

# NEWSLETTER

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## Psychedelic sea slugs dominate the third Lord Howe Island Sea Slug Census

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The Sea Slug Census (SSC) is a citizen science program with the objective of documenting the diversity and distribution of sea slugs (Heterobranchia: Gastropoda) (Smith & Davis, 2019). Commencing at Nelson Bay in December 2013, the program has now spread to 11 locations in south-eastern Australia, from Melbourne in the south to the Gold Coast in the north, and has led to the discovery of many species well south of their previously-known distribution range (e.g. Nimbs & Smith, 2018). At the conclusion of the second Coffs Coast Sea Slug Census in mid-January 2020, 1783 participants had provided photos of 561 species in 49 separate census events.

The 50th event of the program was recently held at Lord Howe Island (LHI), NSW – the third at that

location. With a diversity of accessible habitats, expectations are usually high as we embark on the short flight from Port Macquarie. In 2018 and 2019, we were very excited to find one or two of the remarkable psychedelic batwing sea slug (*Sagaminopteron psychedelicum*) within the Lord Howe Island lagoon. Indeed, these finds were listed as one of the highlights of both events. During our first snorkel in the lagoon at South Reef, you can therefore imagine our excitement at finding a beautiful specimen within 5 minutes of commencing the third LHISSC. This excitement was doubled within just a handful of minutes as we found two more. Fast forward two hours and the tally was over 20 individuals ranging from ~5 — 35mm in size (Figures 1, below, and 2, on p. 3).

(continued on p. 3)



**Figure 1:** Images of different individuals of *Sagaminopteron psychedelicum* in the Lord Howe Island lagoon. At left: a small (~12mm) individual. At right: possible trailing behaviour. **Photos: Stephen D. A. Smith.**

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All enquiries and orders should be sent to the Secretary, Priscila Salloum. Email: [psal591@aucklanduni.ac.nz](mailto:psal591@aucklanduni.ac.nz)

## Victorian branch

Secretary: Michael Lyons, 19 Banksia Street, Blackburn, VIC 3130. Phone (03) 9894 1526 or Email: [Michael\\_lyons1@bigpond.com](mailto:Michael_lyons1@bigpond.com)

Meetings are held at the Melbourne Camera Club, corner of Dorcas and Ferrars Streets, South Melbourne, on the third **Tuesday** of the month. In 2020, no meetings in March, May, June, July, September or December.

(Note: due to coronavirus restrictions, all meetings now cancelled until further notice).

## Membership fees 2020

Includes *Molluscan Research* (published four times per year), the MSA Newsletter (electronic-only publication since Number 158), and discounted registration at the triennial MSA conferences.

Ordinary members (worldwide)	\$AU 70
Institutional membership	\$AU 100
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Membership fees can be paid (preferably) via the Society's website. Otherwise, send subscriptions via mail to: Malacological Society of Australasia, c/o Matt Nimbs, National Marine Science Centre, PO Box 4321, Coffs Harbour, NSW, Australia, 2450.

## Newsletter

Editor: Platon Vafiadis

Email: [newsletter@malsocaus.org](mailto:newsletter@malsocaus.org)

The deadline for articles for the next issue of the Newsletter is Friday 17 July, 2020.

**MSA website:** <http://www.malsocaus.org>

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**Note:** This publication is not deemed to be valid for taxonomic purposes — see article 8.2 in the International Code of Zoological Nomenclature, 4th Edition. Also, opinions expressed within articles in this newsletter belong to the author(s) and are neither necessarily shared nor endorsed by the MSA.



*Cominella lineolata* (at left) locked onto a juvenile *Lunella undulata* at Peterborough Beach, Victoria, Wednesday 18 March, 2020. (Photo: P. Vafiadis)

## *Cominella lineolata* (Lamarck, 1816) (Buccinidae) attacking *Lunella undulata* (Lightfoot, 1786) (Turbinidae)

The image at left shows *Cominella lineolata* (with an unusually pale-coloured shell) preying upon a juvenile *Lunella undulata* in the rocky intertidal zone.

Although only small at about 15 mm, the *L. undulata* at this size nevertheless possesses a well developed and relatively thickly calcified operculum. As previously discussed (Vafiadis, 2018), the strategy of the buccinid is probably one of initial asphyxiation in order to reach the soft tissues of the *Lunella*.

It's a tough world out there!

### Reference:

Vafiadis P (2018). Predatory behaviour of the temperate Australian fasciolarid snail *Australaria australasia*. *The Malacological Society of Australasia Newsletter* 166: 2.

P. Vafiadis



## Cont'd from p. 1: Psychedelic sea slugs dominate the third Lord Howe Island Sea Slug Census

The lagoon provides sheltered waters with high densities of the putative food source. However, specimens were found on different benthic habitats, engaged in a range of activities including active swimming and trailing (Figure 1). These observations are consistent with some of the most-quoted descriptive phrases about sea slugs – “rare in space and time” and undergoing “boom and bust cycles”. While these terms are currently undefined from a quantitative perspective, our ongoing, collaborative surveys with enthusiastic volunteers are help-

-ing to provide more insight into the ecology and dynamics of this beautiful and popular group of molluscs.

### References:

- Nimbs, M. & Smith, S. (2018) Beyond Capricornia: Tropical sea slugs (Gastropoda, Heterobranchia) extend their distributions into the Tasman Sea. *Diversity* 10, 99.
- Smith, S.D.A. & Davis, T.R. (2019) Slugging it out for science: volunteers provide valuable data on the diversity and distribution of heterobranch sea slugs. *Molluscan Research* 39, 214-223.



**Figure 2:** Image of another, larger, individual of *Sagaminopteron psychedelicum* in the Lord Howe Island lagoon (length approximately 35 mm), on the move between two pieces of coral rubble.

Photo: Stephen D. A. Smith.

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## Molluscan Research Achievement Award Report: DNA-based identification of an echinoderm host for a deep-sea parasitic snail (Gastropoda: Eulimidae).

Tsuyoshi Takano, Meguro Parasitological Museum, Japan. email: [ttakano@kiseichu.org](mailto:ttakano@kiseichu.org)

It is a great honour for me to receive the 2018 Molluscan Research Achievement Award. First of all, I would like to thank my co-authors Drs. Hajime Itoh and Yasunori Kano, who assisted the analysis and interpretation of data and the preparation of the manuscript. My thanks also extend to an anonymous reviewer and Prof. Don Colgan, the editor-in-chief of the journal, for their constructive comments that substantially improved the manuscript.

My scientific interest has been directed at elucidating the ecological and morphological traits of parasitic gastropods — species of the family Eulimidae in particular — in a coherent phylogenetic and systematic framework. I have been focusing on the Eulimidae since

2011 at the Atmosphere and Ocean Research Institute (AORI), The University of Tokyo (<https://www.aori.u-tokyo.ac.jp/english/index.html>). My masters and PhD studies were supervised by Yasunori, who has long been collaborating with the world-renowned Dr. Anders Warén (Swedish Museum of Natural History) and Prof. Philippe Bouchet (Muséum National d'Histoire Naturelle). They kindly provided the most fascinating specimens and invaluable comments for our eulimid studies; Philippe also invited me to his biodiversity expeditions held in Papua New Guinea and New Caledonia.

Eulimids are exclusive parasites of echinoderms, as suggested by their digestive tract morphology, but



actual hosts have not been identified for a majority of species and even some genera of the family. Many eulimid species have a long autonomous period, like mosquitos, and are consequently collected as free-living specimens without a host. Deep-sea eulimids are even more tricky, as they tend to be detached from the host in a dredge or a beam-trawl haul with bottom sediment and other benthos. The present study was thus conducted to develop a host identification method for eulimids as a part of my postdoc project at AORI.

We successfully identified a ‘sea pig’ species of *Scotoplanes* (Holothuroidea: Elpidiidae) as the host of the deep-sea eulimid *Crinolamia* sp., although species of the genus had been considered (as the name suggests) parasitic on crinoids or sea lilies. The specimens of *Crinolamia* and *Scotoplanes* were captured using a beam trawl from approximately 1,700 m deep off north-eastern Japan. The cruise, KS-16-18 of *RV Shinsei-maru*, aimed at the extensive sampling of deep-sea benthos in the area. As I have been collecting sea shells since I was four years old, sorting various gastropods and bivalves from sediment was really enjoyable, but none of the beautiful *Crinolamia* was found attached on a host. I then conceived the present study on board with previous studies in mind — those studies on the sequencing of vertebrate blood in the digestive tract of mosquitoes and sand flies. ‘Isn’t it great if we can illuminate, with such a novel method, a deep-sea host–parasite interaction that is almost impossible to observe otherwise?’ The present study was accomplished thanks largely to PCR primers that have been designed specifically for the echinoderm COI gene (Hoareau and Boissin, 2010).

I am currently a researcher at the Meguro Parasitological Museum, Japan (<https://www.kiseichu.org/e-top>), a private institute specializing in the research and education of parasitology. I am somewhat a maverick at the museum as all colleagues here are specialists of parasitic worms! My ongoing projects on the Eulimidae with Anders, Yasunori and many other colleagues include a global molecular phylogeny, host identification (partly through next-generation sequencing), and stable isotope analysis for host–parasite trophic relationships. I hope these will shed new light into the ecological diversity of eulimids and their diversification processes.

#### References:

- Hoareau TB, Boissin E (2010). Design of phylum-specific hybrid primers for DNA barcoding: addressing the need for efficient COI amplification in the Echinodermata. *Molecular Ecology Resources* 10, 960-967.
- Takano T, Itoh H, Kano Y (2018). DNA-based identification of an echinoderm host for a deep-sea parasitic snail (Gastropoda: Eulimidae). *Molluscan Research* 38, 212-217.



#### Images:

**Upper:** Casting a beam trawl into the water behind *RV Shinsei-maru*.

**Middle:** Holothurians of the genus *Scotoplanes* collected during the cruise KS-16-18.

**Lower:** Author collecting eulimids from a feather star in the Koumac 2 expedition (New Caledonia, 2018) of the Paris Museum.

**Upper and middle photographs courtesy of Tsuyoshi Takano.**

**Lower photograph © Y. Kano, MNHN.**



## ***Elysia australis* (Quoy & Gaimard, 1832)**

Robert Burn, Malacological Society of Australasia, Victorian Branch



The image above shows a juvenile specimen of *Elysia australis*, length 3mm, photographed by **Fran Roberts** at La Balsa Park, Mooloolah River, Mooloolaba, Sun-

-shine Coast, Queensland, on 30 December 2019, on coarse sandy substrate at 5m depth. Though a very small specimen, note the diagnostic shape and posture of the rhinophores, the large eye with a clear periocular space, and the flattened body. Another juvenile specimen was photographed at the same place and depth on 26 January, 2020.

Thanks to Fran Roberts and Gary Cobb of Nudibranchs Central for allowing use of the above image.

### **Reference:**

Burn R (2018). Finding *Elysia australis* (Quoy & Gaimard, 1832). *Malacological Society of Australasia Newsletter* 165: 1, 3-4.

### **Malacological research grants**

Applications for the 2020 MSA Malacological research grants are currently being accepted. The deadline for applications is 30<sup>th</sup> June, 2020. Applicants must be financial members of the MSA; aside from this there are no restrictions on who may apply, but the committee granting the awards will generally give preference to candidates who are not employed as professional malacologists. Up to \$2500 is available to assist with costs associated with field trips or research consumables.

Further details can be found at [http://www.malsocaus.org/?page\\_id=27](http://www.malsocaus.org/?page_id=27)

### **Delayed print date for *Molluscan Research* 40: 3**

The current COVID-19 pandemic will cause a short delay to the printing of our next journal issue. The following advice was received from the publisher, Taylor and Francis:

“With great reluctance we have decided to stop printing journals from 10 April until further notice. We are seeing disruption to the distribution supply chain for printed journals: as of the first week of April the postal services of 42 countries have stopped accepting inward deliveries. In addition, many air mail services in and out of our major print hubs in the U.K., U.S. and Singapore are no longer operating due to reduced air freight capacity. Finally, a significant number of institutions we mail journals to are closed for business and are no longer accepting post.

We apologize for how this will have affected you and your members, and want to reassure you that online access to our journal content is not affected. Your journal(s) will continue to publish online according to their usual schedules on our journal platform, Taylor & Francis Online.

We plan to resume printing in May and, at the point we do start to print again, your members will receive the print issues that would have been dispatched during the period in which printing ceased. We will keep the situation under close review, especially with regard to public health concerns, and keep you updated with any changes.”

### **Erratum**

Apologies are extended by the editor to Daniel Ramos Gonzalez for the former's misspelling of his surname in MSA Newsletters no. 172 (p. 7) and also no. 171 (p. 1) - it should have ended with a 'z' and not an 's'.



## Koumac 2.3 2019 New Caledonia Expedition with the Natural History Museum, Paris

Kerry Walton, University of Otago, New Zealand

email: [walton.kerry@gmail.com](mailto:walton.kerry@gmail.com)

New Caledonia is an interesting and beautiful part of the world. The marine fauna in the northern half of Grande Terre (the main island), where we were based, compares biogeographically with the neighbouring Solomon Islands or northern Queensland, while southern parts of the island have faunal elements more in common with NSW, Norfolk Island and the Kermadecs. Although less popular with tourists, a result of having less infrastructure and fewer palm trees, the 'north' has a feel of its own. It is not 'just another tropical island'. Our indigenous Kanak hosts were welcoming and eager to discuss aspects of their culture and lifestyle, of which I was most interested, albeit constrained by my school-boy French. With an independence referendum still fresh news, there were countless tricolour and Kanak flags lining the roads and much to talk about.

Our visit coincided with a particularly dry spell of weather. It rained just once in the approximately five weeks that I was there, and then, barely enough to wet the ground. Bushfires, most intentionally lit, raged throughout the dry north. It was the contemporaneous Australian fires, however, that gave us the apocalyptic sunsets every night, which were viewed most evenings with a can of locally brewed "Number 1" beer and lively discussion on the green flash. The evenings were jovial and PB's daily 'announcement' was keenly anticipated. On the *NO Alis* (at 27 meters, the largest of the

ten or so vessels we had at our disposal at various points on the expedition), at least during my short stays aboard, the chef was 'obstinately French' and his cuisine divine. In the downtime, I was introduced to belote, a card game deceptively similar to the English 500, yet with a scoring system so different as to give the impression that it was designed with the express purpose of embarrassing transitioning 500-players.

In 1993, Koumac, on the NW coast of Grande Terre was selected as the location for one of the earliest major MNHN marine bio-blitz expeditions. Just outside of the Coral Triangle, the biodiversity was extremely high, yet manageable. The results of intense sampling across varying scales were published in 2002 (Bouchet et al, 2002) and revealed higher than expected biodiversity. 25 years later, and with many tricks learned, our mission was to see how things had changed, this time with an emphasis on live animal photography and DNA preservation. Koumac 2.3 was about bulk sampling: dredging, washings carried out intertidally and by dive teams, suction samplers deployed by dive teams, ARMs and the retrieval of lumen nets. The team comprised 47 people of 15 nationalities.

I feel honoured and extremely grateful to have been invited to participate in the expedition by Prof. Philippe Bouchet. As an early-career malacologist, it was an unparalleled opportunity for me to see different sampling and sorting methodologies in action, often at scales that we can only dream of locally. The size and duration of the expedition meant also that I could begin to get to know the participants much more so than under the time restrictions of a World Congress or other meeting. The names of many of the participants crop up again and again in our field. It was delightful to finally be able to match faces and personalities to these names. At least three collaborations have so far spawned for me from the expedition and I will be sure to use many of the methods I witnessed in future sampling. Special thanks to Virginie Heros and Philippe Maestrati, with whom I worked most closely at the sorting stations, as well as Hugh Morrison and Shayne Ahyong for some good ANZAC humour and company.

### Reference:

Bouchet, P., Lozouet, P., Maestrati, P. & Heros, V. (2002) Assessing the magnitude of species richness in tropical marine environments: exceptionally high numbers of molluscs at a New Caledonia site. *Biological Journal of the Linnean Society* 75(4), 421-436. Available for purchase online at <https://doi.org/10.1046/j.1095-8312.2002.00052.x>



**Top:** Kerry at work, complete with MSA T-shirt and 'flying the flag' for the MSA!

**Lower left and right:** sorting and study activities. (All photos courtesy of Kerry Walton).

## A look back into MSA history: who was the late John Arnold?

Robert Burn, Malacological Society of Australasia, Victorian Branch

The discovery of the nudibranch *Gymnodoris arnoldi* (Burn, 1957) along the central NSW coast (Nimbs, Davis, Smith, 2019) prompted our newsletter editor Platon Vafiadis (2019) to explore the Society's archives in search of information upon "the late John Arnold". His early death in mid-1955 meant that his membership of the Malacological Club of Victoria, forerunner of the present MSA, was less than two years, yet during that time he served the Club as excursion organiser, meeting speaker, co-author of a club publication (Arnold & Macpherson, 1953), and President.

From various websites, the archives of the Uniting Church, and recent conversations with his son-in-law Leon Pederick of Manifold Heights, Geelong (almost within sight of my home), the following can be added to Platon's archival information.

John Kissack Arnold (1895-1955) was born in Glenferrie, Melbourne. He trained as a schoolteacher, then became a "home missionary" with the Methodist Church at Mansfield. In 1923 at age 27 as a newly ordained minister, he was appointed to the Salamo Training Institution, Milne Bay province, Papua New Guinea, initially for three years. Detailed illustrated diaries from that time, including photographs, sketch maps and coloured natural history drawings, have been transcribed and published by his elder daughter Iris (Pederick & Pope, 2013). A lasting contribution from his Papua New Guinea days is his compilation of a grammar of the local Edugauran (Dobaun) language, later printed by the government and used by subsequent missionaries and teachers (Riddel, 2013).

John Arnold returned to Melbourne on furlough in 1926, during which time he married Hilda Old. Accompanied by his wife, he returned to Papua New Guinea, only to retreat to Melbourne once more, two years later, due to Hilda's poor health in the tropics.

According to Leon Pederick, it was in Papua New Guinea that John Arnold first developed an interest in shells. Some shells from the Papua New Guinea days are still held in the family.

Back in Victoria, John Arnold was appointed to various Methodist circuits on the initially three year, later five-year, rotation: Drysdale, Geelong West (where daughter Iris was born), Yarram, Kyabram, Castlemaine, Kew and Moonee Ponds. The family made many life-long friends as they moved around. They holidayed with some in the Geelong area with beach excursions to Torquay and other Bellarine Peninsula localities. Here, John was able to indulge a burgeoning molluscan inter-



Museums Victoria (Victorian Collections website). Studio portrait of Rev. John Kissack Arnold (photograph registration F682-1), from the Uniting Church Archives, Synod of Victoria, 54 Serrell Street, Malvern East, Victoria. Accessed on 21st February 2020 from: <https://victoriancollections.net.au/items/5ae6710c21ea6717dcc8046e>

-est, particularly among the vast array of minute shells that can be found in carefully selected shell-sand in low-tide rock pools and runnels.

Leon Pederick still possesses his father-in-law's copy of Joyce Allan's *Australian Shells* (Allen, 1950). It was a gift to John from Hilda. It is well-thumbed, with many, particularly tropical, species highlighted by underlining. To my great surprise and delight, pasted into the front cover is my letter of 21 January 1957 seeking approval from Hilda to name a new species *Nembrotha arnoldi* (now *Gymnodoris arnoldi*) to honour her late husband.

Shelling in Victoria was vastly different to tropical Papua New Guinea. In the 1930s and 1940s few people here had an interest in the marine world and its biota.



Charles Gabriel's *Victorian Shells* (1936) was the first publication to bring shells, or at least the big species, to the notice of the general public. Hope Macpherson's appointment as Conchologist at the National Museum of Victoria (now Museums Victoria) in 1946 (Burn & Vafiadis, 2018) gave those with an interest in shells a person and a place where help with identification could be sought. Joyce Allan's *Australian Shells* (1950) brought a much broader field of shells to the attention of the wider community, especially as many southerners were longing for warmer winter climes and were wanting to know what they had found or might find. Formation of the Malacological Club of Victoria in October 1952 (Vafiadis, 2019) drew together Victorians with an interest in shells, including John Arnold, and, at the second *public* meeting, myself, aged 16 years.



John Kissack Arnold and Hilda Arnold, circa 1950.  
Photograph courtesy of Leon Pederick.

### Acknowledgement:

I am indeed most grateful to Leon Pederick for conversations about the family and for allowing use of a family photograph of the Rev. John Kissack Arnold and his wife Hilda. Their elder daughter Iris (Mrs. Pederick) died in 2018, and younger daughter Ruth in 2019. John Arnold died 31 July 1955, just short of his 60th birthday.

### References and further reading:

- Allan J (1950). *Australian shells with related animals living in the sea, in freshwater and on the land*. Australiana Society Publication, Melbourne. xix + 470 pp, 43 pls.
- Arnold JK, Macpherson JH (1953). The *Murex* or rock shells. *Malacological Club of Victoria, Publication No. 5*. September, 1953, 8pp.
- Burn R, Vafiadis P (2018). J. Hope Macpherson (Mrs. Ian K. Black), 7 February 1919 – 25 January 2018. Newsletter of the *Malacological Society of Australasia Newsletter* 165: 5-9.

- Gabriel CJ (1936). *Victorian sea shells. A handbook for collectors and students*. Field Naturalists Club of Victoria. 67 pp, 6 pls.
- Nimbs M, Davis TR, Smith SDA (2019). First observations of the polycerid nudibranch *Gymnodoris arnoldi* (Burn, 1957) in New South Wales, Australia. *Malacological Society of Australasia Newsletter* 170: 1-4.
- Pederick I, Pope P (2013). *Mission memories. A seeker in Papua – the journal of a young missionary by the Rev. John Kissack Arnold*. Adams Print, Geelong.
- Riddell P (2013). Review – Mission memories. *Crosslight* (a bi-monthly magazine of the Uniting Church in Australia, Synod of Victoria and Tasmania) May 5, 2013). Available at: <https://crosslight.org.au/2013/05/05/13764/> (accessed 21/2/2020 and 23/4/2020)
- Rice T (2020). *Shellers from the past and present. Arnold, John Kissack (Rev)*. Available through the *Conchology* website of Guido and Philippe Poppe at <https://www.conchology.be/?t=9001&cid=14805> (Accessed 23/4/2020)
- Vafiadis P (2019). A look back into MSA history: who was the late John Arnold? *Malacological Society of Australasia Newsletter* 170: 5-8.

**Editor's notes:** 1. Hilda Arnold wrote a letter of thanks to the MSA following the passing of her husband, which was published in the *Malacological Club of Victoria Newsletter* 1956, 4(13), page 6.

2. Macpherson (undated 1, circa late 2000s, and undated 2, compiled between 1987 and 2001—see Vafiadis, 2019 for full reference details) mis-spelt the Rev. Arnold's middle name as "Kissick", and this error was also carried over into my article (Vafiadis, 2019: 5).

## Addenda to the J. Hope Macpherson bibliography

### Robert Burn, Malacological Society of Australasia, Victorian Branch

Two further omissions have been discovered in the bibliography of the late J. Hope Macpherson published in this newsletter by Burn and Vafiadis (2018) and Burn (2019). To her publication list, the following must now be added:

**Arnold JK, Macpherson JH (1953). The *Murex* or rock shells. *Malacological Club of Victoria, Publication No. 5*. September, 1953, 8pp.**

**Macpherson JH (1963). John Charles Gabriel. *The Victorian Naturalist* 80: 227-228.**

### References:

- Burn R, Vafiadis P (2018). J. Hope Macpherson (Mrs Ian K Black) 7 February 1919—25 January 2018. *Malacological Society of Australasia Newsletter* 165, 5-9.
- Burn (2019). Addenda to the J.H. Macpherson bibliography. *Malacological Society of Australasia Newsletter* 169: 8.