ but I suspect that this is incorrect and more likely to be 400 µ).**

Five specimens were collected on 29 June 2019 at Cowes, one of which is shown below. When fresh, the shell is shiny, semi-opaque, white, with a yellowish-orange protoconch and first teleoconch whorl. The protoconch has very fine spiral sculpture. The teleoconch has strong axial ribs that continue over the fairly high shoulders onto the flatly sloping plateau at the adapical end of the whorl, fading towards the suture line.

Under the microscope, spiral teleoconch sculpture could not be seen on any of the specimens (despite them being in good condition), nor did I see any on the paratypes held in Museum Victoria when I examined them there in 2014, nor have I seen any in other specimens in my collection. An internet search for a holotype photograph to check it for this feature was unsuccessful.

Figure 5: *Nepotilla microscopica* (May, 1915), Cowes Beach, Phillip Island, 29 June 2019. Shell length 1.3 mm (in the author's collection). Whole-shell images are to scale with each other.

***Nepotilla minuta* (Tenison Woods, 1877)**

This elegant species is more common at this locality compared to the preceding ones and is larger, the biggest collected sample from the batch (so far) measuring 3.5 mm. Nineteen specimens have so far been sorted from the batch of 29 June at Cowes, two of which are shown below (figs. 6 & 7).

When fresh, the shell is shiny, opaque, creamy yellow, yellowish-pink, yellowish-brown or brownish-red in colour, elongate with evenly rounded convex whorls. Most specimens are darker at the apex and anteriorly around the apertural half of the last whorl . The protoconch has fine spiral ribs (about 8) and is of about 1 and 3/4 whorls before terminating at a varix, beyond which transition (arrowed at right-most image of Fig. 5 below) to teleoconch sculpture occurs. The teleoconch bears strong spiral ribs with fine somewhat oblique axial riblets between them in the interstices. The posterior sinus is not deep.

Monger (2014: 68) points out that *Nepotilla mimica* (Sowerby 1876) may be a synonym, but that the latter does seem to have more spiral ribs on the teleoconch – see the type photograph of *N. mimica* in Monger (2014: 68), and illustrations of both species side by side in May (1923: 76, pl. 36, figs 16, 17).

Figure 6: *Nepotilla minuta* (Tenison Woods, 1877), Cowes Beach, Phillip Island, 29 June 2019. Juvenile specimen, shell length 1.0 mm (in the author's collection). Image at right is an apical view, with arrow marking the varix present at the protoconch-teleoconch transition (the latter also visible in the middle image above). Whole shell images are to scale with each other.

Another specimen much like *N. minuta*, collected from the same Cowes locality but on 21 November 2019, is shown in Fig. 8. This shell is uniformly coloured, seems more elongate, has an additional spiral rib per whorl than the shell shown in Figure 7, and has slight shouldering to the whorls. It does not quite look like *N. mimica* to me; if not, the question is whether it is a variant of *N. minuta*, or whether it is undescribed. Any thoughts would be welcomed on this question!

Figure 7 (above left): *Nepotilla minuta* (Tenison Woods, 1877), Cowes Beach, Phillip Island, 29 June 2019. Shell length 3.5 mm (in the author's collection).
Figure 8 (above right): *Nepotilla* cf. *minuta* (Tenison Woods, 1877), Cowes Beach, Phillip Island, 21 November, 2019. Shell length 3.6 mm (in the author's collection).

Discussion:

Raphitomidae Bellardi, 1875 is the largest and most variable family in the Conoidea in terms the number of species it contains, as well as its vertical range of occurrence in the oceans, being found from intertidal to hadal depths (Bouchet, Kantor, Sysoev and Puillandre, 2011: 286). Within their classification, Bouchet, Kantor, Sysoev and Puillandre (2011: 273-274, 286) placed *Nepotilla* in Raphitomidae based on correlation of radula morphology and molecular sequencing data (in members of the genus so studied). It is a separate question, however, of how well defined the genus *Nepotilla* is – Hedley (1922: 335) notes it to be composed of shells of minute size and few whorls, having a spirally sculptured protoconch and a turreted spire.

A turreted spire, however, is not a feature of either *N. mimica* or *N. minuta*, which also have more than a few whorls, and their protoconch sculpture, albeit spiral, is vastly different to that of *N. microscopica* and *N. excavata*, so might *Nepotilla*, as currently defined, be polyphyletic? Only anatomical and molecular sequencing work with each member of the genus will be able to reliably answer this question.

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Platon Vafiadis

The radulae of the family Naticidae and some interesting observations

Naticidae are a cosmopolitan family of predatory burrowing marine gastropods feeding mainly on bivalves by boring a neat hole in the shell to gain access to the prey flesh. This is achieved by "alternate application of the predator's radula and accessory boring organ (ABO) to bore a hole in the shell. The ABO is found on the ventral surface of the proboscis The ABO secretes a complex mixture of presumed enzymes, chelators and inorganic acid (HCl) in a saline hypotonic solution which effects dissolution of the shell prey layers. The radula is protracted and scrapes at the surface of the bore hole (Kabat 1990)". When drilled the proboscis is inserted into the bore hole to ingest the prey.

Although this process is well documented it led me to wonder what effect this process had on the radular teeth as they have a dual purpose. The radula is taenioglossate (7 teeth per row) similar to cowries, but with a central tooth of different construction. A long dagger shaped cusp flanked by two smaller ones extend from the top of the tooth with two basal denticles towards the lower edge. From the lower outer edges two additional denticles extend outwards to provide additional scraping capacity.

The normal process of replacing teeth as they wear when entirely used for consuming flesh is quite obvious when viewing under the microscope, but an examination of two species of naticid's from my collection proved to be most interesting. The prominent cusp on the central tooth was found to be worn completely away on up to 10 teeth on the row with at least 6 progressively less worn until a complete cusp was evident. It appears that this cusp has a primary role of drilling, leaving the remaining denticles to scrape the flesh to consume the prey. Although other carnivorous molluscs such as nassariids and buccinids have similar dagger like cusps they do not show the signs of wear so obvious with naticids, but some of the cusps may break off before the complete tooth is detached, (Refer VBB 301 p.6 *Penion mandarinis* radula).

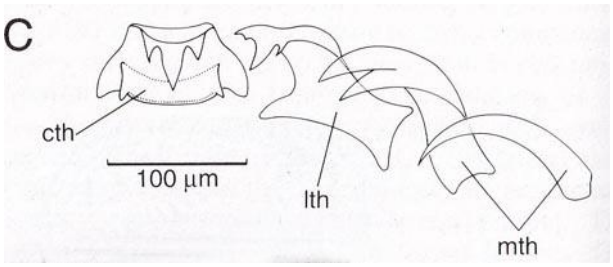
Top section of radula showing completely and progressively worn teeth

.

Shell and radula of *Polinices sordidus* (Swainson, 1821)
from Welchpool Victoria : Coll 18/2/1992

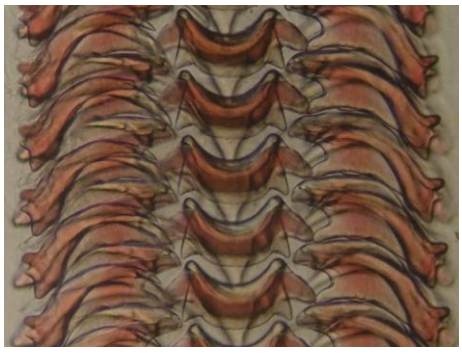
Lower third section of the radula showing complete tooth form
Radula sealed in Aquamount and stained with Lignin Pink on 3/3/1992

Shell and radula of
Polinices powisiana (Récluz,1844)
Coll. 14/7/1999 at Dingo Beach Queensland

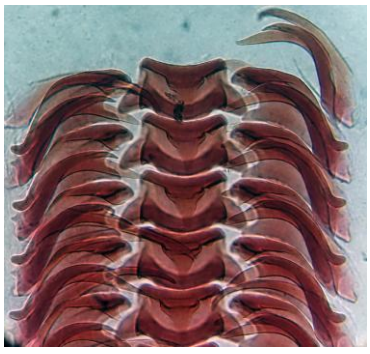


Half a transverse row of radular teeth
of *Euspira catina* (da Costa, 1778)
after Cernohorsky 1971

A



B



C

A : top of radula showing progressive wear of the primary cusp.

B : middle of radular ribbon.

C : lower section of radular ribbon

Radula sealed in Aquamount and stained with Lignin Pink on 9/1/20.

The lower section (about one third of the ribbon) usually absorb and retain the stain . After that the teeth become mineralized (hardened) and may not absorb or retain the stain.

The radula of *Polinices sordidus* mounted 28 years ago is an interesting example of how the stain reacts to the mountant and changes colour over time.

Reg No	Species	Shell size mm	Radula length mm	Radula width mm	cth width µm	cth height µm	No of rows	Rows /mm
G.3	*Polinices sordidis*	25.3	5.0	390	115	55	82	16.5
G. 62	*Polinices powisiana*	28.1	7.3	530	200	85	81	11.2
µm = microns to the nearest 5 : cth = central tooth (lth = lateral tooth , mth = marginal teeth as per Cernohorsky 1971 diagram)								

Don Cram

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Glaucus* and *Glaucilla

Species of the deep-blue-coloured oceanic nudibranch genera *Glaucus* and *Glaucilla* often wash ashore after strong onshore winds along the south-eastern Australian seaboard. Two species are reported from the far-eastern area of Victoria (Burn, 2015).
At the time of compiling *Nudibranchs and Related Molluscs* (Burn, 2015), the genus *Glaucilla* had been synonymized with the older genus *Glaucus* and its type species *marginatus*, divided into four separate, but indistinguishable , species, each consistent with the ocean basins of the Indo- West Pacific and internal morphology (Churchill et al, 2014). Now the wheel has turned a little further and *Glaucilla* been re-established as a separate genus (Martynov et al, 2019). Therefore we now have the larger, cosmopolitan *Glaucus atlanticus* Forster, 1877 and the smaller dark blue southern Pacific *Glaucilla bennettae* (Churchill, Valdés & Ó Foighil, 2014).

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R. Burn

A Report of Corbicula (*Corbiculina) australis* (Deshayes, 1830) Heterodonta: (Cyrenoidea) (Cyrenidae) from Hazelwood Pondage, Victoria, Australia.

Corbiculina australis (Deshayes, 1830) is an additional species found at the Hazelwood Pondage, since my article in VBB298, August/September2019.

Introduction

The Heterodonta Family of *Corbicula australis* has wide distribution down the Eastern States into Victoria and spasmodically across the Top End. The first known finds of *Corbula australis* found in Hazelwood Cooling Pond are presented here. The cooling pond also known as Hazelwood Pondage, was used as a cooling system to cool the turbines, and thus the water temperature was tepid, but with the closure of the power station and the systematic draining of the remaining water the water is now cold. The area is now closed and public access is now denied.

Material and Methods

Specimens of *Corbicula australis*, an endemic and freshwater mussel were collected from Hazelwood Pondage in 2019. The specimens collected in pairs were deemed to be fresh dead were collected on a solidified muddy substrate on the Southern and Western side of the pond. Specimens were identified from *Smith & Kershaw and Atlas of Living Australia. & Australian Freshwater Molluscs*

Description:

Thick, heavy oval shaped pale brown to yellow shell, oval and sculptured with prominent concentric ridges. Shell has a fibrous periostracum (outer coating or 'skin') and is nacreous (mother of pearl). Shell 20mm across,

Sizes:

The sizes examined ranged in size from 10.5mm to 18.5mm in length to 8.5mm to 16mm in width.

Synonyms: *Cyclas nepeanensis* Lesson, 1831; *Cyrena debilis* Gould, 1850; *Corbiculina ovalina* Deshayes, 1855; *Corbicula minor* Prime, 1861; *Corbicula angasi* Prime, 1864; *Corbicula rivina* Clessen,1877; *Corbicula sublaevigata* Smith, 1882; *Corbicula deshayesii* Smith, 1882; *Corbicula desolata* Tate, 1887; *Corbicula faba* Bullen, 1904; *Corbicula permena* Iredale, 1843; *Corbiculina esculenta* Iredale, 1943; *Corbiculina mussoni* Iredale, 1943; *Corbiculina subovalina* Iredale, 1943; *Corbiculina aramita* Iredale, 1943; *Corbiculina semara* Iredale, 1943; *Corbiculina finkeana* Iredale, 1943;

Eddie Beulke,

Reference:

Beulke, E 2019, Hazelwood Pondage Closure . *Victorian Branch Bulletin of the Malacological Society of Australasia* . 298: 2-3.

Eddie Beulke, June 2020

M.S.A Victorian Branch Financial Statement 31/01/2020

Balance as at 31/01/19		$1876.93
Receipts		
Bank Interest	$8.38	
Shell sales	$13.00	
Subscriptions received	$75.00	
	$96.38	
		$96.38
		$1973.31
Expenses		
Subscriptions forwarded	$140.00	
Room rental	$250.00	
	$390.00	
		$390.00
Balance as at 31/01/2020		**$1583.31**

Michael Lyons (Hon.Sec/Treasurer)