



Understanding
Our Natural World
Est. 1880

Field Nats News No 347



Newsletter of the Field Naturalists Club of Victoria Inc.

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December 2023/January 2024

From the President

Well, it is nearly the end of 2023 and the FNCV Christmas party is imminent.

This year has certainly been a whirlwind of activity for the Club. Don't forget to liaise with Wendy in the office to let her know numbers and how you may be able to assist with food, the raffle and setting up. We would love to see you there. *Christmas party invitation, see p4.*

Several years ago I found the shells of some tiny gastropods that were presumably living in the leaf litter of my garden (FNN 308, June 2020). Based on the damaged shells, I thought it might be a species of *Pupoides*, a tiny snail of the family Pupillidae.

I have been searching continuously for the living animals since then in the hope that a few might have survived our various heat waves and the dry conditions of the previous decade.

The rain we have experienced over the last year or so has kept the soil and litter very moist so I set up a Tullgren/Berlese funnel (Photo 2 p 5) to process a small amount of leaf litter and, to my surprise and delight, I was able to extract four living individuals onto moist tissue (Photos 1 & 3). Upon closer examination of the living animal, I suspect that these are *Pupilla sp* and there appears to be a healthy population amongst the litter once again. My next task is to work out what they are actually eating. I have made video recordings of the snails and found them to be incredibly fast moving for their size; they might be more appropriately named as Turbo, based on their fair turn of speed. The four tiny snails have since been returned to their litter.

Salticid spiders are now out and about in considerable numbers and have taken up positions around the garden. Little Bronze Aussies, *Helpis minitabunda* (Photo 4 p5) are on most plants, the fences and walls, patrolling their territories for food. The females are often on foliage and may have a web sac on the underside of the leaves.



Pupilla sp, A 3.5 mm pupillid, gastropod mollusc gliding over moss.

This is a combined December/January 2024 FNN.

The due date for the next issue, February 2024 (FNN 348) will be, as always, 10 am on the first Tuesday of the month, January 2nd 2024.

Use: joan.broadberry@gmail.com

Seasons greetings and best wishes for Christmas and the New Year to our readers, our wonderful contributors and editorial team, without whom there would be no FNN.



Index	Page
From the President	1,5
Calendar of events— December 2023-January 2024	2
Members' news, notices	3-4
Whitehorse Spring Festival	6
SIG reports given to Council	7
Early spring at Mali Dunes;	8-10
Terrestrial Invertebrates	11-
Group: Field trip to Baluk	12
Willam Reserve: Great Southern Bioblitz.	
Day Group: What affects Australia's weather?	13-14
News from the Bookshop	15
Coates Wildlife Tours (Adv.)	16

(Continued on page 5)



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.

December 2023

Saturday 2nd – Christmas Party BBQ 6.30 pm in the hall. Join us and help to celebrate another wonderful year with your fellow naturalists. As usual there will be a stupendous raffle! Invitation— see p5

Monday 4th – Fungi Group—No Meeting

Tuesday 5th - Fauna Survey Group Meeting: *Members' night, including reports of recent trips and surveys.* Contact: Ray Gibson 0417 861 651, rgibson@melbpc.org.au

Sunday 10th - Terrestrial Invertebrates Group Excursion: *Starlings Gap.* Bookings essential. Contact: Wendy Clark, wendy.empathy@optusnet.com.au

Monday 11th – Marine Research Group Meeting: *Annual member's night* - will be held on-line and in the hall. Link for the on line meeting to be provided closer to the event. Everyone is welcome to bring along exhibits, items of interest or questions on marine invertebrates. Contact: Leon Altoff 0428 669 773

Wednesday 13th - Terrestrial Invertebrates Group - Meeting via Zoom. An informal discussion of photos of the invertebrates seen during the month. All welcome to join in with photos or observations. Contact Wendy Clark at wendy.empathy@optusnet.com.au to get the link and / or to let her know you have photos to show.

Thursday 14th – Botany Group—No Meeting

Wednesday 20th - Microscopy Group—No Meeting

Tuesday 26th – Day Group—No Meeting

Wednesday 27th – Geology Group—No Meeting

Friday 29th - Juniors Group—No meeting

January 2024

Monday 1st – Fungi Group—No Meeting

Tuesday 2nd - Fauna Survey Group—No Meeting

Sunday 7th - Terrestrial Invertebrates Group Excursion: *Location to be announced.* Bookings essential. Contact: Wendy Clark wendy.empathy@optusnet.com.au

Thursday 11th – Botany Group—No Meeting

Wednesday 17th - Terrestrial Invertebrates Group Meeting: *Members' Night.* This is peak invertebrates season. Discussions of the findings on our trips and more. Contact: Max Campbell 0409 143 538; mcam7307@bigpond.net.au

Tuesday 23rd – Day Group—No Meeting

Wednesday 24th – Geology Group—No Meeting

Friday 26th – Juniors Group—No Meeting – Australia Day

Monday 29th—FNCV Council Meeting: 7.30 pm. Apologies and agenda items to Wendy Gare admin@fncv.org.au

Attendees are requested to register for excursions so that they can be contacted if there is a change in arrangements.

Registering also means that the leader is better able to plan activities.



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.

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 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:

Nick Shaw, Adam Taranto, Andy Le-Phan, Thanh Le, Ken Gosbell, Alice Aldora, Harrison Baxter and Peter Menkhorst.

Valè

Dr Barry Cooper, 23 September 1948 — 13 October 2023

We are saddened to record the recent death of long-term member of FNCV, Dr Barry Cooper. Barry joined the Hawthorn Juniors Naturalists Club in 1961, and moved on to adult membership of FNCV in 1966. During his time in the Juniors he was editor of that club's newsletter from its inception in 1963, and was also centrally involved with the Juniors' exhibitions at the annual FNCV Nature Shows. He wrote a history of the Hawthorn Juniors Club, which was published in *The Victorian Naturalist* in August 1968.

Barry extended his keen interest in the natural world into a successful and highly decorated career. In 1971 he graduated from the University of Melbourne with a BSc (Hons) in geology, before completing an MSc in the following year, with a thesis in the field of palaeontology and stratigraphy. He then enrolled in the PhD program at Ohio State University, which he completed with A grades, in 1974.

After moving to South Australia, Barry worked in geological research with the state government from the mid 1970s, before taking up an academic career at the University of South Australia.

FNCV extends its condolences to Barry's family.

A more detailed tribute will be published in the next issue of *The Victorian Naturalist*.



Australian Natural History Medallion, Monday 20th November 2023.
Buffet Dinner 6.30 bookings essential, cost \$25. Presentation of Medallion 8 pm.
Invitation: see FNN 346 p13 All welcome

Could those who have particular dietary requirements please indicate when booking for the dinner. (This should have been included in the invitation published in FNN 346)

The award will be presented to Maureen Christie for her contribution to the Conservation of Shorebirds, by associate professor Robert Day, nominee of the president of the Royal Society of Victoria.

The subject of Maureen Christie's presentation is "**Beach-cast Marine Algae Fishery**".

FNCV Facebook
36,103 followers

Thank you to those who helped produce FNN 347

Joan Broadberry, Wendy Gare, and Sheina Nicholls.

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.

OMISSION: FNN 346

The report on the presentation to the FSG, *Fire Ecology and Reptiles in the Little Desert* was prepared by Ray Gibson.

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

FNCV Christmas Party

Saturday December 2nd 2023

Join us at 6.30 pm in the FNCV Hall, 1 Gardenia St. Blackburn

Relax and enjoy a BBQ with friends and members from all FNCV Special Interest Groups including Juniors and celebrate another wonderful year of activities. All welcome!

- * The club will provide meat, veggieburgers, bread and nibbles. Please bring a salad or a sweet to share. BYO drinks. Email the office admin@fncv.org.au by **Monday 27th November at the latest** to let us know numbers coming and what food you are bringing.
- * We will also be holding the traditional FNCV end-of-year fundraising raffle. **Donations of prizes would be much appreciated**, e.g. wine, knick-knacks, plants, books etc. Look deep into your 'present drawer'. Deliver raffle prizes to the labelled box in the office or (preferably) bring them with you on the night.

Queries to Wendy in the office 9877 9860 or admin@fncv.org.au

MALLEE FOWL LIVE CAMERA

Dear Members, FNCV is a sponsor of the Malleefowl Live Camera. You can now follow the birds' activities on the website by going to

nationalmalleefowl.com.au

Or <https://www.nationalmalleefowl.com.au/live-camera/>



FNCV Environment Fund— Successful applicants Second round of grants

- FNCV Juniors for excursions to Mt. Rothwell.
- PhD student Zoe Davis, to investigate the role that exposure to nature has on children's mental health and well-being.
- Friends of Morwell National Park to produce an introductory guide to the birds in the park.

Advertising in the Field Nats News

VERY REASONABLE RATES

Contact Wendy in the Field Nats
Office

admin@fncv.org.au

9877 9860

(Mon –Tues 10 am—4 pm)

Editor required

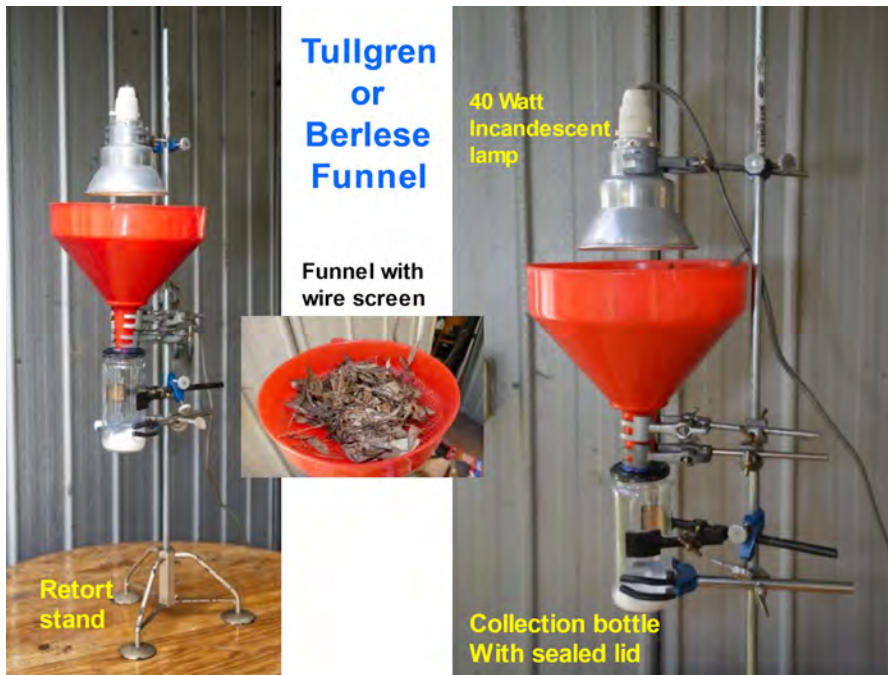
The editorial team of *The Victorian Naturalist* is seeking a new member.

On-the-job training is available, but some knowledge and experience in the following areas would be an advantage:

- Science, biology or natural history;
- proofreading or editing;
- desktop publishing (preferably InDesign);
- science publishing.

Interested readers can phone Gary Presland (0416 316 419)
or Mary Gibson (0427 876 930),

(Continued from page 1)



Common katydids (Photo 5) are calling from the vegetation, a sign that Summer is close.

If I do not catch up with you in the mean-time, have a merry Christmas and a Happy New Year.

Max Campbell

*All photos by Max Campbell
October 2023*

Left: A Berlese funnel made from bits and pieces in the workshop.



Pupilla sp, A 3.5 mm pupillid, gastropod mollusc.



Common katydid. *Orthoptera, Tettigoniidae*.

Left: *Helpis minitabunda*, a gravid female exploring the water tank.

Whitehorse Spring Festival 2023

Sunday 15th October 10 am—4 pm

Whitehorse Civic Centre Precinct

Our Vice-President Philippa Burgess co-ordinated the FNCV stall at the recent Whitehorse festival, ably assisted by Su Dempsey, Ray Gibson and Maryse Hermence. Helping out during the day were, June Anton, Karen Bennetts, Anne Warren and Joan Broadberry.



The aim of participating in the festival was to present the Field Naturalists Club of Victoria to the local community and encourage membership enquiries. In particular our activities were designed to appeal to children. A favourite was the identification of 10 different animal and bird skulls. *Photo left.*

Photo below left.



Anne and Philippa

Another popular activity was a touch table filled with a beautiful collection of natural history treasures.

Philippa and her team put a great deal of thought, time and effort into designing and setting up the FNCV's stall. It was a great success and attracted a lot of interest. A huge thank you must go to those who gave up their Sunday (and more) to publicise the wonderful program the FNCV has to offer. Wendy Clark, with help from Su Dempsey and the SIG coordinators, made a major contribution to the Club's outreach by updating and refreshing 11 posters. The results of their creative work look absolutely fabulous. Congratulations! *Photo below right.*



As an aside, I would highly recommend a visit to the epic Whitehorse Festival, which is held every year. The huge number of stalls enabled me to find out what is being offered, not just in Whitehorse, but in Melbourne. It is also great fun for kids. Do yourself a favour and put it on your calendar.

Photos: Philippa Burgess

Joan Broadberry



Karen, Maryse and Ray



Extracts from SIG reports given at the last FNCV Council Meeting

Botany Group: A members' night featured plant observation lists from our now regular annual Brisbane Ranges excursion. The phenology data supplied by VicFlora was discussed with respect to annual climate variation possibly affecting the flowering times of orchids. Presentation of images from field observations was popular as a quiz, i.e. what is that plant? We also looked at Phillip Island woodland plants, saltmarsh and more as ecological classes. Eight attended.

Ken Griffiths

Fauna Survey Group: A report from the 3rd October meeting on Australasian Bitterns is being prepared for the FNN and preparations for the fauna survey at Mali Dunes on the Cup weekend in November are underway.

Ray Gibson

Geology Group: Bruno Zielke addressed "the life of stars" in a wide ranging and in-depth manner. Indeed he gave a short history of the universe, while explaining the different sizes and life stages of particular stars. A star's colour tells a star's surface temperature. Its apparent brightness will depend on its distance from the observer. A proto-star, from a cloud of particles, needs ten million degrees to initiate nuclear fusion and shine as a star!

A star has a life cycle that we comprehend by observing various stars each at different stages of their lives. This way we travel in time! Then there are collapsed stars: super dense. Bruno explained for us the modern understanding of protons and neutrons, using the whiteboard. Bruno also explained how black holes were discovered. There are many in our Milky Way Galaxy and in its centre, the biggest black hole. The thirteen people who attended were treated to a very interesting double lecture.

Ken Griffiths

Terrestrial Invertebrates Group (TIG):

Meetings: There was no meeting in October.

Potential Bi-monthly Zoom Meetings. The Group is looking at holding informal Zoom meetings in the peak season every second month to discuss and show images of invertebrates observed by members. This will give members an opportunity to show and discuss their photos. These Zoom meetings will be held in the months we don't have in-hall meetings. The suggested day was the 2nd Wednesday of the month at 7.30 pm, tentatively from August to May.

Field Trips – October 2023 We had a successful trip with 8 people to Baluk Willam Reserve on Sunday 22nd October. Despite some rain we managed to find a number of insects plus orchids, other wildflowers, mosses, lichens and ferns. For a full report with many images, see p11-12.

Wendy Clark

FROM THE EDITOR

I would like to give a personal thank you to the many SIG leaders and others who have contributed to the last 11 issues of Field Nats News. It has not been an easy year for me. I almost literally spent five months unwell, resting on the couch with very little energy. However, somehow FNN was always published on time. This was very much due to support and encouragement from many of you, including Sally Bewsher, Wendy Gare and Max Campbell.

I am pleased to say I am now completely recovered and am once again really enjoying producing FNN.

Something happened this month that has never happened before. I actually finished FNN 347 on October 30th, well before the due date for contributions which was Tuesday 7th November. **Unheard of!** FNN was completed because I was travelling to Mali Dunes over the Cup weekend. Again this illustrates the wonderful support FNN receives from its many contributors. I requested copy to be sent in early if possible, and, without any fuss, it happened. What a fantastic group to work with.

Best wishes to all for a great Christmas and very happy and productive 2024.

Joan Broadberry



Early Spring at Mali Dunes *by Andrej Hohmann*

The paddocks verdant. The bush draped in the white of tea-tree flowers and the yellow of acacias. The flowers abuzz with insects. The Mallee-fowl a fowling. The Shingle-backs like fat snags that have sprouted legs on the run from the barby, on the move for their spring wanderings.

The small group of us Iestyn, Lee, Mike, Ruth, Nakita, and Ray² visited the property in September to examine the state of the tracks and to pick out survey sites for the Cup weekend survey. We were hoping to visit some of the sites that had been surveyed in decades prior and to get another look at such places where our wildlife cameras have picked up pygmy possums.

We were successful in our endeavours and managed to push all the way south to the edge of the property where it abuts the neighbours long unburned and uncleared section of bush. This took quite some effort, as many of the tracks are overgrown after the years of good rain.

Our efforts in general were well rewarded with encounters of the feathery and scaly kind. Among others we spotted several dolled up Painted Dragons as well as several pairs of sharply dressed Black Honeyeaters (images below).

While noticeably drier than last year, there was still water in the dam. The tadpoles *Neobatrachus* sp. (photo below, centre) and Shield Shrimps *Lepidurus apus* ssp. *Viridis* (photos below right and p9) (continued page 9)



Black Honeyeater *Sugomei nigrum*. (Ruth & Mike)



Painted Dragon *Ctenophorus pictus*. (Ruth and Mike)



Dam



Neobatrachus sp.



Shield Shrimp *Lepidurus apus* ssp. *Viridis*

(Continued from p8)

They appear to have attracted a White-necked Heron *Ardea pacifica* (photo far right) to the dam, likely an uncommon visitor to the property.

To our delight and to the trepidation of the locals we saw a pair of Wedge-tailed Eagles (photo right) fly over the property every day. Presumably they are nesting not far away.

A Magpie *Gymnorhina tibicen* and Willie Wagtail *Rhipidura leucophrys* (photo below). How the tables turn!



Shield Shrimp
Lepidurus apus ssp. Viridis



White-necked Heron *Ardea pacifica*
(Ruth and Mike)



Magpie *Gymnorhina tibicen* and Willie Wagtail
Rhipidura leucophrys. (Ruth and Mike)



Wedge-tailed Eagle *Aquila audax* and
Magpie *Iratus proximo*. (Ruth and Mike)



Squat squatters are a common hazard at Mali Dunes.

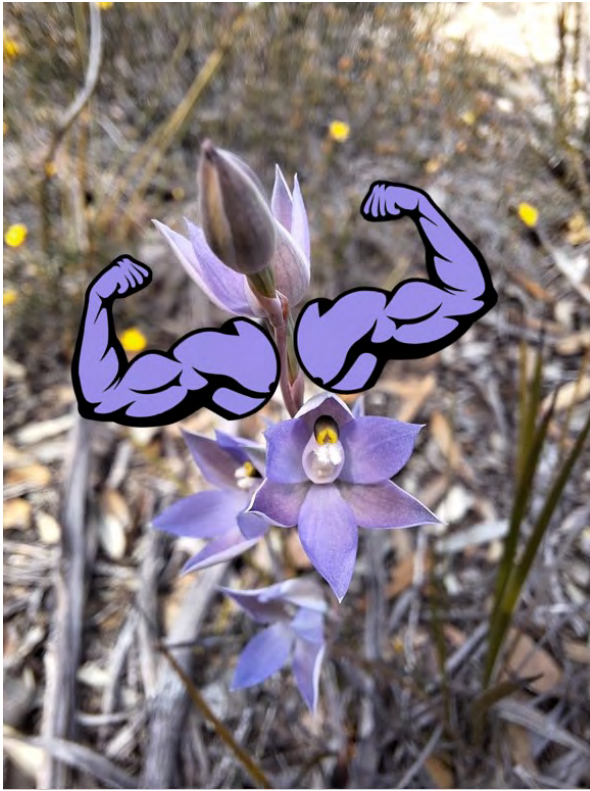


Iestyn who lives locally, stopped by to give us a hand to get rid of some of the bits of metal left over from the building of the dome, and other bits and pieces.

(Continued on page 10)

(Continued from page 9)

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



Thelymitra sunsoutgunsouti
Identified as *Thelymitra alacockiae* (Editor).

Right: these Plume Moths (possibly *Stangeia xerodes*), an acacia feeding species, were in great abundance.



Gum Snout Moth (possibly *Entometa fervens*)



SEANA South East Australian Naturalists Association— the umbrella body of Field Nats Clubs

...ranged a Gala dinner on Saturday 20th at the Cowes RSL. Our main venue for the three days will be the Senior Citizens Club in Cowes. There will be speakers on all three evenings, Friday to Sunday. Activities will include bird-watching, geology, botany and many walks.

The SEANA sub-committee is made up of Philippa (chair), Joan (minutes), Ken SEANA committee representative, Max and Barbara. **WE WOULD LIKE TO ADD A COUPLE OF NEW SUB-COMMITTEE MEMBERS TO SHARE THE WORKLOAD. PLEASE CONSIDER VOLUNTEERING, many hands make light work.**

A number of FNCV members have volunteered to lead and assist with walks, book sales and more. However, this is a whole club activity and **WE WILL NEED MANY MORE HELPERS.** Contact Philippa Burgess 0409 866 389 or the FNCV office and volunteer your talents—skilled or unskilled welcome. **It may seem early, but will greatly assist planning if we could hear from you ASAP.**

A number of FNCV members attended the recent SEANA spring get-together at Yarram hosted by Latrobe Valley and Sale and District Field Naturalists Clubs. This was enjoyable and also gave us an opportunity to improve our planning by liaising with them. **JB**



A reminder that the FNCV is hosting the autumn SEANA get-together next year on Phillip Island from **Friday 19th to Monday 22nd April 2024.** We expect to welcome over 100 guests from field naturalists clubs right around Victoria. Participants will book their own accommodation in the vicinity of Cowes. We have ar-



Terrestrial Invertebrates Group

Field Trip to Baluk Willam Reserve Sunday 22nd October 2023

Eight people arrived on a cold drizzly morning and were advised of the different strategies for finding invertebrates in the wet.

At the start, we saw nothing until we got our 'eye' in. Then quite an interesting range of insects were found as well as several orchids, other wildflowers, lichens, ferns, mosses and more. We also heard many interesting bird calls.

The rain stopped for most of the morning which gave us a good chance to find insects that were starting to move. Many were found in the grasses along the track and some in the bushes.

We had a keen-eyed junior member who joined us with his father. He found many of the insects in the grass and surrounds as did his father.

The rain set in heavily at lunch time just as we were finishing the trip. Here are some photos of what we saw.

More can be seen on iNaturalist at

<https://inaturalist.ala.org.au/projects/fncv-2023-baluk-willam-nature-reserve>

One of our members went there the day before and saw a very different array of insects as the weather was warmer and fine. You can see her photos on the iNaturalist link as well.

Wendy Clark
(All photos: W. Clark)
(Continued p12)



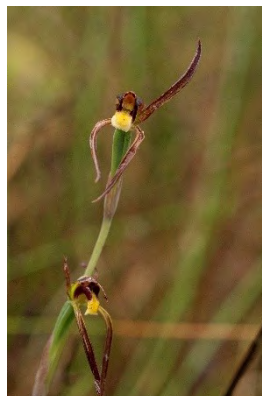
Sydney Stick Insect *Paracandovia peridromes*



Long-horned Grasshopper
Psednura pedestris



Striped Looper Caterpillar
Chenlias banksiaris



Brown Beaks Orchid
Lyperanthus suaveolens



Adas Planarian (Flatworm)
Lenkunya adase



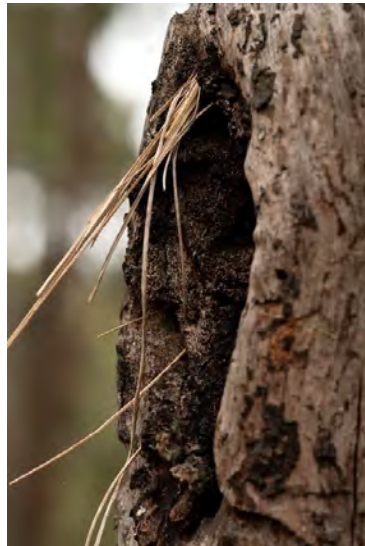
Septobasidium clelandii fungi



Crab Spider Family: Thomisidae
Genus: Australaomisidia



Tortricine Leaf-roller Moth
Tribe: Archipini

Cone Moth Caterpillar *Conoeca guildingi*Nest of Straw-carrying Wasp
Genus: *Isodontia*

Butterfly chrysalis—hatched

Left: Snowy
Footman Moth
Termessa nivosaRight: Fringe Lily
Thysanotus tuberosusAnthelid Lappet Moth Genus: *Pterolocera*

Possible beetle larvae

Great Southern Bioblitz Friday 24th to Monday 27th November 2023

Get involved with Maroondah and with the FNCV

The GSB is a four-day citizen science event where new and experienced nature enthusiasts across the southern hemisphere will be photographing and recording the wild plants and animals they can find living in their local area and uploading their observations to the iNaturalist app. So easy. Download the iNaturalists app, take your photos and upload them to the app.

You don't have to stop on 27th November. Every observation within Maroondah at any time adds to the *Nature in Maroondah* project, and is a contribution to the growing database of Maroondah's biodiversity. See website for more information including workshops and free nature discovery activities being held within Maroondah.

Maroondah City Council www.maroondah.vic.gov.au

Sue Bendel (possum56@gmail.com 0427 055 071) is the Bioblitz contact within the FNCV. She has suggested that SIG groups ask at their meetings if anyone is available to lead or participate in night walks along different parts of Gardiners Creek. Sue will send information to SIG leaders as to what is required.

Su Dempsey has organised events at Blackburn Lake Sanctuary, including spotlighting www.blackburnlakesanctuary.org



Day Group

Climate, Climate Change and Weather What affects Australia's Climate? Speaker: Terry Hart 24th October 2023

Our speaker, Terry Hart, has worked as a meteorologist with the Melbourne Bureau of Meteorology for 42 years in a variety of roles including weather forecasting, research, policy development and project managements. In retirement he has taken on a role as the Chair of a History Special Interest Group with the Australian Meteorological and Oceanographic Society (AMOS). He also runs a class at Nunawading University of the Third Age (U3A) titled, *The Weather*.

Below are 11 graphics from the first section of Terry's PowerPoint presentation, "Climate Drivers".

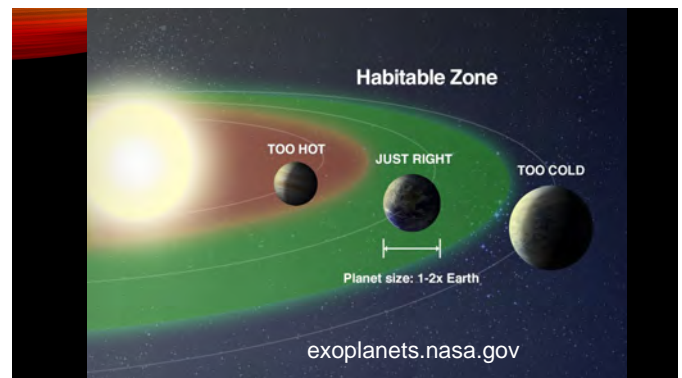
(Cont. p14.)

Climate is the *collective effect of weather events*. It deals in statistics such as averages, extremes and typical weather.

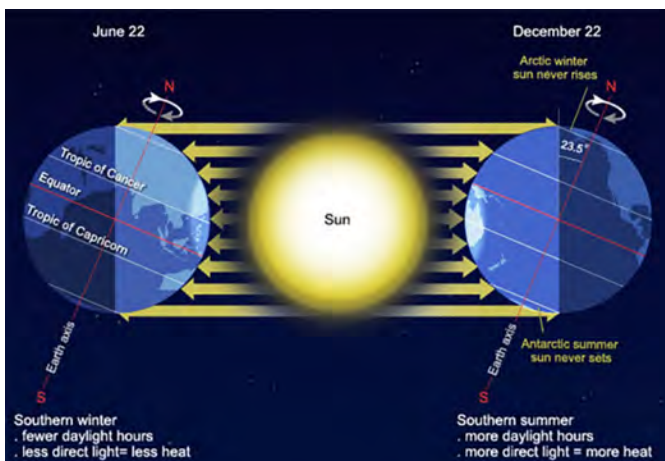
It can deal with topics such as:

- Temperature
- Rainfall
- Wind
- Number of days of phenomena such as frost, thunderstorms,...
- Sea temperatures
- Atmospheric drivers – such as El Niño, La Niña, ...
- Mean Sea Level Pressure (MSLP)
- Atmospheric wind patterns such as monsoons, "roaring forties",...

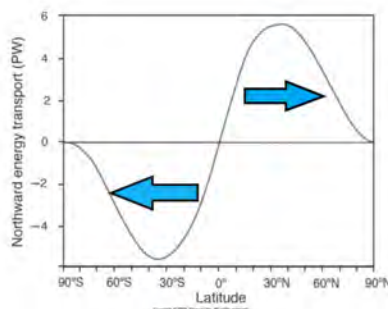
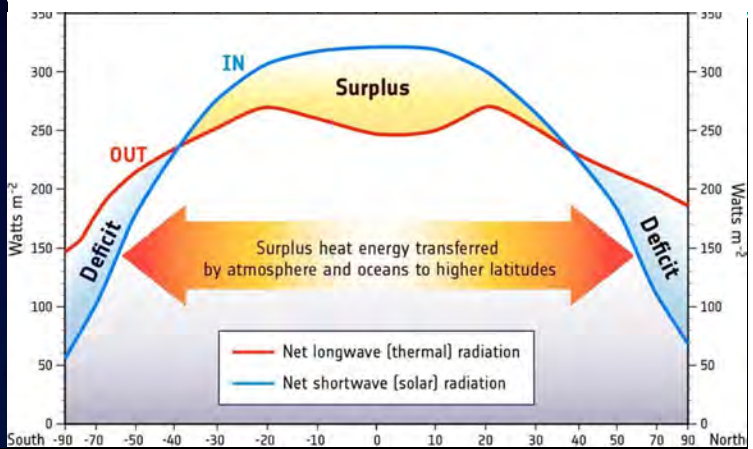
Note: Climate is concerned with upper temperatures not just the surface



The "habitable zone" is the distance from a star at which liquid water could exist on the surface. These are "Goldilocks" zones, where conditions might be just right – neither too hot nor too cold – for life.

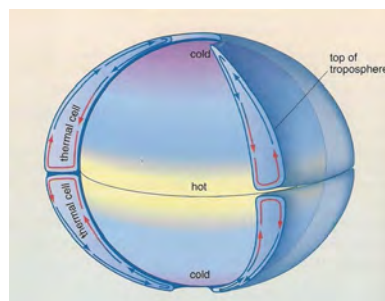


The main driver for the earth's climate is the difference in energy from the sun in the Tropics, compared with the poles, and how it changes during the year.



Heat transport is poleward

Heat is transported from the tropics to the polar areas by the atmosphere and the ocean. The poleward energy flow is highest in the middle latitudes – where we live!



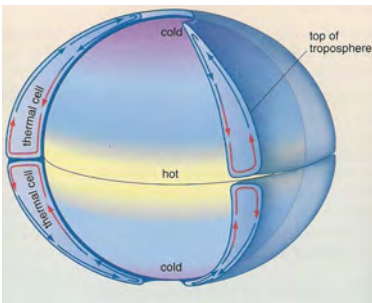
1735 George Hadley accepted that heated air rose in the Tropics, flowed poleward, then sank as it cooled. Air would then be drawn in from the middle latitudes to replace the tropical air that had risen up and moved polewards.

Importantly, he recognised the role of the **rotation of the earth**.

As air moves from more polar latitudes towards the Equator, the rotational speed of the Earth is higher, so the air appears to be deflected to the west as it moves towards the Equator. This is an explanation for the **easterly trade winds** in tropical regions.

Conversely, although it was not known at the time, the upper air has to move away from the Equator toward the poles. It leads to **westerly winds** at upper levels (including the jet streams).

This circulation was named the "**Hadley cell**" after him.



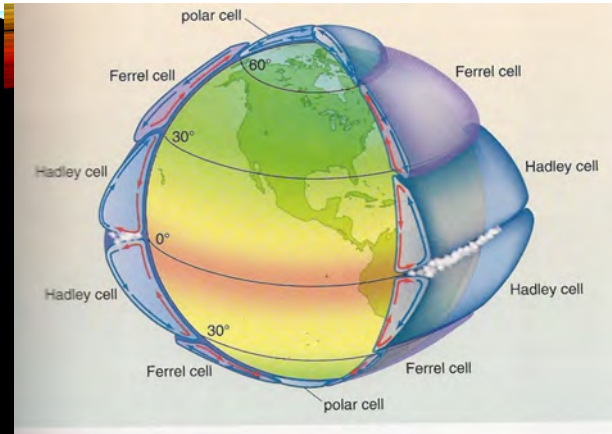
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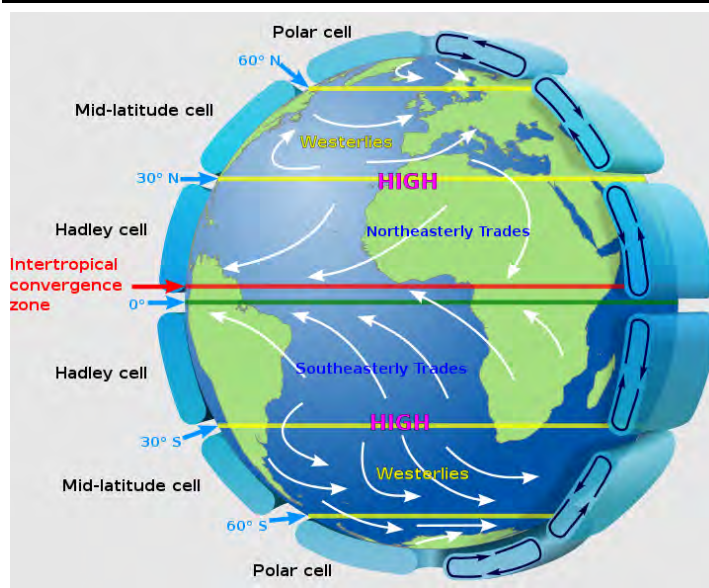
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Conversely, although it was not known at the time, the upper air has to move away from the Equator toward the poles. It leads to **westerly winds** at upper levels (including the jet streams).

This circulation was named the “**Hadley cell**” after him.



It turns out to be a bit more complex than that, due to the earth's rotation and the result is three main cells in each hemisphere. The “**Ferrel cell**” is the average effect of all the highs, lows and fronts that we experience in the middle latitudes.



WHY DOES EARTH HAVE WEATHER?



Because:

- We live on a spherical planet where the incoming energy from the sun is greater in the tropics than in the polar areas
- We have an atmosphere and ocean which try to even out the energy imbalance
- We live on a rotating planet that complicates the work of the atmosphere and ocean by deflecting winds (and currents) that develop. (Coriolis Force)
- Land and ocean, mountain ranges and different types of surface add their own effects
- The air has water that changes phase (vapour, liquid, ice) depending on temperature. As well as effects like rain, the **water cycle** is an important part of the **energy cycle** as it transports heat.

So the earth's weather (climate) is a very complex system!

The average picture over-simplifies the real world but it captures some basic principles. Naturally, it is hard to see this pattern in the day-to-day weather.

The seasonal cycle is the most important driver of Australia's climate. The average global circulation patterns move north or south as the earth's inclination to the sun changes during the year.

In the northern summer the “meteorological equator” moves north along with the various cells (Hadley, Ferrel and Polar). In the southern hemisphere these cells also expand northwards.

The reverse happens in the southern summer.

(continued from p13)

Terry's talk to the October Day Group dealt with complex, often interlocking material, so much so that it is very difficult to summarise. Lack of space prevents FNN from doing justice to such a comprehensive presentation, it really needs to be seen in full. The graphics Terry used to tell the story of weather and climate are first-class, but we will be unable to publish them all. This edition has focused on the opening section. In the next issue of FNN, February 2024, there will be space to include at least one other section.

However, Terry has provided a solution to FNN's dilemma. He has very generously offered a pdf copy of his PowerPoint file ‘*Climate Drivers*’ to those who are interested. **Needless to say, this is for personal use only.** If you would like a copy of the presentation please email joan.broadberry@gmail.com Pdf files have already been sent to three of our members.

On behalf of the Day Group I would once again like to thank Terry Hart for being part of our program. His talk was greatly appreciated. Climate change is no longer something the effects of which we imagine will be felt in the future. The world is experiencing it right now. Just two examples being: the very severe and early bushfires in Australia and the northern hemisphere and the loss of sea-ice in Antarctica. In addition, as Australia transitions from three years of La Niña to El Niño, there could not be a more appropriate time to study the role of these determinants of our weather and climate.

Joan Broadberry

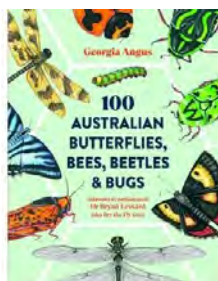
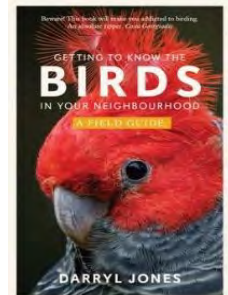
NEWS FROM THE BOOKSHOP—December 2023

This edition features a selection of books suitable for our budding naturalists and young readers. What better way to learn about our vast and varied wildlife than to head outdoors and explore. Now that we are enjoying more favourable weather and with the school holidays fast approaching, it is a great opportunity to spend time in the backyard, at a local park or at one of our fantastic national parks or reserves and try and identify the many birds, butterflies, beetles and bugs that you find. There is a range of recently released books, so come into the clubrooms to browse our extensive stock, or view the bookshop catalogue available on line. To order or inquire about a book, please send an email to, bookshop@fncv.org.au and we will reply as soon as we can. Members receive a 20% discount, non-members pay the recommended retail price, so become a member today.

Happy reading, Kathy

Getting to Know the Birds in Your Neighbourhood (*D. Jones*) is the first complete beginners' field guide to the birds you are most likely to see in the towns and cities of Australia. Much more than an identification tool, it opens the door to understanding the habits and behaviours of your suburb's feathered locals. It's also easy to understand, friendly and packed full of information about these urban birds: and offers tips and suggestions on how to enjoy, protect and encourage more birds into your area.

(PB, 240 pp., Nov 2023) RRP \$34.99, Member \$28.

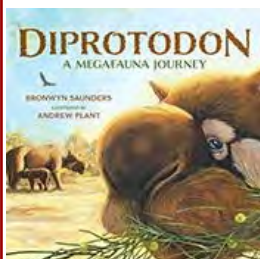
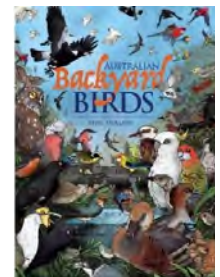


100 Australian Butterflies, Bees, Beetles & Bugs (*G. Angus*) is your beginner's guide to unlocking the weird and wonderful world of creepy crawlies. With this easy-to-read field guide you'll be ready to explore your own backyard and beyond to the fullest. From bogong moths to witjuti grubs, this book will share how to find and identify 100 of Australia's key native species. All the information you need is paired with distribution maps and annotated and intricately hand-drawn illustrations. This book is for anyone wanting a comprehensive yet accessible guide to anything that flies, crawls, writhes and wriggles.

(PB, 240 pp., February 2023) RRP \$32.99, Member \$28

Australian Backyard Birds (*M. Mollard*) includes over 150 of Australia's colourful and characterful backyard birds. These are birds most commonly seen in our gardens and surrounding bush and parks. The birds are beautifully illustrated and accompanying text vividly describes their lifestyles and habits. The wonderment of these stunning creatures, delivered in an engaging cinematic punch, will excite the imaginations of children for life, and fully engage any adult with a love of birds.

(HB, 64 pp., Aug 2023) RRP \$24.99, Member \$20

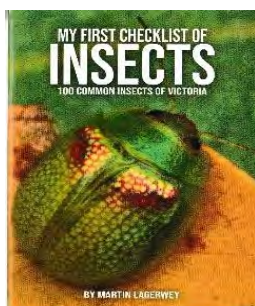
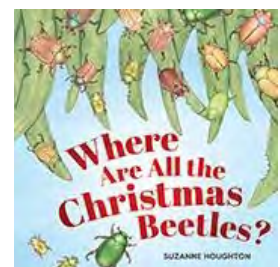


Diprotodon: A Megafauna Journey (*B. Saunders*) features the largest marsupial that ever lived. Brought to life through fabulous illustrations, this story will captivate and enthral readers. Follow in the giant footsteps of Diprotodon as he finds his place in the world. Explore his Ice Age environment, his encounters with other megafauna and the challenges he faces to survive. The reading level is recommended for ages 6 to 9.

(HB, 32 pp., Oct 2023) RRP \$24.99, Member \$20

Where Are All the Christmas Beetles (*S. Houghton*) takes us on a lyrical discovery of these fascinating creatures and explores the possible reasons for their decrease in numbers. Sparkling, brightly coloured Christmas beetles usually appear in the heat of December – a sign that the festive season has begun. But recently they have been hard to find. Where have they gone? The reading level is recommended for ages five to nine years old.

(HB, 32 pp., Nov 2023) RRP \$24.99, Member \$20



My First Checklist of Insects: 100 Common Insects of Victoria (*M. Lagerwey*) is suitable for children and adults and is designed to inspire budding enthusiasts to spend time outdoors learning about the huge diversity of insects in our backyards, parks and bushlands of Victoria. Each species featured has a check box to mark when you locate it. This is a treasure hunt – how many can you find?

(PB, 124 pp., Oct 2023) RRP \$10, Member \$8



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- Informative naturalist guides • Small groups (6 – 12 participants) • Private charters available
- Fully accommodated, assisted camping, and remote camping tours

Happy Holidays from Tom, Sylvia & Coates Wildlife Tours!
(WA Tourism Award winners to be announced soon – we're hoping for a Christmas Miracle)



Wild Coastlines of WA's South East
11-Day Accommodated Tour – Departs Perth 1 February 2024 - Maximum of 12 participants

Starting in Perth, we travel south-east to Hyden and discover 'Wave Rock' and beautiful Indigenous rock art. We then travel through the Great Western Woodlands before heading south to Esperance, where we visit Cape Le Grande National Park and cruise the Recherche Archipelago. We explore Fitzgerald River National Park, internationally recognised as a Biosphere Reserve, due to the richness of flora and fauna that exists there (20% of WA's plant species). We also spend a full day on the water searching for Orca, and explore Stirling Range & Dryandra Woodland National Parks as we make our way back to Perth.



South Australian Lake Eyre & Flinders Range Tour
10-Day Camping/Accommodated Tour - Departs Alice Springs 14 May 2024 - Maximum 10 participants (6 in lead vehicles & 4 tag-alongs)

This adventure is a must for all who long to experience the Australian outback. From the massive expanse of Lake Eyre to the striking landscape and impressive ruins of early European settlement in the Flinders Range. We will travel on the Oodnadatta Track, steeped in history, natural wonders and rich cultural heritage. We will also visit some of South Australia's iconic outback towns including Coober Pedy, the opal capital of Australia, if not the world. This adventure showcases South Australia's spectacular outback scenery and unique wildlife.



Western Wanderer Expedition
15-Day Easy Camping Tour (assisted camping) - Departs Perth 15 May 2024 - Maximum of 12 participants

Head north of Perth for seabirds, marine-life, coral reefs and ancient gorges. Tour highlights include a flight over the Abrolhos Islands with time for a short nature walk and snorkel, exploration of the Shark Bay World Heritage area including a visit to Monkey Mia, free time in Coral Bay to discover Ningaloo Reef (including time for an optional add-on Whale Shark Cruise & Swim), camping at 80-mile beach, Marble Bar ('the hottest town in Australia'), and two days exploring the wonders of Karijini National Park. Tents and camp beds are put up and taken down for you on this trip by the Easy Camp Support Crew.



Contact us for further information on these tours and for details of our full natural history expedition program.

Ph: 1800 676 016 or 08 9330 6066 - Web: www.coateswildlifetours.com.au - Email: info@coateswildlifetours.com.au