



Understanding
Our Natural World

Field Nats News No. 297

Newsletter of the Field Naturalists Club of Victoria Inc.

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June 2019

From the President

To begin I would like to thank all of the dedicated people who contributed to our successful Annual General Meeting on May fifth. Details p 14. This is now my fifth year as President and it promises to be another busy year. One of the first things Council needs to urgently address is the final review of our Risk Management Strategy and the most pressing aspect of that is our Child Protection Strategy.

The sub-committee undertaking that task has recommended we use "A Guide for Creating a Child Safe Organisation" as a base for our strategy and procedures. A copy of the guide is at <https://ccyp.vic.gov.au/assets/resources/CSSGuideFinalV4-Web-New.pdf>. The 7 Child Safe Standards included in the guide are listed below.

Child Safe Standard 1—Strategies to embed an organisational culture of child safety, including through effective leadership arrangements.

Child Safe Standard 2—A Child Safe Policy or Statement of Commitment to Child Safety.

Child Safe Standard 3—A Code of Conduct that establishes clear expectations for appropriate behaviour with children.

Child Safe Standard 4—Screening, supervision, training and other human resource practices that reduce the risk of child abuse by new and existing personnel.

Child Safe Standard 5—Processes for responding to and reporting suspected child abuse.

Child Safe Standard 6—Strategies to identify and reduce or remove risks of child abuse.

Child Safe Standard 7—Strategies to promote the participation and empowerment of children.

As an organisation we need to ensure that junior members, members of the community and visitors enjoy their association with the club in a safe and inclusive environment. We need to ensure that our policies and procedures achieve this and fulfil our legal obligations. The process encourages feedback to help ensure that we have covered all the issues relevant to the club's operations. Members are invited to make submissions through their SIG co-ordinators or by email to Wendy by 30 June.

Under the Microscope

Whenever I have an opportunity on a field trip, I collect pond water and I find there is always something interesting and new to observe under the microscope. A recent sample from near Mt Disappointment had numerous desmids of the genus *Closterium*. (Photo 1). Some of the cells were clear and empty (dead) and others had both clear areas and some with bright green chloroplasts. I noticed darker inclusions in one cell that were clearly moving around. (Photo 2) Two flagellates were consuming the cell contents of a living cell from the inside. Their flagellae were lashing the entire internal space of the algal cell. I was able to make a video recording of the activity until over 75% of the contents were consumed. Occasionally the tip of a flagellum flicked through a hole in the cell wall suggesting the location of the entry point. The flagellates became larger and greener as they fed. I have previously seen, and recorded, flagellates

(possibly (*Peranema* sp) invading living, filamentous algae in pairs and work their way through numerous cells. I hope to be able to record the actual penetration of the cell but that may involve too much good luck. Every drop of water is a new adventure and poses more questions.



Photo 1

Closterium as it normally appears

Maxwell Campbell

The deadline for FNN 298 will be **10 am on Tuesday June 4th** FNN will go to the printers on the 11th with collation on Tuesday 18th June

The posted/print version of FNN 297 can only be 12 pages as the new COE must be included with it. More pages will exceed Aust. Post's weight regulations. There are 5 pages missing from the print version. Two are from the Bookshop. One is advertising John Harris's Kwongan trip and 2 are reports of Fungi Group meetings. Copies can be obtained via the FNCV office



Photo 2

Two flagellates consuming the cell contents.

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CALENDAR OF EVENTS

All meetings are held at the FNCV Hall, 1 Gardenia St. Blackburn at 8 pm., unless otherwise indicated. On days of extreme weather conditions, excursions may be cancelled. Please check with leader.

June 2019

Monday 3rd - Fungi Group Meeting: Open to all with fungi images to identify, we will do our best to help. Those who have been on our forays will show a selection of what has been seen. Contact: Carol Page 9857 6388; cpage356@gmail.com

Tuesday 4th - Fauna Survey Group Meeting: *The ecology of deer and understanding and monitoring their impacts.* Speaker: Dr Naomi Davis, Environmental Scientist, Parks Victoria.
Contact: Robin Drury 0417 195 148; robindrury6@gmail.com

Friday 7th to Monday 10th (Queen's birthday long weekend)- Fauna Survey Group Survey: *Deep Lead Nature Conservation Reserve. Prior bookings essential.* Contact: Robin Drury 0417 195 148; robindrury6@gmail.com

Sunday 9th – Fungi Group Foray: *Cathedral Range State Park.* Meet at 10.30 am at Ned's Gully car park (Melway Edition 45 Map X 910 T9).
https://parkweb.vic.gov.au/_data/assets/pdf_file/0019/314533/Cathedral-Range-SP-visitor-guide.pdf
Contact: Carol Page 9857 6388; cpage356@gmail.com;(on day of foray only 0438 446 973)

Monday 10th - Marine Research Group No Meeting: *Queen's Birthday Public Holiday.*

Tuesday 18th—Collate FNN 298 and June to Sept. Calendar of Events. About 10 am in the hall.
All welcome. Contact the FNCV office. 9877 9860; admin@fncv.org.au

Wednesday 19th - Microscopy Group Meeting: Speaker to be advised.
Contact: Philippa Burgess 0409 866 389

Thursday 20th – Botany Group. No Meeting: Winter break

Friday 21st – Juniors' Group Meeting: 7.30 pm *All you need to know about nature photography.* Bring your camera or camera phone. Speaker: Wendy Clark, photographer. Contact: Patricia Amaya juniors@fncv.org.au

Sunday 23rd – Juniors' Group Excursion: Hands-on Nature Photography. Meet at 9.30 am, venue to be advised. Bring your camera or camera phone. Registration essential. Leader: Wendy Clark, photographer.
Contact: Patricia Amaya juniors@fncv.org.au

Sunday 23rd – Fungi Group Foray: Blackwood, Jack Cann Reserve. Meet at 10.30 am in Garden of St Erth Carpark, Simmons Reef Road (Mel Ed 45 Map X909 E11). Contact: Carol Page 9857 6388; cpage356@gmail.com; (on day of foray only 0438 446 973)

Monday 24th - FNCV Council Meeting 7.30 pm sharp. Please send apologies or agenda items to Wendy Gare at the FNCV office admin@fncv.org.au

Tuesday 25th – Day Group Meeting: An indigenous view of weather and seasons. Speaker: Lisa Maloney, Whitehorse Council. Meet at 10.30 am for coffee and a chat, speaker at 11 am. Contact: Max Campbell 0409 143 538; 9544 0181 AH; mcam7307@bigpond.net.au

Wednesday 26th – Geology Group Meeting: Arthropods from the Archean, Part 1.
Speaker: Maxwell Campbell, FNCV President, Coordinator Terrestrial Invertebrates Group.
Contact: Ruth Hoskin 9878 5911; 0425 729 424; rroskin@gmail.com



The policy of the FNCV is that non-members pay \$5 per excursion and \$3 per meeting, to contribute towards Club overheads. Junior non-member families, \$4 for excursions and \$2 per meeting.

Members' news, photos & observations

We always have space for members' photos and natural history observations. Please share with us what you have noted in your daily life, travels or garden. Email: fnnews@fncv.org.au by the first Monday in the month.

Welcome Welcome

Warmest greetings to the following new members who were welcomed at our last Council meeting.

Peter King, Catriona King, Lara Williamson, Ronald Shaw, Liam Shaw, Sandra Ambrozic, Judith Wenborn, Peter Goegan and William Steele.



COOTS: On the recent Day Group excursion to Birdsland (see page 12), we were able to get close up views of the Australian Coot's feet. They have unusual lobed toes that help distribute their body weight evenly and allow them to walk on floating rafts of water plants. They are superbly adapted to life in a swamp. Grebes also have lobed toes but they are very different. Coots are known to fly long distances in search of suitable habitat. These flights are seldom seen because they are made at night, perhaps to avoid birds of prey. (photos: J. Broadberry)

Joan Broadberry

A FRIENDLY TAWNY (*Podargus strigoides*)

Just recently, whilst resting after a bad fall on uneven concrete, I decided to record all the birds that visited our back garden. I have a notebook on the windowsill for this reason. I was confined to a couch where through a large window, overlooking a small pool of water and two elevated water bowls in our large garden, birds are constantly calling in to bathe and drink. A few days previously we had five Eastern Rosellas bathing together and then using the small post and rail fence to sit and preen. As well as the Eastern Rosellas, we have Crimson Rosellas, Rainbow Lorikeets, lots of Noisy Miners and Musk Lorikeets. The Noisy Miners dive bomb the Eastern Rosellas who hold their ground looking up in defiance until the Miners fly off.

I was busy photographing the Musk Lorikeet when my husband called, "come quickly and bring your camera" He was in the kitchen and to our surprise a Tawny Frogmouth had landed just outside the window on a rail beside a grey lattice fence. It's lovely mottled grey and brown plumage melded in with the lattice work. The Tawny nodded off to sleep and spent the whole day snoozing oblivious to me taking photographs through the window. A friend who called by that day said "it was meant to be". An injured and very keen bird watcher for the last fifty years needed cheering up, so the tawny came and provided much pleasure for me until nightfall, when it flew off to search for food.



Image: C. Falkingham



Image: C. Falkingham

The photos I took will feature on gift cards for my overseas penfriends and for bird-watching friends and family for years to come. Not once during the day did the Frogmouth extend its neck in the defence pose although I am sure it was aware of us close by. I thought the photo of the Eastern Rosella was to be my highlight for the day, but the Tawny Frogmouth (one of my favourite birds) was really special.

Cecily Falkingham, Donvale



Fungi Group

Meeting , 4th March 2019

Mining the Microbiome: Exploring the Dark Matter of Fungal Biodiversity

Dr Tom May, Senior Mycologist, National Herbarium, Royal Botanic Gardens Victoria

At our first meeting for 2019, Dr Tom May explained that over the last few decades mycological science has been taking a new direction: exploration of the microbiome. The microbiome refers to the microorganisms in a particular environment – such as soil. The suite of bacteria, fungi and other organisms in the microbiome is being analysed in countries around the world by use of DNA sequences, rather than the traditional method of obtaining pure cultures from soil or other substrates. Culture methods only work for fungi that are able to grow on artificial culture media, and identification of pure cultures is time-consuming and quite difficult, especially when no spores are formed. In Australia, the microbiome is being explored in many sites across the continent through the Australian Microbiome Initiative (<https://data.bioplatforms.com/organization/about/australian-microbiome>) which provides on-line information about DNA sequences retrieved from soil and marine samples from across the continent.

We see fruit-bodies of some fungi when walking through a forest, but many fungi are microscopic and their hyphae, growing in soil or wood, never produce macroscopically visible fruit-bodies. In addition, fungi that do produce fruit-bodies usually appear sporadically. Therefore, it is useful to have methods to detect fungal hyphae in the soil. DNA is extracted from soil and the resulting short sequences are compared against reference databases, derived from DNA isolated from named cultures and/or specimens.

From analyses of DNA of soil, it is clear that there is a very large number of undescribed fungi, because most DNA sequences do not match to reference databases. Among this “dark matter fungi” are some groups that are very common in soil, but extremely rarely or never isolated as cultures. One example is the order Archaeorhizomycetes, known from only a handful of cultures, but a very common fungus with numerous species found around the world. At present, only the species known from cultures can be named. The remainder are known only from DNA sequences.

Recent analyses of DNA sequences from across the fungal kingdom have redrawn the fungal tree of life, with the number of recognized phyla increasing to 18. There are also several phylum level fungi at the base of the fungal tree of life known only from DNA sequences. As part of this analysis, a new Kingdom of life has been discovered! The Nucleariidae includes the nucleariids and fonticuliids, single-celled organisms previously classed as protozoa, but which are much closer to fungi than to animals. Evolutionary trees place the Nucleariidae as the sister group to the Fungi, and the group of Fungi + Nucleariidae is the sister group to the Animal kingdom.

The Cryptomycota is an example of one of the newly recognized phyla of Fungi. An example cryptomycote is *Rozella allomycis*, a fungus that parasitises another fungus from the phylum Chytridiomycota, forming its spores inside the other fungus. These fungi growing inside other fungi can be particularly confusing to classify until the different spore types are associated with the correct organism.

Tom explained how short pieces of DNA from soil are identified. The short pieces belong to the Internal Transcribed Spacer (ITS) of the ribosomal cistron, a unit of DNA that encodes ribosomal RNA, including the ITS. The ITS is used as it functions as a reasonably effective “barcode” for fungi, identifying correctly to species level in about 70% of the species so far tested. This means that sometimes the ITS will not be able to tell closely related species apart or sometimes will split known species into two or more groups. For the Australian Microbiome Initiative, it is only the first section of the ITS that is used (ITS1).

Soil DNA is recovered using Illumina sequencing, which uses flashes of light of different colours for the four bases that make up DNA. Occasional errors are introduced during Illumina sequencing, but the soil sequences are cleaned up in a “pipeline” that is designed to remove erroneous sequences, including chimeric sequences (composed of DNA from different organisms). Each short stretch of DNA from the Illumina sequencing is a “read” and there are already more than 1 billion reads recovered by the Australian Microbiome Initiative. These have been sorted into “species level” groups at the percentage of similarity that separates most species of fungi (around 97% for ITS). These species level groups are called molecular operational taxonomic units (mOTUs). There are more than 40,000 molecular OTUs recovered so far; a staggering figure; given that there are only 15,000 named species of fungi from Australia.

How real are these mOTUs? They can be mapped in the Atlas of Living Australia. Tom provided examples where mOTUs have been matched to known species and the mapped sites are consistent with the known distribution, such as for *Macrolepiota clelandii*. For the recently described truffle-like ascomycete *Ulurua nonparaphysata*, known only from a specimen collected at Uluru in the Northern Territory in the year 2000, four sequences in the Australian Microbiome are a very high match (99.3%) to a sequence taken from the type collection. The Microbiome sequences are from Uluru itself, but also extend the distribution to far north-western New South Wales, into the Tanami Desert and across to Broome in Western Australia. These records can guide further collecting activities.

However, there are also examples where Australian Microbiome samples identified as particular species fall well outside the known distribution. Some mycorrhizal species, such as *Cortinarius kula*, are showing up as occurring in Antarctica. Further work is required to determine if these discrepancies are due to (1) mis-identification, due to the shortness of the ITS1 not being diagnostic, (2) sample cross-contamination, or (3) “dead DNA” being detected, such as from spores blown in from distant populations, but not germinating to form viable hyphae.

From Virgil: Thank you very much to Tom for preparing this report, and for a very interesting evening, bringing us up to date on mycological studies.

FNCV Fungi Group Meeting, 1st April 2019

Taxonomy of the Bankeraceae in Australia and New Zealand

A presentation by

James K. Douch, BSc (Hons), The University of Melbourne



James gave an excellent presentation about his study of fungi in the family Bankeraceae for his Honours research project at The University of Melbourne. He began with an introduction to taxonomy, the classification system for living organisms, pioneered in the 18th century by Swedish botanist Carolus Linnaeus, which is necessary for the effective understanding of and communication about such matters as biodiversity, public health and agriculture. Today, the method of classifying organisms has developed to the point where DNA is used for identification, and statistical software is used to analyse the resulting data. It was surprising to learn that it is estimated that only 7% of fungal species have been described, compared to 12% of animals and 72% of plants.

The Bankeraceae is a family of mushrooms in the order Thelephorales. All members of this family are ectomycorrhizal (grow with plants) and smell of fenugreek. There are more than 100 species in six genera. The six genera are *Sarcodon*, *Hydnellum*, *Phellodon*, *Bankera*, *Boletopsis* and *Corneroporus*. Of these, the first four are hydroid (have a spiny reproductive surface, but are not related to *Hydnum*), and the last two are poroid (have a pored reproductive surface). *Corneroporus* is known from only one species, found on the Malaysian Peninsula.

*Sarcodon imbricatus*.

Photo Andreas Kunze

The aim of James' study was to revise the taxonomy of Australian and New Zealand *Sarcodon* and *Boletopsis* using herbarium collections. Thirty *Sarcodon* collections have been made across Australia and Tasmania. Thirty-nine collections have been made in New Zealand, including both the north and south islands and on Stewart Island. *Boletopsis*, by contrast, is even rarer than *Sarcodon*, and has been found only on the north island of New Zealand.

James explained in detail his methods for studying both the morphology and molecular phylogenetics of the fungi. His hard work has paid off – he has discovered and named four new *Sarcodon* species. His descriptions and names for these species will be published soon.

Interestingly, undescribed *Bankera* and *Boletopsis* DNA was detected in soil samples – *Bankera* from sites in New South Wales, South Australia and Western Australia, and *Boletopsis* from New South Wales and Tasmania. It will be interesting to see who will be the first to collect them!

In conclusion, James emphasised that: the conservation status of a species cannot be properly assessed unless we know it exists; more herbarium collections of *Sarcodon* spp. are needed; and the detection of new genera of distinctive macrofungi in Australia is an indication that the current taxonomy and herbarium inventory remains largely incomplete.

Congratulations, James, on your splendid work, and many thanks for sharing your findings with us and for assisting with preparing this report.

Virgil Hubregtse

From the Office...

Dear Members,

The office will be closed for three weeks while I'm on leave in May/June. My husband Colin and I are off to the Baltic for a cruise in a small ship with 89 passengers, starting at Copenhagen and finishing up in Stockholm. We'll be calling in at Ronne, Gdansk, Visby, Riga, Tallinn, St Petersburg and Helsinki en route. We're both quite excited about it!

My last day in the office will be Friday 17th May and I won't be back officially till Tuesday 11th June, although I probably will be in to catch up over the weekend and/or Monday 10th June (Queen's Birthday holiday).

Emails and phone messages will be checked once a week while I'm away to make sure there's nothing urgent, otherwise I'll be sure to respond to everything as soon as I possibly can on my jetlagged (!) return. If you need information about any meetings or excursions, please use the contact details which are listed in the Calendar of Events and in the calendars in the Field Nats News. We're hoping for fine weather, but I'm taking my seasickness tablets with me just in case. Farewell till June!

Wendy Gare, Administration Officer





Geology Group

Report of Geology Meeting, 27th March

Where have Melbourne's wetlands gone?

Dr Gary Presland stepped in at short notice and spoke about his ongoing study of the wetlands of the Melbourne metropolitan area.

He began with a brief overview of the various attitudes regarding the wetlands of the Port Phillip region over the past 200 years. These include:

- That of the Indigenous clans of the Kulin nation, who saw the wetlands as integral to their way of life;
- That held by 19th century European immigrants to Melbourne who largely saw nature as an expendable commodity, and either avoided or drained wetlands, as source of diseases;
- The contemporary view of wetlands—as fundamental parts of the natural world, mostly recognised and appreciated for the recreational, educational and functional role they fulfil.
- The bulk of Gary's presentation focused on what had been done, since European settlement, to some of the major wetlands in the Melbourne area. In a period of less than 50 years, beginning about 1860, all of the wetlands within the metropolitan area had been either completely reclaimed, or massively altered.

West Melbourne Swamp

Although plans to drain the swamp had been made as early as 1849, little work actually took place before the late 1870s. Through the 1850s and 60s a part of the area was given over to cow-herders, and boiling-down works and a bone mill were established along the river on the southern portion of the wetland. Several acres of the north eastern corner of the wetland continued to be used as a refuse depot into the 1890s. The biggest impetus to the reclamation of West Melbourne Swamp was the creation of Melbourne Harbor Trust (MHT) in 1877. In Sir John Coode's scheme to improve the river and port facilities, a part of the wetlands was used as the location for the new Victoria Dock. The Coode canal opened in September 1886 and the docks in 1893. The reclamation of the swamp was still going on in 1905 when MHT began to store material it had dredged from the Bay, for use in raising the level of the West Melbourne Swamp.



Sandridge Lagoon

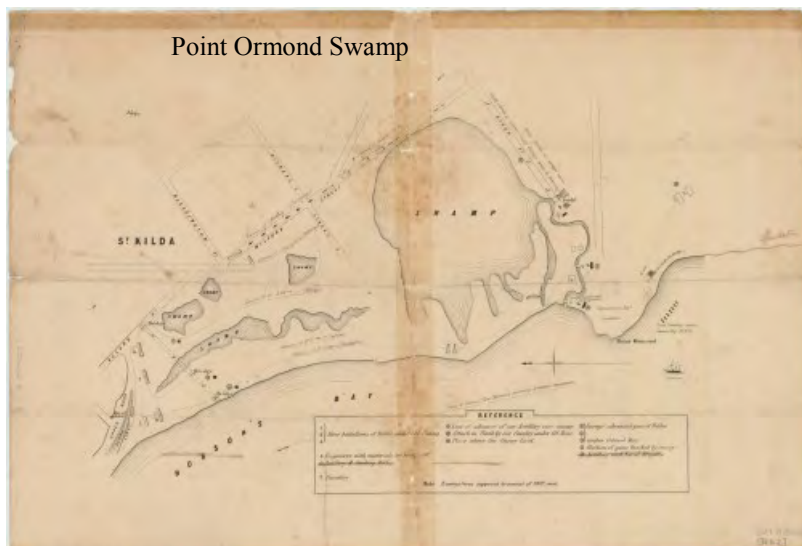
From the earliest period of the urban development of Sandridge (later Port Melbourne) the area had been used as a place for dumping rubbish. By the mid-1860s pollution in the Lagoon had begun to be a concern to residents. As well as the health issues raised by the presence of noxious material, the area posed a danger to people who accidentally wandered into the marsh. In November 1869, two men drowned in the Lagoon in the space of as many days. While these and other human bodies were always removed from the water, such was apparently not the case with goats and dogs that drowned there. There had been repeated calls since 1854 for a dock and harbour to be created in the lagoon, but little action to that effect. By 1879 the only change to the lagoon was that the northern end had been filled in as far as Bridge Street; the rest was still something of a cesspit. In July 1886 an agreement was reached between the MHT and other authorities that saw the lagoon mouth opened to the Bay as far as

Graham Street and drainage from streets diverted away from that portion. In 1921 a breakwater was built adjacent to the outlet of the lagoon, providing shelter for small vessels. The lagoon was thus made redundant and was finally closed.

Albert Park Lake

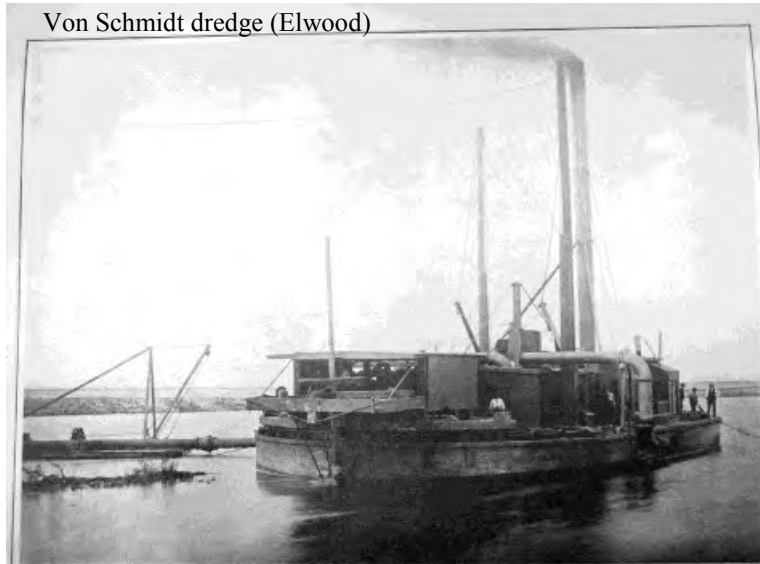
In an 1842 map by Robert Hoddle, the area of Albert Park was shown containing several swampy water-holes. Late in 1844 a petition was made by the Melbourne City Council to the Lieutenant Governor La Trobe, to have an area south of the Yarra set aside as a public park. Nothing happened immediately but the area was permanently reserved by the government in 1864 and given the name Albert Park. Since the area was destined as a public park, two loosely-connected lagoons were transformed into a permanent lake;

(Continued on page 7)



(Continued from page 6)

others were drained. The impetus to create this lake was twofold: firstly it was a way of dealing with the increasingly unhealthy state of the swamps; and secondly it was intended to create a place where boating activities could be pursued. However, over the summer months the water level in the lake became too low for sailing. So boating enthusiasts petitioned parliament and between 1877 and 1892 the level was kept topped up by piping water from the Yarra River, via a steam pump installed in the Domain. It was not until the early 1930s, during the Depression, that the edges of the lake were formalised.



Elwood Swamp

Petitions were made to parliament to fund the draining of Elwood Swamp as early as November 1869. However, it was not until 1888 that serious efforts were made to reclaim the swamp. The tender to fill in an area of 134 acres of Crown land was awarded to George Higgins, who planned to use a Von Schmidt-type suction dredge. This dredge, subsequently named *Elwood*, was built in Melbourne. In late 1889 it was positioned off the Red Bluff, from where it removed sand, silt and clay from the bottom of the Bay, and pumped it about 800 m to the area to be reclaimed. The reclamation progressed satisfactorily for about six months until the work ran into a major problem: *Elwood's* cutting blades encountered a layer of marl, which was tougher material than the blades could break up. An alternative source of silt had to be found. Higgins soon arranged with the MHT to use silt it had dredged from the Yarra and Bay channels. Work resumed on reclaiming Elwood Swamp but would not be fully complete until 1914.

Yarra River billabong

In March 1846, when CJ La Trobe selected a site for Melbourne's Botanic Gardens, the area he chose on the south side of the Yarra River was an 'indefinite swampy tract'. The major feature of the area was a billabong, which was connected to the Yarra River. Unlike the Sandridge Lagoon and other swamps within the estuary of the river, this was a freshwater lagoon, rejuvenated through periodic flooding from the Yarra River. From the beginning, it was incorporated into the general plan of the Gardens. Ferdinand Mueller, Director of the Gardens from August 1857, installed a fountain on an island in the lagoon. His successor William Guilfoyle developed the area in ways that eventually led to its becoming a lake. The lagoon was deepened again, the height of one of its islands raised, and the lagoon's edges shaped. Although these works were begun in the late 1870s there were long delays because of government work on the river itself. In 1896 the *Yarra Improvement Act* was passed, which led to the carrying out of 'improvements' to the river. These were completed in 1901, breaking the nexus between the lagoon and the river, since when it has effectively become a lake.

In conclusion, Gary touched briefly on the history of the largest wetland in the Melbourne area, Carrum Swamp.

Gary Presland (Gary, writing in the third person disclosed to the editor he was having an out-of-body experience.)

Library News



The following books and journals have been added to the Library's holdings in the past couple of months.

Recently received Monographs

Coupar, Pat and Mike (1992) *Flying colours: common caterpillars, butterflies and moths of south-eastern Australia* [595.78 COU]

Environment Conservation Council (Victoria) (1997) *Box-Ironbark forests and woodlands investigation: resources and issues report* [333.75 ENV]

Finney, Colin (1984) *To sail beyond the sunset: natural history in Australia 1699-1829* [508.94 FIN] Landy, John (1985) *Close to nature: a naturalist's diary of a year in the bush* [508.94 LAN]

Olsen, Penny and Russell, Lynette (2019) *Australia's first naturalists: Indigenous peoples' contributions to early zoology* [577.08 OLS]

Recent periodicals:

An article in *Australian Journal of Botany* 67(1) attempts to decide whether 168 contested species of Australian flora are native or naturalised using criteria described.

The latest periodicals are displayed in a rack in the library. You can borrow periodicals in the rack, as well as previous issues. Don't forget to fill in the borrowing book.

Library collections now on the website

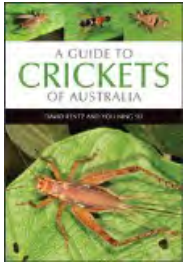
A reminder that you can now search the library's collections on the FNCV website. Click 'About us' --> 'Library' and you will be able to download searchable lists of books, periodicals, maps and photos.

Gary Presland, Honorary Librarian

NEWS FROM THE BOOKSHOP (June 2019)

Two soon –to-be-released, books from CSIRO Publishing, are the focus this month. *A Guide to Crickets of Australia* is a great addition to the growing invertebrate series. *Cats in Australia* discusses the challenges of cat management for both feral and domestic varieties. Love them or hate them, cats are here to stay. Both titles are due for release in June. The FNCV bookshop offers a small selection of second hand books that have been donated to the club for various reasons, but mainly because much loved book collections need to be down sized. Most books are in good condition and they are only available whilst stocks last. Below is a list of the second hand books that are currently available and it will be a case of first-in first-served if any are of interest. The books are not displayed at the clubrooms, so if you are interested, send me an email and make sure you grab a pre-loved treasure. A revised edition of the very popular *The Australian Bird Guide* is to be released in August. If you have yet to purchase this book, it is best to hold off until then. To order or inquire about a book, please send an email to, bookshop@fncv.org.au and I will reply as soon as I can.

Happy reading, Kathy



A Guide to Crickets of Australia (Rentz & Ning Su) enables the reader to reliably identify all 92 described ‘true’ crickets of Australia. Cricket song is a sound of the Australian bush. Some crickets become agricultural pests when their populations boom, while others are important food sources for native birds, reptiles & mammals, as well as domestic pets. Then there are those that may end up on our table, as there is a rapidly growing industry for cricket products for human consumption. The book features keys, distribution maps, illustrations & detailed colour photographs. **(PB, 416 pp., June 2019) .RRP \$49.99, Member \$40**

Cats In Australia: Companion & Killer (Woinarski, Legge & Dickman) documents the extent to which cats have subverted, and are continuing to subvert, Australia’s biodiversity. It also describes the origins of cats and their global spread, as well as their longstanding and varying relationship with people. This book seeks to describe the challenge of managing cats and the options available to constrain their impacts. The book provides a discussion of the impacts of cats, their relationship with people and their management. **(PB, 332 pp., June 2019) RRP \$59.99, Member \$48**

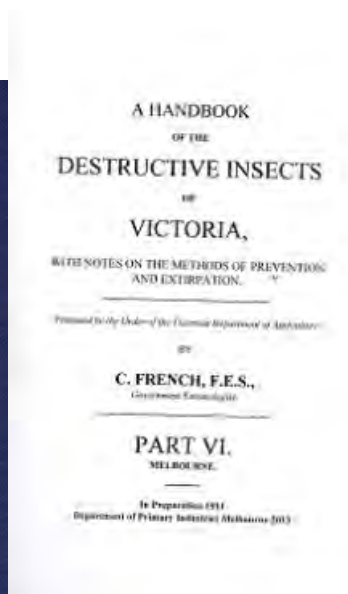
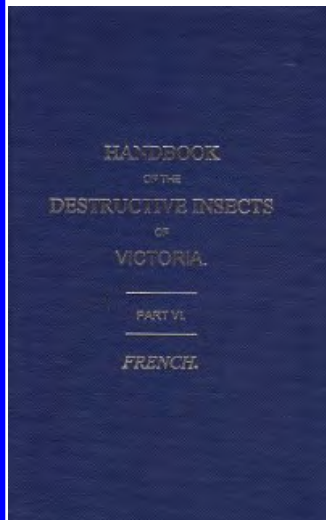


Second Hand Book Title	Author	Type	Year	Pages	RRP	Sale Price
A Handbook to Plants in Victoria Vol 1	J. Willis	HB	1970	481		\$25
Australian Ants: Their Biology & ID - Vol 3	S. Shattuck	HB	1999	226		\$10
Australian Rainforest Woods	M. Lake	HB	2015	208	\$69.95	\$30
Birds of Australia: A photographic guide	Campbell, Woods & Leseberg	PB	2015	391	\$64.99	\$10
Flora of South Australia, Part 1 (3rd ed)	J. Black	PB	1978	466		\$10
Flora of South Australia, Part IV	Jessop & Toelken	HB	1980	2248		\$15
Flora of Victoria Volume 2	Walsh & Entwisle	HB	1994	946		\$100
Flying Foxes	V. Jones	HB	2013	192	\$39.95	\$20
Handbook of the Destructive Insects of Vic. Vol 2	C. French	HB	1893	222		\$20
Handbook of the Destructive Insects of Vic. Vol 3	C. French	HB	1900	229		\$20
Meanderings in the Bush	MacMillen & MacMillen	PB	2009	198		\$20
Plants of Western NSW	Cunningham <i>et al</i>	HB	1981	766		\$10
Silken Web: A natural history of Australian Spiders	B. Simon-Brunet	HB	1994	208		\$8
The Ants of Southern Aust.: A Guide to the Bassian Fauna	Anderson, A	PB	1991	70		\$5
The Biggest Estate on Earth	B. Gamage	PB	2012	434	\$39.99	\$10
The South West	V. Laurie	PB	2015	218	\$45.00	\$20
Victorian Orchids in Habitat (incl CD)	M. Dacy	PB	1987	197		\$8
Waterplants of NSW	Sainty & Jacobs	HB	1981	550		\$10
Where Song Began	T. Low	PB	2014	406	\$32.00	\$15
Wildflowers of Bendigo	Cleary & Leamon	PB	1988	58		\$2
Wildflowers of the Stirling Ranges	B. Fuhrer	PB	1989	25		\$2

A HANDBOOK OF THE DESTRUCTIVE INSECTS OF VICTORIA

C. FRENCH

PART VI

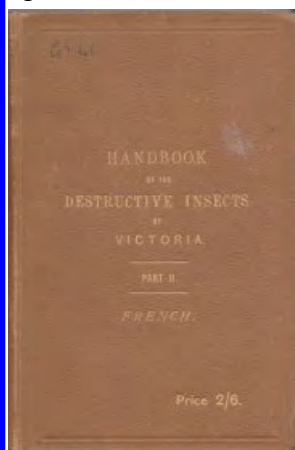


In 2013 the final part of the series was published, after the long lost manuscript by Charles French was found and meticulously put together by Alan Yen, Gordon Berg, Tim New and Peter Menkhurst. The book is hard bound and printed in the same size & format as Parts I-V, with full colour plates. A limited number of copies are still available for a reduced price of **\$60**. The sole outlet for this book is the Field Naturalists Club of Victoria.

For further information, email bookshop@fncv.org.au.

SECONDHAND EDITIONS

Available, for a limited time (until stocks last) are two second hand copies of two, previously published, parts of this series.



PART II
Published in 1893.
Good condition. Some wear to the cover.
PRICE \$20

PART III
Published in 1900.
Good condition. Some wear & marks to the cover. Aging marks to some of the pages.





Terrestrial Invertebrates Group

Wirrawilla Rainforest Walk

31st March 2019

Had winter arrived early? Perhaps a false start in hindsight as only four members managed to get to the beautiful Wirrawilla Rainforest Walk in Toolangi on this relatively cold and drizzly day. Flying insects were not going to be the order of the day.

The creek gullies are crowded with ancient *Nothofagus cunninghamii* (Myrtle Beech) dripping with green mosses, *Atherosperma moschatum* (Southern Sassafras) and *Dicksonia antarctica* (Soft Tree Fern), their arched fronds hanging onto the paths. There are some tracks leading into tall eucalypt forests that follow the gullies for some way.

Invertebrates were mostly found on the ground so we acted like giant versions of the lyrebirds, whose calls echoed in the distance, and scratched around for what we could find. We found some millipedes, centipedes, snails, spiders and harvestmen. The latter are arachnids but in the Order Opiliones, different to Araneae of spiders, which they resemble. One of these was one like none I've never seen before, adorned (legs and all) with dense spikes and was identified online as a *Triaenobunus* species.

After lunch we walked up the track leading in the other direction from the picnic area and actually saw some insects, though perched of course and not in flight. This included the amazing large, bright orange *Clytocosmus helmsi* crane fly that Linda Rogan spotted hanging in the bush.

For everything we saw check out the following project link:

<https://www.inaturalist.org/projects/fncv-2019-wirrawilla-rainforest-walk-toolangi>

Reiner Richter



Triaenobunus sp. (Harvestman)

Image: R. Richter



Clytocosmus helmsi (Crane fly)

Image: L. Rogan



Haemadipsidae sp. (Leech)

Image: R. Richter

WANTED TO EXCHANGE OR PURCHASE:

**INDIVIDUAL ISSUES AS PUBLISHED OR RUNS OR COMPLETE WORKS IF BOUND TO
INCLUDE ALL WRAPPERS AND ANY RELATED EPHEMERA:**

The Southern Science Record 1883–1886

The Victorian Naturalist January 1884–December 1893 as well as April & May 1926, September 1927, September 1935, January 1937 and May 1960.

I would be pleased to consider outstanding copies by virtue of condition or association or other issues with a view to further enhancing my sets. Thank you.

Dr Mark R Cabouret

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TIG outing to Mt. Disappointment 14/4/2019

Mt Disappointment is a granite outcrop of 2,600 feet elevation, located at the southern end of the Great Dividing Range about 60 kilometres north of Melbourne. The area was very severely burnt in 2009.

On 14th April, a beautiful autumn Sunday, six FNCV members and one visitor met for a TIG excursion, led by Max Campbell, at Blair's Hut. The countryside was extremely dry with almost no birds calling. Insects were going to be scarce. We set off up a well graded track leading to the Mt Disappointment summit. This track followed a moist gully that had somehow managed to escape the worse of the Black Saturday fires. With persistence and careful searching some interesting finds were made. The images will be in a later FNN.

Despite the dryness there was an exiting fungi find. *Aphelaria sp.* is a spectacular sight with: "fruit bodies to 200 mm high by 300 mm wide, densely branched with branches somewhat flattened". (Fuhrer, *A Field Guide to Australian Fungi*, page 196). Being so large we needed a way to emphasize its size, hence the pair of glasses in the photo left.. The specimens appeared quite old. Some of them were



Image: J. Broadberry

covered with mould giving them an attractive blue/green colouration.



Image: J. Broadberry



From billboards in the picnic area and on the summit we learned a little history. In 1824 Mt. Disappointment was named by the explorers Hume and Hovell because of their disappointment that the dense growth of trees prevented them from viewing Port Phillip Bay from the summit. After lunch a few of us completed the 1.8km walk to the top and understood perfectly the frustration of the explorers. Due to the thick vegetation there was no view to reward our climb. However, a brief opening through the trees on the road down the mountain satisfied my need for a panorama.

Joan Broadberry

Bi-annual FNCV Second-hand Book Sale



Image: Ruth Hoskin

The organisation of the sale was ably co-ordinated by Philippa Burgess. Many hands made light work and the sorting was completed a day early.

Grateful thanks to all those who donated books. There would be no sale without you!

Thank you also to those who volunteered to help during the preceding week and on the sale day. They are: Max Campbell, Judith Sise, Su Dempsey, Joan Broadberry, Gary Presland, Carol Page, Barbara Burns, June Anton, Cecily Falkingham, Heather Eadon, Sue Bendel, and Ruth Hoskin.

The sale made \$1,073 for general FNCV funds.



Day Group

Birdsland Reserve

The FNCV Day Group's April excursion to Birdsland Reserve Belgrave was very enjoyable. The weather was ideal for walking and fifteen members and visitors were able to attend. Our leader was Sally Bewsher.

The Monbulk Creek Retarding Basin and Birdsland Reserve provide an important environmental corridor along the Monbulk Creek, linking the Lysterfield Hills and Dandenong Creek system with the Dandenong Ranges. The Reserve was opened in 1984 and is managed by Melbourne Water. For many of us this was a first visit to this significant habitat which includes Manna and Swamp Gum riparian forest and areas of Swamp Paperbark. The beautiful wetlands are home to a variety of frog and water-bird species and a breeding population of platypus.

We were lucky to have a number of keen birdwatchers with us, with the final count being 32 species. Some fortunate people enjoyed a wonderful eye-level view of a male Mistletoe Bird. Other nice finds were male and female Darters and adult and juvenile Tawny Frogmouths. Special thanks to Gary French. Many of the water-birds were habituated to walkers. We were able to get great looks at the unusual feet of coots, seemingly providing a compromise between the need to walk and swim.

The complete bird list is as follows:

Rainbow Lorikeet, Grey Butcherbird, Noisy Miner, Red Wattlebird, Magpie Lark, Superb Fairy-wren, Magpie, Blackbird, Dusky Moorhen, King Parrot, Galah, White-faced Heron, Purple Swamphen, Little Raven, Eurasian Coot, Pacific Black Duck, Darter, Crimson Rosella, Eastern Rosella, Wood Duck, Cattle Egret, Grey-fantail, White-eared Honeyeater, Striated thornbill, Spotted Pardalote, White-throated Treecreeper, Mistletoe Bird, Tawny Frogmouth, Sulphur-crested Cockatoo, Australasian Grebe, Welcome Swallow and Kookaburra.

Most of the group were able to stay on and enjoy lunch after the walk.

One member only managed one bite of her ham and cheese sandwich before a greedy Kookaburra took it in a perfectly timed swoop. Such is life!

On behalf of the Day Group I would like to extend our thanks to Sally for introducing us to this gem of a walk. I for one will want to visit again soon.

Joan Broadberry



Birdwatching

Image: Reiner Richter



Picnic Lunch

Image: Sally Bewsher



Tawny Frogmouth

Image: J. Broadberry



Walking around the lake

Image: J. Broadberry



Fauna Survey Group

Fauna Survey Group survey at Lonsdale NCR (near Stawell) January 2019

The survey at Lonsdale NCR, near Stawell, in January 2019, was the latest in a series that commenced in 2014 in the parks and reserves in and around the Grampians. The focus of these surveys is threatened arboreal mammals, particularly the Squirrel Glider.

In the first survey, seven arboreal mammals were detected being Brush-tailed Phascogale, Common Brushtail Possum, Eastern Ringtail Possum, Feathertail Glider, Pygmy Possum, Squirrel Glider and Yellow-footed Antechinus.

In six of the reserves further work has been undertaken to improve distribution knowledge. Only one more Squirrel Glider was detected, but the Brush-tailed Phascogale has proven to be elusive. Both the Squirrel Glider (*Petaurus norfolcensis*) and Brush-tailed Phascogale (*Phascogale tapoatafa*) have been shown to exist in the southern section of Lonsdale NCR, but our camera work has not shown this to be so.

We therefore decided to focus on this 400 ha section with a doubling of the concentration of our cameras and an extension of their time in the field. We also undertook some bird watching and spotlighting.

Twenty-one camera sites were selected in a grid that provided a density of approximately one per 20 ha. At each site the camera was placed in a tree (some 2-3 m. off the ground) aimed at a bait container on an adjacent tree trunk or bough.

Thirty-eight species were detected during the survey – 31 birds and seven mammals (grey kangaroos have only been identified to genera level).

A number of species important (positive or negative) in a conservation context were detected. Five of the bird species – Brown Treecreeper, Brown-headed Honeyeater, Diamond Firetail, Hooded Robin and Yellow-tufted Honeyeater are members of the Victorian Temperate Woodland Community which is listed under the *Flora and Fauna Guarantee Act, 1988*. Brown Treecreeper, Diamond Firetail and Hooded Robin are considered near threatened as individual species in the DSE advisory list of threatened vertebrate fauna. Squirrel Gliders (FFG and endangered) were also detected. The Red Fox, listed as a FFG threatening process, was also detected by camera.

Our cameras detected arboreal activity across the entire survey site.

The most widely recorded arboreal mammal was Yellow-footed Antechinus (17 sites). Sugar Glider appeared at 15 sites, Common Brushtail Possum at seven and Squirrel Glider at six.

The increased survey effort certainly provided a different perspective of arboreal activity in this section of the reserve. Based on our results it would seem that the Brush-tailed Phascogale is a rare, itinerant visitor to the area. Pygmy Possums and Feathertail Gliders have rarely been caught on our cameras and it would seem that further modifications in our approach are necessary if they are the prime survey target.



Typical camera tree

Image: Ray Gibson



Squirrel Glider *Petaurus norfolcensis*



Yellow-footed Antechinus *Antechinus flavipes*

Robin Drury



Extracts from the minutes of the FNCV AGM, held Sunday 5th May 2019

A full copy of the minutes and annual report has been emailed. Members who might like a paper copy

Congratulations to the newly elected FNCV Council

President: Maxwell Campbell

Vice President: Philippa Burgess

Secretary: Barbara Burns

Treasurer: Barbara Burns

Councillor representing:

"	Botany Group: Ken Griffiths
"	Fauna Survey Group: Susan Dempsey
"	Fungi Group: Geoff Lay
"	Geology Group: Ruth Hoskin
"	Juniors' Group: Patricia Amaya
"	Marine Research Group: Leon Altoff
"	Microscopy Group: Philippa Burgess
"	Day Group: <i>Vacant</i>
"	Terrestrial Invertebrates Group: <i>Vacant</i>

Councillors: Andy Brentnall (correspondence officer), Sue Bendel, Andrey Falconer, Judith Sise, John Harris and Joan Broadberry

Long Term Member's Certificates:

Four members were awarded certificates in recognition of being a member of the FNCV for a continuous period of 40 years. They are: Dr Andrew Bennett, Dr. Beth Goth, Charles Silveira and Associate Professor Michael Braby who was present to receive his certificate. (Photo below)

Speaker:

Michael Braby was also our speaker, his topic being *Butterflies of the Australian Monsoon Tropics*. It was an informative, well presented talk with wonderful photos. Dr Braby summarised the research to compile a comprehensive inventory of the butterflies and diurnal moths of Northern Australia to form the scientific baseline against which the extent and direction of change can be assessed in the future. His presentation was enjoyed by the attentive audience



New FNCV membership fees to commence on 1st July 2019

Fee Type	Rate
Single	\$86
Family	\$111
Single Country/Concession	\$65
Family Country/ Concession	\$86
Student	\$39
Junior Family	\$52
Junior additional	\$17
Schools/ Clubs	\$99
Institutional	\$172

Environment Fund Recipients and Reports

Barbara Burns advised that a meeting of the Fund Committee was held in April to allocate grants for the year. We normally have only approximately \$3000 donated each year so sometimes we have to decline grants to many worthy applicants. More donations would be appreciated.

Organisation	Purpose	Amount \$
Jorge Rodriguez PHD Student Australian Museum, researching Marine Flatworms from the order of Polycladida in SE Australia	DNA Extraction and sequencing	935.00
Yarran Dheran Nature Reserve Committee	Taxidermy of a ringtail possum for display in the visitors centre at Yarran Dheran	605.00
FNCV Juniors' Co-ordinator, Patricia Amaya	Mini portable projector plus remote pointer. For use at twice yearly camps.	995.95
FNCV Max Campbell	Upgrade of Audio Visual Equipment for the FNCV Hall	1,000.00
Friends of Bats and Bushcare - Sue Bendel, Megan Davidson	15 Wombaroo high protein milk supplement x \$23 to feed orphaned Grey headed flying foxes in soft release enclosure at Yarra Bend. \$345 Landing curtain for bats \$450. Funds to be spent in January 2020 for next year's season.	795.00
		\$4,330.95

Extracts from SIG reports given at the last FNCV Council Meeting

Botany Group: Andre Messina from RBG Vic presented VicFlora online. He recounted how the core of hefty books of the 1990s had been laboriously transferred to a website in a project dating from 2014. Two thousand plants in addition had needed to be described. Many updates and new features were added, exploiting the new technology and wider audience. Andre mentioned that usage, based on 'hits', increased many fold when photo images were added, in the later stages of the project.

Other new features include the recording of weeds, photography of seed bank seeds and the ongoing selection by botanists of exemplar images of plant features (images of which are not always available). Integrated links to the data of other major plant databases, such as the Virtual Herbarium, Atlas of Living Australia (ALA) and the Australian Plant Name Index (APNI) were noted or demonstrated.

Andre discussed the availability and use of keys to identify the plant in your hand, or even a plant you don't know much about. There are interactive and also bracketed keys. New multi-access keys to the Daisies and to Eucalypts are featured on the VicFlora homepage. More keys like this will be developed.

It was engaging to follow some searches live on the FNCV hall big screen. Two thirds of the audience had affirmed they are reasonably regular users of VicFlora, so the presentation was a kind of 'master class'. We looked at the bio regions page, where text from the print volumes is available. The functions enabling export of local occurrence lists to a spreadsheet (use csv) were demonstrated. For comparisons, simply opening two or more windows on a PC screen is a good tip.

Future directions for the VicFlora project include: constant and prompt updating, taxonomy revisions, more interactive keys (the peas and the acacias are coming) and a families of flowering plants key.

Twenty three people attended.

Ken Griffiths

Day Group: This month we had an excursion with a very successful guided walk around Birdsland Reserve, Belgrave Heights. The leader was Sally Bewsher. [See FNN page 12](#) or a full report.

Fauna Survey Group: Survey: Rushworth Forest, 19-22 April 2019: The 10 members who attended checked all the nest boxes, and had time to make repairs and paint a number of them. We also installed a few wildlife cameras which will be retrieved in a few weeks. We found typical numbers of Brush-tailed Phascogales, but Sugar Gliders were in very low numbers. Perhaps the dry conditions are a factor. We have found that numbers of animals utilising nest boxes in summer are lower. Our favourite Yellow Box grassy woodland spotlighting and stagwatching locality also had much lower numbers of possums and gliders than in recent years.

Ray Gibson

Continued page 16



Setting up a camera

Photo: J. Broadberry



Black Wallabies drinking at 3 Jims Dam. *Photo: Mark Anderson*



Jim's Dam

Photo: J. Broadberry



Sleeping Phascogale *Photo: J. Broadberry*

(Continued from page 15)

Meeting, 2-4-2019: The speaker for the meeting was Jose Ramos, postdoctoral research fellow in the Animal Behaviour Group at Latrobe University. The talk was *Movement based signalling in Agamid Lizards*. The Australian Agamid lizards (dragons) are well known for their visual displays, push ups, leg waving and tail waving. Jacky Dragons were studied for variations between different populations at Croaingingalong in Victoria and Avisford Reserve in NSW. Sympatric species, Long-nosed Dragon and Ring-tailed Dragon in central Australia, and Mallee Dragon and Painted Dragon from Mallee habitat were also studied. Toad-headed Dragons with their highly animated displays were the subject of collaborative research in a remote region of Tibet.

Geology Group: Many thanks to Dr Gary Presland for stepping in to address the 36 attendees at the Geology Meeting on 27th March. He spoke re the drastic change in Melbourne's Wetlands, comparing the lush, fertile extensive wetlands used by the indigenous people, to the white settlers' perception of these lands as 'swamps' - breeding grounds of disease and dumping grounds for rubbish. Their solution to this was to drain or alter most of the waterways, for example, the Yarra River Billabong was cut off from the river and reformed into the ornamental Lake in the Botanical Gardens; because Albert Park lagoon dried up in summer so could not be used for yachting, water was pumped from the Yarra and during the Depression, it was formalised as a lake. It was noted that attitudes are finally changing to the few remaining Wetlands although it is too late for most of the original ones. In the following discussion the wisdom of adding artificial 'wetlands' to new housing developments was questioned where it was pointed out that the biodiversity of life in the original wetlands cannot be replicated. See FNN p 6-7 for full report.

Ruth Hoskin

Microscopy Group: On Wednesday 17th April the group held a Practical Activity Night to try our recently acquired dissecting and compound microscope collection.

Juniors' Group: March evening meeting:

It was an amazing meeting with Euan Ritchie! He highlighted some of the mammal species to have been extinct since European settlement and compared the rate of extinction back then with the present. He also mentioned about the first mammal to disappear due to climate change and he said it was the Bramble Cay Melomys which lived on Bramble Cay, a ~4-5 hectare coral bank in Torres Strait, off northern Australia. <https://theconversation.com/another-australian-animal-slips-away-to-extinction-36203>. The meeting was well attended, 30 people in total including 9 non-members.

April Excursion

With William Terry as leader, we visited Bald Hill Reserve at Kyneton! 22 members participated. We all learned a lot about Phascogales and were lucky enough to see one in the nest boxes we explored with William. We also saw a few sugar gliders and we learned that both animals compete for holes in the trees (or nest boxes) to sleep and or raise their babies. William was very generous with his time and we had a fantastic day out.

April Evening Meeting;

We were fortunate to have Michael Gavin Cook, who has had a very interesting working life experience and dedicated his recent time to work at the Cranbourne Botanic Garden as a volunteer. He told us how complicated sometimes it is for them to remove invasive weeds, and how the use of drones had helped them to assess the extent of the problem. Michael also mentioned common wildlife animals found at the Botanic Gardens, including Wombats, Bandicoots, Sugar Gliders, Copperheads,, and efforts the use of fences, to keep foxes and other predators out. The meeting had 22 members and 4 non-members attending.

Patricia Amaya

Fungi Group: Meeting 1st April was on *Phylogenetic and taxonomic study of Sarcodon and Boletopsis (Bankeraceae) in Australia and New Zealand*. Speaker: James Douch, Bachelor of Science (Honours) student at the University of Melbourne. See FNN page 5 for full report. The first foray of the year was on 28th April to the Ada Tree, Yarra State Forest. There were 23 people at Tom May's talk on 4 March, 8 at James Douch's talk on 1 April and 12 on the foray to the Ada Tree.



Thanks to the editorial and layout team who put together FNN 297

Joan Broadberry
Wendy Gare
Sally Bewsher

This newsletter is printed on recycled paper.

The views and opinions expressed in this publication are those of the authors and do not necessarily reflect those of the FNCV.

Many thanks to those who helped collate and label FNN 296

Andy Brentnall
Sheina Nicholls
Joan Broadberry
Wendy Gare