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# Field Nats News No 356



Newsletter of the Field Naturalists Club of Victoria Inc. Editor: Joan Broadberry 03 9846 1218  
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October 2024

## From the President

The second-hand book sale was very successful. Thanks to all those who gave freely of their time to sort books, set up the tables and run the sale. (See p9 )

We are planning a long overdue excursion to Maryborough on Sunday October 6<sup>th</sup> to meet with members of the Maryborough Field Naturalists Club at Cosstick Reserve.

We can all take a picnic lunch and survey the reserve. Make sure you bring your cameras to record what you see. There may also be activities on the 5<sup>th</sup> for those who may wish to make a weekend of it and book accommodation or camp in the Paddy Ranges State Park. Further details will be provided in the coming weeks, so watch for announcements.

The due date for FNN 357 will be Monday 30th September, (for 10 am Tuesday 1st October).

Please use my email:

[joan.broadberry@gmail.com](mailto:joan.broadberry@gmail.com)



Soaking up limited sunshine

The slightly warmer weather has small Marbled Geckos peering out of the logs and groundcover in my garden and large dragonflies are buzzing through the air hunting for small insects. The recent strong winds and lower temperatures saw some dragonflies taking refuge in protected spots around the garden. One of them hid under a gate latch and was easily coaxed to move onto my hand and then move to a twig where it started vibrating its wings to warm up its flight muscles. It required about 5 mins to get warmed-up before it again took flight.

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Too cold and moribund to care

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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.

**Thursday 26<sup>th</sup>— Sunday 29<sup>th</sup> September Grand Final weekend - Fauna Survey Group. Spring Survey and Working bee: *Flowers, Vertebrates, Invertebrates and Elbow Grease at Mali Dunes.* Prior bookings essential.  
Contact: Andrej Hohmann 0410 934 779 or [andrej\\_hohmann@yahoo.com.au](mailto:andrej_hohmann@yahoo.com.au)**

### October

**Tuesday 1<sup>st</sup> - Fauna Survey Group Meeting: *Trialling new ways to protect turtle nests: How best to keep foxes at bay.*** Speaker: Christina Hunter, PhD candidate, La Trobe University. Contact: David De Angelis [d.deangelis@latrobe.edu.au](mailto:d.deangelis@latrobe.edu.au) 0409 519 829

**Saturday 5<sup>th</sup> – Juniors Group Excursion: *Mount Rothwell.*** Late afternoon “Tracks and Scats” education session, BYO dinner and then night tour after dark. (Sunset is 6.30 pm). Details advised to Juniors by email. **Bookings in advance essential.**  
Contact: Adam Hosken [adamhosken@gmail.com](mailto:adamhosken@gmail.com)

**Sunday 6<sup>th</sup> – Whole Club Activity: *Cosstick Wildflower Reserve, Maryborough.*** Visit to the Club property Cosstick Wildflower Reserve, near Maryborough, to survey wildflowers and insects. **Prior bookings essential.**  
Contact: Max Campbell [mcam7307@bigpond.net.au](mailto:mcam7307@bigpond.net.au) 0409 143 538

**Monday 7<sup>th</sup> - Fungi Group at 7 pm Meeting: *Members' night: Annual fungi foray plans.*** Come along to discuss next year's activities – via Zoom and in person.  
Contact: Melvin Xu [fungifncv@gmail.com](mailto:fungifncv@gmail.com) 0410 522 533

**Wednesday 9<sup>th</sup> - Invertebrate Study Group Meeting: *via Zoom.* Bookings essential via email.** Contact: Wendy Clark [inverts@fncv.org.au](mailto:inverts@fncv.org.au)

**Sunday 13<sup>th</sup> – Juniors Group Excursion: *Cranbourne Botanical Gardens***  
From 9.30 am to 12.30 pm. Southern Brown Bandicoot habitat, planting and construction of bandicoot bungalow, followed by BBQ with friends of CBG. **Bookings in advance essential.** Contact: Adam Hosken [adamhosken@gmail.com](mailto:adamhosken@gmail.com)

**Wednesday 16<sup>th</sup> - Microscopy Group Practical Meeting: *Compound and dissecting/zoom microscopes set up for attendees' use with expert guidance.*** Videos of microscopic life with narration, identification and discussion. We are now utilising our newly acquired digital microscope camera. Prepare your own slide for examination and see the specimen in detail on our projector screen. Workshops held; slide preparation, tool making. BYO specimens or view our vast array. Freshwater pond samples always available, abundant in multiple algae and organisms. Contact: Philippa Burgess 0409 866 389

**Thursday 17<sup>th</sup> – Botany Group Meeting: *Assessment and listing of threatened Victorian Plants.***  
Speaker: David Cameron, Senior Botanist. Contact: Sue Bendel [botany@fncv.org.au](mailto:botany@fncv.org.au) 0427 055 071

**Saturday 19<sup>th</sup> – Botany Group Excursion: *Eucalypt identification for beginners or less experienced, Mornington Peninsula.*** Participants MUST be available for the full day and must bring a copy of *Trees of Victoria* (only editions with the green cover), otherwise this can be purchased for \$15 cash on the day – **please advise when registering.**  
Leader: Leon Costermans, author *Trees of Victoria* and *Stories beneath our feet.* **Registration essential, numbers are strictly limited.** Contact: Sue Bendel [botany@fncv.org.au](mailto:botany@fncv.org.au) 0427 055 071

(Continued on page 3)



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 per excursion and \$2 per meeting.

(Continued from page 2)

**Sunday 20<sup>th</sup> - Invertebrates Study Group Excursion: Koo Wee Rup. Come and find what invertebrates reside in this patch of coastal heathland. Bookings essential via email.** Contact: Wendy Clark [inverts@fncv.org.au](mailto:inverts@fncv.org.au)

**Tuesday 22<sup>nd</sup> – Day Group Meeting:** 10.30 am for coffee and a chat, speaker at 11 am. *Saving lives in the Yarra River.* Speaker: Ian Penrose, the first Yarra Riverkeeper. Contact: Joan Broadberry [joan.broadberry@gmail.com](mailto:joan.broadberry@gmail.com)

**Wednesday 23<sup>rd</sup> – Geology Group Meeting: *Volcanoes: from distant ancestors to diamonds.***  
Speaker: Hayden Dalton, University of Melbourne. Contact: Ken Griffiths [geology@fncv.org.au](mailto:geology@fncv.org.au)

**Friday 25<sup>th</sup> – Juniors Group No Meeting**

**Monday 28<sup>th</sup>—FNCV Council Meeting:** 7.30 pm. Apologies and agenda items to Wendy Gare [admin@fncv.org.au](mailto:admin@fncv.org.au)

**Tuesday 29<sup>th</sup> - Tuesday 5<sup>th</sup> November - Fauna Survey Group. Spring Survey: *Birds, Mammals and Reptiles at Annuello Flora and Fauna Reserve.* Prior bookings essential. Ray Gibson 0417 861 651 or [rgibson@melbpc.org.au](mailto:rgibson@melbpc.org.au)**

## Library News

The following monographs have been accessioned since the previous 'Library News, in July 2023. The works may now be borrowed.



- Angus, Georgia (2021) *100 Australian birds* [598.2/94 ANG]  
 Angus, Georgia (2023) *100 Australian butterflies, bees, beetles & bugs* [595.7 ANG]  
 Angus, Georgia (2023) *Birds with personality: a guide to 50 of the world's most beguiling birds* [598.2 ANG]  
 Braby, Michael; Olsen, Penny (n.d.) *A flutter of butterflies* [743.7 BRA]  
 Burbidge, NT; Gray, M (1970) *Flora of the A.C.T.* [582/944 BUR]  
 Cabouret, Mark R (2023) *Out from the shadows: John Michael Cattle 1849-1919. Australia's first native-born ornithological draughtsman* [F 758 CAB]  
 Carolin, RC; Tindale, MD (1994) *Flora of the Sydney region* [582/944 CAR]  
 Chambers, Stuart (1989) *Birds of New Zealand: locality guide* [598.2/93 CHA]  
 Ducker, Sophie (Editor) (1988) *The contented botanist: letters of W.H. Harvey about Australia and the Pacific* [921 CON]  
 Ellemor, Bill (Editor) (2023) *The Wandinong story: the origins of Wandinong Sanctuary, Blackburn, as a family home and its transformation ...* [712.5 ELL]  
 Ellis, Mary (2022) *Wilson's Promontory National Park: a history* [994.5 ELL]  
 Hakam, Grace; Eichler, John; Buckeridge, John (2023) *The common insects and spiders of Rickett's Point Marine Sanctuary* [595.70 COM]  
 Humphries, Paul (2023) *The life and time of the Murray cod* [597 HUM]  
 Jones, David; Roos, Phillip (2019) (Eds) *Geelong's changing landscape: ecology. Development and conservation* [711 JPN]  
 Jones, George (1984) *Growing together: a gardening history of Geelong – extending to Colac and Camperdown* [712.5 JON]  
 Koehn, J; Brown, J; Clunie, P; Menkhorst, P; Woodford, L; Kohout, M; Pickworth (2022) *People passion science: celebrating 50 years of the Arthur Rhyllah Institute for environmental research 1970-2020* [570.6 PEO]  
 Newton, Janice; Phillips, K, Herlihy OAM, P (2023) *The woodlanders of Walden Hut* [508.945 WOO]  
 Patterson, Graham (2024) *Coastal guide to nature and history 3: western Victoria – Point Lonsdale to the South Australian border* [994.5 PAT]  
 Robin, Libby (2023) *What birdo is that?: a field guide to bird-people* [598/94 ROB]  
 Scott, George A.M. (1978) *Provisional keys to the liverworts of Victoria. Version II* [588 SCO]  
 Short, PS (Ed.) (1990) *History of systematic botany in Australasia* [R581 SHO]  
 Tunbridge, Dorothy (1991) *The story of the Flinders Ranges mammals* [599.94]  
 Williams, Wendy (2020) *The language of butterflies* [595.78 WIL]

Gary Presland  
Honorary Librarian

## Members' news, photos & observations

We always have space for member photos and natural history observations. Please share with us what you have noted in your daily life, travels or garden. Email: [joan.broadberry@gmail.com](mailto:joan.broadberry@gmail.com) by the first Monday in the month.

Welcome  
Welcome

Warmest greetings to these new members who were welcomed into our club at the last Council meeting:

*Ashton Hawkins, Robbie Belchamber, Shirley Urban, Peter Urban, Keiran Speedy, Geoff Speedy, Lee Speedy, Sammy Bodycomb, Maureen Gamon and Patrea Smith*

### CARING FOR THE FNCV GARDEN

We take many things in life for granted. I am guessing that most FNCV members walk past the lovely native garden surrounding our club rooms without giving it much thought. There would probably only be comments if it were full of rubbish, weeds, or had become overgrown.

Barbara Burns has taken it upon herself to maintain the garden. She has been doing this quietly for many years. She puts in an hour here and there and it all adds up to a beautifully tidy, weed-free garden.

A quote from Barbara sums it up, "I am like a dog with a ball, I see a weed and swoop on it and pull it up. Can't help myself." Garden waste is sometimes taken home in her car boot to be disposed of in her own green bin.

A small amount of assistance with the more difficult pruning, needing specialised tools, is provided by a contractor. But that too does not take place without someone making the arrangements.

The work in the garden is on top of Barbara's many other roles in the club including the responsibility of being club treasurer and setting up and being part of running the environment fund. Never more true is the saying, "Ask a busy person".



**Advertising in the  
Field Nats News**

**VERY REASONABLE RATES**

Contact Wendy in the Field Nats  
Office

[admin@fncv.org.au](mailto:admin@fncv.org.au)

9877 9860

(Mon –Tues 10 am—4 pm)

[bookshop@fncv.org.au](mailto:bookshop@fncv.org.au)

for any orders or bookshop queries.

If you don't have access to email, the FNCV office will pass on your message. Kathy will then be in contact with you.

**Thank you to all those who helped produce FNN 356**  
Joan Broadberry, Wendy Gare and Sally Bewsher

## Ant Plant—*Myrmecodia beccarii* – Nicky Zanen

*Myrmecodia beccarii* is also known as the 'Ant Plant'. It is of the Rubiaceae family, and is an epiphyte that has evolved to have a special association with the Golden Ant which lives in the chamber of the swollen stem. *M. beccarii* only occurs in the mangroves and lowland forests found around Cairns and northern Cape York.

The plant has small and succulent leaves, and can develop multiple stems. Its hosts include *Melaleuca leucadendra*. Several had been transplanted in the trees near the carpark of the Cooktown Botanic Gardens. The ant plant is a vulnerable species due to key threats such as habitat loss and clearing of coastal forests.

When the plant grows, tissues within the tuber dies back and hollow chambers form. These chambers allow ants (most *Iridomyrmex cordatus*) to enter the plant. A symbiotic relationship exists between the plant and ants, the plant provides a protective shelter for the ants, in turn the ants provide additional nutrients to the plant with food leftovers. Not all plants are inhabited, but in the wild the vast majority of plants house ant colonies.

Another user of the hollows is the Apollo Jewel Butterfly (*Hypochrysops apollo apollo*) which lays its eggs on the plant, and because they smell like ants' eggs, the ants carry the eggs inside the plant, where they develop to the butterfly stage. *Hypochrysops* is a genus of 'blue' butterflies in the family Lycaenidae, which is notorious for its myrmecophily, a symbiotic relationship.

It is easy to propagate *Myrmecodia beccarii* from seeds. They germinate readily along the stems of trees in glass house conditions or can be grown mounted on cork, but need watering daily.

Unfortunately for Victorians, the plant needs steady high temperatures, bright light and air movement to grow.

Information from Wikipedia and ANPB Website.



Warming up its wing muscles preparatory to take off.

(Continued from page 1) **From the President**

Now that Spring has actually arrived, we will be able to enjoy more SIG excursions and even get to Mali Dunes to undertake maintenance and survey activities. Invertebrate survey excursions are a great way to get together to indulge ourselves in macrophotography of both plants and animals in the field. There are also a few fungi still about. All of the activities will be listed in the Calendar of Events.

**Max Campbell**

*Photos: M. Campbell*



Hiding under the gate latch



Another dragon fly was hiding under the power box in strong winds, 2020.

## FNCV FACEBOOK GROUP

The club has had a Facebook group since 2012. Since then it has grown to 44,700 members. While many other Field Naturalists Clubs and environment organisations around the country also have Facebook groups, the FNCV is easily one of the biggest.

As one can imagine over 44,000 members generate a lot of posts, comments and views. Over the last six months there have been an average of 28 posts a day (a total of 5120), an average of 342 comments (a total of 61,905), an average of 2711 reactions (a total of 490,826), an average of 17,658 views (a total of 3,196,026). That is a lot of engagement!

Common themes and topics include:

- People sharing their nice shots of species and landscapes.
- Interesting observations of species and their behaviour and occurrence.
- Request for species identification, particularly of small mammals. Many an antechinus and bandicoot has been identified on the page and many a person has been disappointed to find out that they are plagued by invasive rats rather than something cute and native. Requests for identification also include animal remains though these are not always for the squeamish.
- Requests to help direct people on what to do about injured wildlife and where to report dead wildlife such as penguins and seals. One recent highlight was the story of a Fruit Bat being rescued from a Bunnings car park tree with the help of Fire Rescue Victoria. A twist on the old classic of Mr Whiskers getting stuck in a tree.
- Wildlife/human conflict such as roadkill, animal deaths and displacement. The odd issue that popped up on the media made its first appearance on the Facebook group. Raptors suffering from rodenticide poisoning and the need to do something about it has been a recurring theme on the group.
- Educational posts on environmental hot button topics, although we strive to maintain political neutrality.

Helping people with identification, learning about Victoria's environment, directing people to the appropriate resources are some of the best outcomes of the group and are the primary service the FNCV provides via the Facebook group.

Another value of the group is to advertise the activities of the real-life club and its program. Something we should be taking greater advantage of.

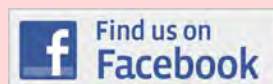
As you can imagine with that many posts and members the moderating of the group is no easy feat. The moderators are George, Andrej, Asha, Wendy, Claire, John, as well as past moderators such as Ian and Bruce. The growth and continued engagement people have with the group is a result of the effort of the moderators to keep the group true to its intent and remain useful, as well as civil. However, some generic online behaviour of people being quick to speak and slow to think is hard to moderate and the online space is not to everyone's liking.

Some additional interesting statistics are that the group is 62.4% women and 37.6% men. With women being evenly spread across the age groups but men dropping off particularly in the older age groups.

More than half of the members are from Melbourne, with Geelong being a very distant second at a1,000 members. Geelong is followed by Sydney, Bendigo, Ballarat, Adelaide, Brisbane, Perth and then Canberra. Most of Victoria's regional towns and many other Australian cities are also represented.

Interestingly the group has 1,531 members from the United States, 641 from Indonesia, 474 from the UK, 283 from Canada, 237 from India and 220 from the Philippines. Our international members may reflect an international fascination with Australian animals and hopefully not spam!

Cheers,  
Andrej



*Clicking on the Facebook logo on the left will take you to the FNCV Facebook page.*

### **Editor: I asked my grandchild Sebastian aged 11 for some jokes for FNN:**

What do you call a seagull when it flies over Port Phillip Bay?  
 What did the number zero say to the number eight?  
 What was the tallest mountain in the world before Mt Everest was discovered?  
 What building has the most stories?  
 In what sport do winners go backwards and losers go forwards?

**A bagel.  
 Hey, nice belt!  
 Mt Everest.  
 A library  
 Tug of war.**

*Thank you Sebastian, and yes I did have to censor a couple!*



## Botany Group

### Identification Features of Mosses and Allied Plants *Speaker: Dr Matt Dell*

The August Botany meeting was a presentation by Dr Matt Dell on "Identification Features of Mosses and Allied Plants". Thanks to Matt for a very informative presentation and for providing moss samples which were observed under the microscope for the purpose of gaining experience in identification of these plants. This was most useful. Thank you to Baeckea Driscoll for preparing the slides and to Philippa Burgess for organising the microscopes.

Bryophytes include mosses, liverworts and hornworts. The life cycle of moss shows two different generations, the gametophyte (which forms the gametes, eggs and sperm), and the sporophyte (which forms the spores). The gametophyte is the larger leafy part of the plant that is usually observed. The sporophyte forms as a result of sexual reproduction and can be observed as a spore carrying capsule, which is supported by a stalk or seta. The seta is attached to the gametophyte by a foot. The capsules are useful as an additional form of identification, but are not always present.

The female reproductive organ is the archegonium and the male is the antheridium. The sperm requires water to be present on the leaf surface to enable the sperm to swim from the antheridium to the archegonium to fertilise the egg.

Liverworts and hornworts are distinguished from mosses by having a flattened thallus, with no differentiation into stems and leaves. Mosses can be identified, like other plants, such as acacias from the arrangement of phyllodes and flower arrangement, however the parts of the moss are referred to using different terminology.

Some of the main identification features of mosses include the following.

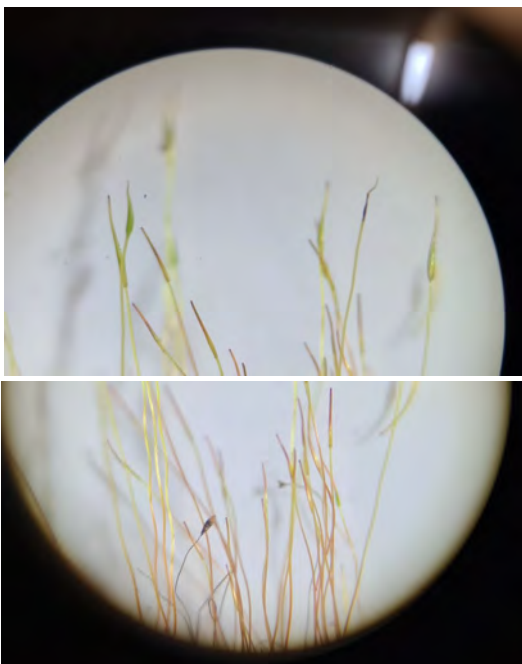
Stem length, being less than 5mm, 5mm to 2cm or greater than 2cm.

The number of branches from the main stem, their arrangement and whether they are forked.

The leaves on mosses frequently have a costa or nerve. The costa may be present or absent with varying widths and lengths. Sometimes the leaves have a distinct border. The leaves used for identification should be chosen from mature plants. Leaf length is useful, and is measured from the leaf attachment to the stem to the leaf tip. Leaf width is also important, being measured at the widest point of the leaf. Leaf shape is often similar to that in vascular plants, with leaves having shapes including ovate (widest near the base), elliptic (widest near the middle), linear (leaf longer than wide with almost parallel sides), orbicular (roughly circular) or falcate (sickle-shape).



Racopilum as viewed under the microscope



Ceratodin

Leaves are frequently arranged in a spiral around the stem so that they appear to be spreading and face in all directions around the stem. But the leaves can also be arranged in rows. They are distichous when arranged in two rows, one on each side of the stem. Or complanate, when more than one row of leaves is attached to a stem but are flattened into one plane.

The leaf margin can be smooth or with teeth. The cells near the centre of the leaf near the base can be yellow or orange, hyaline (translucent) and appear clear or coloured green from chloroplast. Leaf margins can be a flat plane, or can be incurved (rolled or curved in towards the top or leaf surface) or recurved or revolute if rolled towards the bottom surface of the leaf which faces the stem base.

The length and position of the seta (if present) are characteristic, as is the shape, length and position of the capsule and operculum.

Another feature used to identify moss, is where the moss grows. Moss may grow on soil, calcareous or non-calcareous rocks, aquatic or epiphytic on trees, shrubs and logs, or one species that grows on dung or dead animals.

Soil bryophytes in a *Callitris* woodland in Southern NSW have ten species of mosses and liverworts within a few metres. The cool temperate rainforest in Toolangi, Victoria has the richest environment in Victoria for bryophyte species. The tallest moss *Dawsonia superba* can be viewed from the board walk at Wirra Willa in Toolangi. This moss resembles a tiny pine tree.

Sue Bendel



## Fauna Survey Group

### Meeting, 6-8-2024 Speaker: Aviya Naccarella, *Mammals Fungi and Plants: a three way relationship for a functioning ecosystem.*

Interactions are the foundation of a functioning ecosystem. Fungi form symbiotic association with shrubs and trees, and some mammals feed on the truffle-like fungi and help spread the spores. Their small conical diggings help with water infiltration, sites for seedlings and moving and mixing soil.

Some of the fungi-feeding mammals are Northern and Eastern Bettongs, Boodie, Woylie, Quenda, Eastern Barred Bandicoot, Potoroos, Swamp Wallaby, Brush-tail Possum and Bush Rat. Gilbert’s Potoroo, Long-nosed Potoroo, Woylie, Northern Bettong and the Grassland Melomys are specialist fungi feeders.

Many of the medium and small digging mammals are very susceptible to fox and cat predation and land clearing, and their populations have been drastically reduced.



Long-nosed Potoroo Photo: Andrew Bennett



Eastern Barred Bandicoot

Dispersal of fungi spores occurs through direct consumption, incidental via digging, or through secondary dispersal such as Masked Owl, Wedge-tailed Eagles, Dingoes and dung beetles.

In Victoria the Eastern Barred Bandicoot was reduced to a tiny population and near extinction before recovery plans and translocations lifted the population.

The first capture was made at Hamilton in 1988 and it was successively translocated to Woodlands in 1989, Churchill Island in 2013-15, Phillip Island in 2017 and French Island in 2019. Eastern Barred Bandicoots are generalist feeders that include invertebrates, seeds, plant material and fungi in their diet.

On Hamilton, Phillip and French Islands, analysis of small mammal scats showed a number of truffle-like taxa were consumed by bandicoots and potoroos.

Ray Gibson

The capture and handling of all animals on FNCV field trips is done strictly in accordance with the Club’s research permits.



## Extracts from SIG reports given at the last FNCV Council Meeting

**Botany Group:** Thursday 15th August. Dr Matt Dell presented on *Identification Features of Mosses and Allied Plants*. Thanks to Matt for a very informative presentation. The provision of samples to be observed for the purpose of gaining experience in identification of these plants was most useful. Thank you also to Baeckea Driscoll for preparing the slides and to Philippa Burgess for organising the microscopes. A detailed report is on p7. Twenty-four people attended  
**Sue Bendel**

**Geology Group:** 24<sup>th</sup> July 2024

Dr Kevin Hill spoke, his topic was: *Structure and Tectonics of Cape Liptrap*. He has an academic paper due out soon. From the tight folds of sedimentary rock at Cape Liptrap itself, to various rock types (dolomite, pillow lava, chrome chalcidony) and features exposed at low tide and to the clearly seen active Waratah fault at the Walkerville beaches, there is much to observe and to explain.

The cambrian rocks exposed near the beach have been tested recently and found to be mid-ocean ridge volcanics (MORB) and not metamorphic. This bears on the interpretation of some geologists as to how the Selwyn Block from western Tasmania impacted early continental accretion. (See Cayley 2011)

Sediment rocks at Cape Liptrap are from both shallow water and deep water deposits. Turbidites accumulate on a continental shelf, then slide off in a rush to the ocean floor.

Sedimentation is considered to have occurred here as an accretionary prism, on the early continent edge, with constraint from the east, such as a thickened oceanic crust (therefore shallower water), or a remnant volcanic arc. Later, sandstone and shale strata at the Cape folded while still wet, under pressure at 3 to 5 km burial.

Background reference: Costermans, *Stories beneath our feet*, pp 402-409 and p 97. Attendance was 25.

**Ken Griffiths**

**Microscopy Group:** Meeting on Wednesday, 21<sup>st</sup> August. Plenty of specimens were available and Max played his recent "Microcosmos" videos, always interesting and enthralling. An eager budding microscopist attended and practised botanical dissection. It was a quiet night, six people in total, all enjoyed the evening.

**Philippa Burgess**

## Second-hand Booksale 10<sup>th</sup> August

The FNCV holds a sale of second-hand natural history books every second year. This creates a lot of work, (remember boxes of books are very heavy), but is much appreciated by members and friends as it give them an opportunity to clear their bookshelves, acquire bargains and perhaps find precious titles that are no longer in print. The club also makes some money; this year, approximately \$2000.

Many thanks to those who helped with book-sorting in the week before the sale and worked on the sale day: The list is no particular order:  
 Karen Bennetts, June Anton, Sue Bendel, Rose Midenhall, Larry from Latrobe Valley FNC, Ann Morton, Sue Dempsey, Gary Presland, Wendy Clark, Nicky Zanen, Leon Costermans, Maryse Hermence, Ken Griffiths, Jordan Crook, Sheina Nicholls, Barbara Burns, Wendy Gare, Judith Sise, Carol Page, Emily Noble, Max Campbell and Bill McInnes.



Fabulous job Philippa!

The highest accolade must be paid to FNCV Vice-president Philippa Burgess (pictured) who spent many hours organising the sale and directing volunteers. Philippa made everyone feel welcome with volunteers sitting down to a freshly supplied lunch and a cuppa after hours of sorting.

There is still plenty to do. Nearly a hundred boxes of books remained after the sale. A great deal of effort continues to be needed to clear these. In fact coping with what remains always presents the greatest barrier in deciding to go ahead with another sale. Attendees at meetings in the hall are encouraged to peruse the books and take any they wish, hopefully leaving a donation. Friends of the Royal Botanical Gardens are having a book sale next year and are beginning to collect donations of books. Sue Bendel has delivered several boxes and has compacted those still left in the hall. Barbara Burns has taken several boxes of books to op shops, but there is more to be done. **Maybe you can help?**

**Joan Broadberry**



## Day Group

## The Geological Time Scale

Speaker: Rob Hamson

### Working out the sequence of the strata

- Geological mapping in the UK by William Smith showed how sedimentary rocks were laid down in layers. He produced a *Table of Strata* in 1799. His story is told in Simon Winchester's book, *The Map that Changed the World*.
- The Law of Superposition stated that the oldest rock layer was at the bottom and the youngest at the top. Unconformities (breaks in the succession) showed that earth movements/mountain building/orogenies had interrupted deposition.
- Geological strata could not be dated until radioactive decay was discovered.
- A minor way of dating recent deposits was counting varves (c/f tree rings), seasonal lake deposits, particularly in glaciated lake areas such as Sweden, but this can cover only a few thousand years.
- Strata cannot be put in order based on rock type. Sandstone 5000 years old looks much the same as sandstone 3 billion years old.
- William Smith realized that different strata were characterized by specific fossils, one example being a fossil echinoid called the Chedworth Bun or pound stone., (image right). Fossils used to date strata are known as zone fossils.
- Thus the early geological time scale was based on the life preserved in the rock in the form of fossils, with major extinctions marking the main divisions.
- Two terminologies developed: Quaternary, Tertiary, Secondary, Primary Cenozoic (new life) Mesozoic (middle life), Palaeozoic (old life).
- The divisions reflect the changes in life at the two great extinctions in the Permian and at the end of the Cretaceous.
- Everything before the Cambrian was 'lifeless' and termed the Precambrian.



### Geological Time Periods

**Cambrian** - from Welsh for Wales; Cymry. Adam Sedgwich working in North Wales named the Cambrian in 1835.

**Ordovician** - from Ordovices, the Latin name for a tribe in North Wales. Sedgwich had been working in south Wales and a Scottish geologist, Sir Roderick Murchison, who named the Silurian was working in the north. They could not agree on the boundary. Charles Lapworth proposed the new period Ordovician in 1879.



Sir Roderick Murchison

**Silurian** - from Silures, the Latin name for a tribe in South-east Wales. Named by Sir Roderick Murchison.

**Devonian** - Named after Devon in England, where marine sediments occur. In other areas desert conditions prevailed: hence the name Old Red Sandstone. The Devonian was also known as the Age of Fishes.

**Carboniferous** - Named in 1822 because of its coal deposits across the northern hemisphere.

**Permian** - named after Perm in Russia by Sir Roderick Murchison in 1841 who studied these rocks in the Ural Mountains. A massive extinction at 251 Ma years ago eliminated 83% of living things.

**Triassic** - Named in 1834 for the 3-part division of this period in Germany.

**Jurassic** - named in 1795 by a German geologist after the Jura Mountains along the Swiss-French border.

**Cretaceous** - from the Latin creta meaning chalk. Named in 1822 by a French geologist. Cretaceous is abbreviated to K (from the German for Cretaceous) in the term K-T boundary at the end of the period.

### The Cenozoic

The epochs of the Cenozoic were named by Lyell based on the proportion of fossils which are still living now. Cenozoic means new/modern life.



The Silurian Sea featuring Eurypterids, known as Sea Scorpions. The largest grew to 2.5m  
*Science photo library*



Chalk Cliffs Beachy Head, England

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(Continued from page 10)

- Paleocene means the old part of the dawn of modern life. This epoch was added more recently.
- Eocene means the dawn of modern life.
- Oligocene means a few examples of modern life.
- Miocene means less examples of modern life (compared to the following epochs).
- Pliocene means much modern life.
- Pleistocene means having the most modern life
- Holocene means wholly modern life

Geologists now divide the Cenozoic into two periods, the Paleogene and the Neogene.

## Geoscience Australia's Geological TimeWalk, Canberra

The Geological TimeWalk takes you on a 1.1 kilometre journey through the Earth's 4600 million year (Ma) history, exploring the geological, climatic and biological events that shaped the Earth and discover:

- How the Earth's structure developed
- The Growth of Australia
- How the Earth's climate changed
- The evolution of life on Earth


This TimeWalk was developed to celebrate the 200th birthday of Charles Darwin and the 150th anniversary of the publication of his book *On the Origin of Species*.



Since the TimeWalk's installation in Canberra in 2009, large rock samples have been collected from around Australia and put on display at locations along the TimeWalk that reflect their age. Each rock has a story to tell, with geological, economic environmental and/or cultural significance.

*Rob's presentation included images of the full range of rock samples, space permits only a couple of examples.*

**Ediacaran Fossils**




AGE: Ediacaran, 560–550 Ma  
LOCATION: Red Range, Flinders Ranges, SA

Ediacaran lifeforms lived on a shallow sea floor. These disc-shaped *Aspidella* fossils, preserved as impressions in the sandstone, were some of the first forms of multicellular life.



**Chinaman Creek Limestone**



AGE: Devonian, ~407–392 Ma  
LOCATION: 220 km west of Townsville, Qld

Formed in a tropical, shallow marine environment this rock contains fossil bivalves and brachiopods (shellfish), corals and sponges, including the shells of giant clams.



Most of the Day Group are generalists, not geologists. Rob's presentation was perfectly pitched to provide foundation information and basic understanding of the all important geological time periods. On behalf of everyone I would like to thank him for his continued support of the Day Group. Rob also provided everyone with a timescale colour bookmark. In addition he allowed me to use a copy of this PowerPoint presentation from which I was able to put together a very abbreviated outline of his excellent talk.

**Joan Broadberry**



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## **New Zealand South Island Wildlife & Wilderness**

**15-Day Accommodated Tour – Departs Nelson 7 January 2025 - Max 12 participants**

Discover New Zealand's South Island (Te Wai Pounamu), through the eyes of a local New Zealand Naturalist on our 15-day wildlife and wilderness tour. In particular, we venture away from the crowded tourist centres to where nature remains untouched but is equally spectacular. One day you're high in a majestic mountain valley viewing giant buttercups, and the next, you're hiking in sub-Antarctic rainforest, or viewing Dusky Dolphins and Sperm Whales at sea.



## **Bhutan - The Last Shangri-La**

**14-Day Accommodated Tour - Departs Bangkok 27 April 2025 - Max 12 participants**

Bhutan is a fiercely independent Himalayan kingdom offering exquisite scenery, rich traditions and pristine environments. Home to snow leopards, blue sheep, red pandas, Asian elephants and tigers, Bhutan's environment is rigorously protected, and mass tourism is avoided to preserve the unique natural heritage. This country is also one of the last strongholds of Tibetan Buddhism, and a visit to the magnificent Taktsang Monastery (Tiger's Nest) near Paro is a highlight of the tour.



## **Botswana Wildlife Safari**

**10-Day Accommodated Safari Tour – Departs Maun 22 March 2025 - Max 12 participants**

We travel to Botswana during the green season, when the land transforms from a dry winter landscape to a vibrant lush wonderland. Salt pans become shimmering wetlands teeming with waterbirds, and offspring born in November and December will be young and playful. We'll stay in traditional safari accommodation (tented camps and lodges), nestled in Botswana's remote reserves to ensure an authentic safari experience.



## **South Australian Lake Eyre & Flinders Range Tour**

**10-Day Camping/Accommodated Tour - Departs Alice Springs 19 June 2025 - Max 10 participants**

This adventure is a must for all who long to experience the Australian outback. Travel on the Oodnadatta Track, gaze over Lake Eyre, and visit iconic outback towns including Coober Pedy, the opal capital of Australia (if not the world). We also visit Wilpena Pound, a natural wonder and amphitheatre of mountains in the Flinders Range covering 8000 hectares. Join us on this outback adventure showcasing South Australia's spectacular scenery and unique wildlife!



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