Field Nats News No 329

Understanding Our Natural World
Est. 1880

Newsletter of the Field Naturalists Club of Victoria Inc.
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Governor of Victoria

Office Hours: Monday and Tuesday 10 am - 4 pm

May 2022

From the President

Meetings in the Hall are now almost back to normal and are being enthusiastically received by both Club members and visitors alike. It is pleasing to see everyone getting back into the routine attendance at meetings. Hot beverages and biscuits are back on the menu with some limited restrictions.

My Red-backed Spider eggs hatched a few days ago and I was not going to photograph/film them without a lid on the Petri dish in which they hatched. I do not want to be finding venomous RB spiders around the house for the next few years. Unfortunately, the glass lids don't help produce clear images so I took them outside and organised a super-macro and flash setup while the little horrors sat in a small dish, within a larger one, surrounded by water. I got a few images of the 1 mm long spiderlings which do not stop moving, thus making photography very difficult indeed. When I first filmed them through glass, I got some nice videos of them eating one another; three or four little spiderlings would gang up on another hapless one and suck it dry (photo 4). Mass fratricide.

I originally found the large mother and her egg sack inside the edge of my ladder (photo 1) when I was about to do the gutter cleaning. I actually touched her with my right hand. I did manage to get a picture of her in the ladder rail with the egg sac, just where I had inadvertently placed my fingers. She soon ran off and left the kids so I raised them. They have spotty backs and underneath are the beginnings of the hourglass shape (photos 2 & 3).

Photo 1. The adult spider ***Latrodectus mactans hasseltii*** comfortably settled in the side rail of the ladder. I released them all into the back garden where most of them will die long before growing up. I get dozens of the adults each year so nothing will change in terms of numbers.

There have been quite a few native earwigs, ***Gonolapsis sp*** (Photos 5 & 6.) in the leaf litter around my garden this year which is encouraging since the predominant earwigs are the introduced ***Forficula auricularia.*** *Continued p3*

A small patch of garden, overgrown with grass and weeds has been the scene of a lot of noise this autumn, with considerable evening chirping. I was unable to locate the culprits by spotlight at night since they

The deadline for FNN 330 will be, as always, the first Tuesday in the month, 3rd May. Please use joan.broadberry@gmail.com

Photo 1: The adult spider *Laltrodectus mactans hasseltii* comfortably settled in the side rail of the ladder

A very exciting milestone in the life of the FNCV– Mali Dunes

FNN is delighted to report that the 621 hectare mallee property known as Mali Dunes is now owned by the Field Naturalists Club of Victoria.

The photo right shows Barbara Burns, treasurer and Gary Presland holding the funds transfer which completed the final settlement on 7th April.

FNN acknowledges our wonderful membership whose generosity allowed the purchase of this beautiful, high conservation value property.

Ultimate thanks however, must go to Sue Hayman and her late husband Bernie Fox whose foresight and hard work rehabilitated Mali Dunes and turned it into a haven for wildlife.

This is, of course, not an end, but rather a beginning and a new challenge for our Club.

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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. Members are asked to register with leader and follow all COVIDsafe procedures. On days of extreme weather conditions, excursions may be cancelled. Please check with leader.

May 2022

Sunday 1st – Annual General Meeting: Join in this important event in the life of our club and congratulate our new Long Term (40 year) members. Meet at 2 pm. Speaker Richard Loyn. Register with the FNCV Office admin@fncv.org.au 9877 9860 (leave a message if the office is unattended.) Afternoon tea will be served. See Invitation FNN 328 p3

Monday 2nd – Fungi Group Meeting: ***Modelling the biogeographic patterns of fungi in Australia using citizen science data***
Speaker: August (Tianxiao) Hao, PhD candidate, Uni of Melbourne. His research focuses on studying the continental scale patterns of fungal biogeography in Australia, using species distribution modelling, through different modelling methods, DNA metabarcoding data, and finite mixture models to group species.
Register with Melvin Xu fungifncv@gmail.com 0410 522 533

Tuesday 3rd - Fauna Survey Group Meeting: ***A recent trip exploring the rain-forest fauna of Queensland's wet tropics.***
Speaker: Andrew Constantinou, FSG member and wildlife and conservation biology student at La Trobe University. Register with David De Angelis d.deangelis@latrobe.edu.au 0409 519 829

Monday 9th – Marine Research Group Meeting: ***Field trip roundup.*** Join us as we review where we have been and what we have seen over our field work season. Register with Leon Altoff 9530 4180 AH; 0428 669 773

Saturday 14th – Second hand book sale: 9.30 am to 3 pm. We will have a huge range of books, both fiction and non-fiction. Prices from only 50 cents to $10. Donations of good, clean books welcomed. Please wait until after ANZAC day (25th April) to bring them in. No magazines. Contact: FNCV office admin@fncv.org.au 9877 9860

Sunday 15th – Fungi Group Foray: ***Mortimer Picnic Ground, Bunyip State Park, Gembrook.*** Meet at 10.30 am at Mortimer Picnic Ground, off the Gembrook–Tonimbuk Road. (Mel Ed 37 p14 R12) https://goo.gl/maps/bCGVyHcg759CVd8Y6
Register with Anna Brady anna21brady@gmail.com 0448 711 116

Wednesday 18th - Terrestrial Invertebrates Group Meeting: ***Invertebrates of Mali Dunes,*** *plus members' images from TIG excursions.* Register with Max Campbell 0409 143 538; 9544 0181 AH; mcam7307@bigpond.net.au

Thursday 19th – Botany Group Meeting: ***Missing the forest for the trees. The ecology of the Box-Ironbark forest of the Heathcote region.*** Speaker: Dr Mary Gibson, FNCV, Deakin Uni. Register with Ken Griffiths botany@fncv.org.au

Saturday & Sunday 21st - 22nd – Fungi Group Foray: ***Tarra Bulga National Park*** A two-day Fungi Group trip in Tarra Bulga, starting at 10.30 am on Saturday and Sunday. Please book accommodation at the Tarra Valley Caravan Park (5186 1283) or Tarra-Bulga Guest House and Cafe (5196 6141). Register with Anna Brady anna21brady@gmail.com 0448 711 116

Monday 23rd—FNCV Council Meeting (via Zoom) 8 pm. Apologies and agenda items to Wendy Gare admin@fncv.org.au. Max will email the link.

Tuesday 24th – Day Group 10.30 am Meeting: ***Wildlife of the Australian Rainforests—the lesser known States.***
Speaker John Harris, *Wildlife Experiences.* Register with Joan Broadberry joan.broadberry@gmail.com 9846 1218

Wednesday 25th – Geology Group Meeting: ***Exploring the virtual night skies, with Stellarium***
Speaker: Ken Griffiths, FNC. Register with Ken Griffiths geology@fncv.org.au

Friday 27th – Juniors Group Meeting: ***No Meeting.*** Contact: Dr Patricia Amaya juniors@fncv.org.au

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 1)

Photo 3. 1mm Red-backed Spiderling ventral with a rudimentary hour glass pattern.

always stopped and moved when the light drew near. When I eventually started the whipper snipper to clear up the grass there was a mass exodus of Meadow Katydids which jumped onto the fence (photo 7). I stopped the clean-up for now and they are still chirping happily.

I often get brief glimpses of small reptiles in the garden, but seldom can I get a photograph. The Weasel skinks can occasionally be photographed, but not small Garden Skinks or Marbled Geckos.

I noticed a gecko on some leaves when I arrived home late one night. It was startled by the headlights but quickly vanished. I spent several evenings waiting for it to reappear and finally photographed it using a 500 mm lens (Photo 8). It immediately launched into the shrubbery and vanished.

In previous years I would see them warming themselves on the weatherboards in the late afternoon sunlight, but since the increase in bird numbers they seem to be restricting their activity to purely nocturnal forays. I have always admired their ability to climb up smooth surfaces and walk across ceilings. The pads on their toes (Photo 9) facilitate their ability to "stick" to smooth surfaces. It was always amusing to watch geckos running across the ceilings in Wewak, PNG to catch insects attracted to the light fittings. I never saw one fall despite the amazing acrobatics.

Max Campbell.
All photos M. Campbell

Photo 2: Red-backed spiderling dorsal.

Photo 4: Three spiderlings attacking and

Photos 5 & 6: Native Earwigs *Gonolapsis sp.* Male and female.

Photo 7: Meadow Katydid *Conocephalus sp.*

Photo 8: One of my elusive and nervous Marbled Geckoes foraging around midnight.

Photo 9: Dorsal and ventral view of a Marbled Gecko toe, showing the pads which enable it to walk up glass. Specimen was part of the remains after a fatal bird attack.

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:

Jiaxi Xie, Henry Xie, Mallee Clarke, Song He, Geoffrey Whitehorn, Mark Cook, Marilyne Crestias, Miriam Bridges, Joseph Bridges, Carolyn Wait, Jessica Slade and Southern Dandenongs Community Nursery Inc.

Vale Sally Jane Green 29/8/1972—19/3/2022

It is with profound sadness we announce the loss of Sally Green. Sally passed away suddenly at her home in Drouin at the age of just 49 years. Sally was a long-standing member of the Latrobe Valley Field Naturalists Club with a keen interest in fungi. After attending a fungi foray at Mt. Worth she joined the FNCV on the 4th of August 2005. Sally was knowledgeable and enthusiastic member of the group, her indisputable warmth and engaging personality shining through. Sally and her late father were active in the Friends of Mt Worth State Park.

Carol Page wrote, "I was fortunate enough to be one of her 'snail mail' correspondents and photographs always accompanied her letters, depicting fungi, floods, fallen trees and of course the farm animals. Her craft skills were imaginative and eye-catching. We saw her ability with depictions of fungi."

The FNCV extends its deepest condolences to Sally's family.

Photo: M. Campbell

Facebook followers: 22,675

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.

Ever felt you might have got something

Capturing our Natural World—a play about the FNCV NOT TO BE MISSED

"The Field Nats have a long and rich history that dates back to the 1870s. You will know that since our early days we have worked hard to conserve the flora and fauna of Victoria – but did you know we played an important role in the preservation of Wilson's Promontory? You can watch this story unfold in the brand new stage play ***Capturing our Natural World***, written by Bruce Shearer in consultation with FNCV historian Dr Gary Presland. (See photo above).

This play will be performed in the theatrical showcase **TALES FROM THE JETTY**, to be presented at Gasworks Arts Park (1-35 Graham St. Albert Park 3206) from 4th – 14th May. Group (6+) tickets are just $30pp. 7.30 pm nightly, plus a matinee each Saturday. Buy over the phone on (03) 8606 4200, or online at **gasworks.org.au/whats-on/tales-jetty**

We'd love to share this original piece of theatre with you, our members and followers!" Some of the profits will be given to the Club so it's a fundraiser as well.

Marine Research Group

Of crabs and amphipods
Griffith Island Port Fairy, *March 2022*

A very big crab

There is a crab southern Australia shares with other countries of the southern hemisphere such as Peru, Chile, New Zealand and the islands of the South Pacific. It inhabits high-energy rocky coasts between mid tide and high tide levels although you need to keep in mind rising temperatures may cause this to alter. For we Victorians this purple crab is most easily seen in far east Mallacoota where adults live in deep crevices or under rocks.

Leptograpsus variegates Photo: *Naomi Strong*

However the purple colour form where the crab claw is purple on top and white underneath is one of two colour forms. On visiting W.A. early this century I observed the green carapaced crab with its orange and yellow claws and came away with a Rottnest Island Authority pamphlet explaining that both colour forms were the species *Leptograpsus variegatus.* Gary Poore, in *Marine Decapod Crustacea of Southern Australia* acknowledges that this issue is not resolved as yet. One of our more lithe Marine Research members had the surprised pleasure, having got out to a distant basalt outcrop at Port Fairy, of seeing a very large male crab with orange and yellow claws. This observation adds to our first MRG sighting of this colour form in 2017 at the same place.

Leptograpsus variegatus is an omnivore. In Mallacoota I have watched it from a distance seeming to pick algae off rock surfaces. Skilleter and Anderson (1986) in their paper *Functional Morphology of the Chelipeds, Mouthparts and Gastric Mill of Ozius truncatus (Milne Edwards)(Xanthidae) and Leptograpsus variegatus (Fabricius)(Grapsidae)(Brachyura)* describe *L. variegatus* as plucking and scraping algae into the apically hardened and hollow tips of the chelae and passing this to the mouthparts. The same authors also observed *L. variegatus* attacking limpets when they were on the move by putting 'one or both chelae under the edge of the limpet shell' and turning it over. Limpets were occasionally able to escape and reattach themselves. Once the crab was able to turn the limpet and keep it, it was then carried to an area above wave action where it used its chelae to shred the flesh before passing it to the mouthparts.

An amphipod went jumping by

As a member of the MRG whose vision and balance have much deteriorated with age, I split off from the main field group working on Griffith Island Pt. Fairy to walk to a nearby tumble of basalt rock where the terrain was less dangerous ,but there was algae and sand to sieve for amphipods which are like the insects of the sea, numerous and diverse.

Dorsal view shows how the antennae are placed

Amphipods, when they are not shooting round a petri dish or springing into the air, fold themselves up like a capital G, where the top bit is their head with two pairs of antennae attached and the bottom bit harbours the muscle and necessary bits to launch themselves in water or in air.

So going back to the safer habitat I chose for field work, there was much exposed rock where I could check for the limpets *Lottia mixta* and *Notoacmea petterdi* which had not much been noted on prior days. Exposed rock is also home to many other marine invertebrates such as barnacles and gastropods.

Newly defrosted its markings make it look as if it is in dappled light.

I observed an amphipod, above the sea, on the side of a limpet *Cellana tramoserica* where its edge meets the rock, poked it with the tip of my brush, causing it to spring about 30cm into the air before landing on a rock less than a metre away, from which it leapt again and this time it landed on wet intertidal sand to leap again out of sight.

Now I am familiar with the beautiful dancer *Bellorchestia pravidactyla*, its rear end decorated with a pattern of tiaras, an amphipod of the high littoral zone which burrows into the damp fine sand under the washed up brown algae, then feeds and reproduces its mauve translucent eggs when rain has rotted the algae. These marine high littoral or forest amphipods belong to the Talitrid family and are easily recognised by a first pair of very short antennae and

(Continued on page 6)

(Continued from page 5)
a second pair of more normal size.

This dark and mysterious critter challenged me to catch it. So I waited. Another came jumping by, landing on the wet sand near the rock I was sitting on. Reaching forward I pressed it into the sand with my finger, scooped it up in a wet blob, put it into the water of the look box, thinking water will weigh it down, only to lose sight of it as it sprung out. So I waited for the next one to come jumping by, plunged it into the wet sand with my finger and into a waiting specimen tube and screwed on the lid.

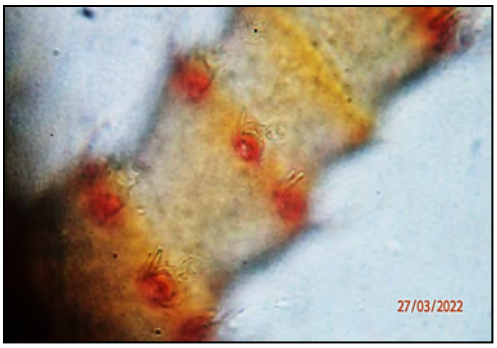
Later in the day I subjected it to my microscopes, dissecting and compound, to find it may be closest to the family *Pontogeneiidae* and the species *Gondogeneia microdeuteropa.*

The amphipod has a white band around its middle.

I will share with you the following details. It measured 8.5 mm in length. It was darkly coloured except for a white band around its middle. Its first antennae was about ¾ of the length of the second antennae which was so formed that they stuck out stiffly and sideways at about a 45 degree angle from the longitudinal line of the tubular setae with a thin permeable cuticle.

Calceoli are like satellite dishes or a pair of flattened bubbles sticking out like tongues attached by a short stalk to the articles of the lash only to be seen at high magnification where the limited depth of field means you use minute movement up and down the focus to get an idea of their shape and length. Aesthetascs and calceoli are sensory organs thought to help a male locate a female. I have one photo in my collection which shows two female *Allorchestes compressus* with their heads pressed to the downward pointing antennae of a male *Allorchestes compressus.* Something has obviously attracted the females.

Let's return to the amphipod that went jumping by. It's second antennae, that stuck out at an angle, was loaded with more calceoli than I had ever seen on any other amphipod. The first antennae had a pattern of six aesthetascs per five articles of lash.



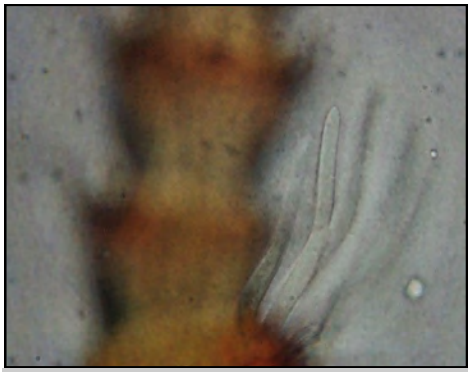
Detail of calceoli on second antennae visible from its side, arrowed.

The second pair of antennae surprised me because most lash articles had dark pink pimples, some with six pimples or more. Each dark pink pimple had calceoli attached which as I have said, are like a tongue of two satellite dishes on a short stalk radiating off many of the lash articles, utterly transparent and hard to see. There being so many on each article I could also see them in profile.

Overnight in its blob of glycerol which is necessary for making slides for the compound microscope, the jumping amphipod turned from darkly coloured to rusty red which aided on magnification because the area of calceoli attachment had become dark pink. As I pulled off its bits it became apparent that its nearest relative was *Gondogeneia microdeuteropa* (Haswell 1880)

Gondos, as we call them, do behave in a typical fashion and will stop to look up at you from the lookbox in the field making them photogenic. Now I've met another one with distinctive behaviour.

Barbara Hall
All images B. Hall



Blurred detail of bundle of six aesthetascs

A calceoli is just visible emandating from the dark/or intense pink

Dead Antechinus at Coronet Bay

Andrew McCutcheon provided some pictures of a dead Swamp Antechinus, ***Antechinus minimus*** (Photos 1 & 2) found on a walking track at Coronet Bay (Maps 3 &4). He also included some excellent images of its post-mortem visitors (Photos 3 & 4)

Photo 1. Deceased antechinus minimus

It reminded me of the expression, "It's an ill wind indeed that blows nobody any good"; although not so good for the small mammal, its death provides many opportunities for the recycling community. Carrion beetles (Silphidae) and flies of the families Calliphoridae, Muscidae and Sarcophagidae in particular, quickly appear to take advantage of the new protein source. Other beetles, ants and flies will also arrive in due course. Turning the carcass over will reveal the beetles while the flies lay their eggs on any accessible surface. Eggs can be seen amongst the fur. The pungent and foul odours of putrescine (butane-1,4-diamine) and cadaverine (pentane-1,5-diamine) broadcast the availability of new food to all and sundry. These substances are formed as a result of the post-mortem breakdown of proteins and their amino acids. Some plants use similar odours to attract pollinators. For the macro photographer, an odoriferous carcass can be a very interesting subject worth further investigation. However, close-up photography may take on a whole new aspect when you are poised over a "ripe" subject.

Photo 2. Ventral side with Silphid beetle, *Ptomaphila lacrymosa* and flies clearly visible.

Andrew noted that this dead male Swamp Antechinus (Photos 1 & 2) was found on the edge of a walking track beside a very narrow strip of coastal vegetation just north of Coronet Bay. Despite there being a population of these antechinus in The Gurdies he was surprised to find it here, as this strip of vegetation is completely isolated from any larger areas of suitable habitat by farmland and housing subdivisions. (Maps 1 & 2)

Map 1: Overview of Coronet Bay and surrounds

Australia's mainland Swamp Antechinus *Antechinus minimus maritimus*, one of two subspecies occurs in coastal areas of south-east Australia from Robe in South Australia to Corner Inlet, as well as Tasmania and the Bass Strait islands where the other subspecies *Antechinus minimus minimus* occurs. In Victoria Swamp Antechinus currently occur in three separate areas which are not connected:

- 1. Nelson Portland/Casterton, in areas including Lower Glenelg National Park and Discovery Bay Coastal Park.
- 2. From Port Campbell to Anglesea including Great Otway National Park at Cape Otway and Anglesea Heathlands.
- 3. The Bass Coast to Wilsons Promontory, including The Gurdies area on the eastern side of Western Port Bay where this dead specimen was located.

They are entirely terrestrial and find their food by digging into the topsoil and litter for invertebrates and perhaps small vertebrates. They have also been photographed at night taking nectar from flowers such as *Banksia*. Breeding occurs from May to July after which all males die. This individual appears to have prematurely met its fate.

Map 2: The specific site near the walking track.

Photos 3 & 4.. Silphid Beetle *Ptomaphila lacrymosa*, sarcophagid flies and probable *Lucilia cuprina* (Calliphoridae) availing themselves of not so fresh meat.

Andrew McCutcheon and Max Campbell
All photos taken and kindly provided by Andrew McCutcheon

Frog Monitoring Program comes to Yellingbo

I was lucky enough to be part of the TIG visit to a private property in Yellingbo, described in the FNN (328). Although birds are in our DNA, at the Friends of the Helmeted Honeyeater, based in Yellingbo, we are very firmly focussed on biodiversity.

Recently our committee member Amy and I, brought a group of eight young people together with James Frazer from Melbourne Water to talk about all things related to frog monitoring. Our Youth Reference Group is up and running! It has emerged as a response to attendees at previous citizen science events expressing an interest in continuing to volunteer with the Friends of the Helmeted Honeyeater in ways that suit their pre-existing commitments. Hence, we started designing and planning a frog monitoring project in the Yellingbo Nature Conservation Area (YNCA), with James taking us through the logistics of monitoring for native and introduced frog species across the various months of the year.

We will be heading out in April, then again across the year, to do a physical search for *Litoria fallax*, a newly recorded, introduced tropical frog species for YNCA, and record the calls of all native species. A recent survey as part of our citizen science program recorded at least two *L. fallax* basking in the sun. We will never know for sure how they came to be in YNCA, however we can help Melbourne Water's understanding of this species in our micro-climate at Yellingbo.

Our two objectives: (1) understand if the *Litoria fallax* population in Yellingbo is self-sustaining over time, and (2) monitor the other native frog species over time as the revegetation plots grow in and alter the localised canopy cover.

One of the great joys of being in the Australian bush is being able to share the 'discoveries' with others. We're excited about working alongside a passionate group of young people with an interest in local conservation. For the Friends of the Helmeted Honeyeater, the data the surveys collect will contribute important information to what's known about YNCA, but equally, provides opportunity for the future generation of conservationists to gain transferable knowledge and skills that will help them when seeking employment in the field. Grand aims? Absolutely! Are other young people welcome? Yes! Check out our website and get in touch.

Sue Tardif - Community Engagement Facilitator

Friends of the Helmeted Honeyeater Inc.
Healthy Birds, Healthy Habitat, Healthy Organisation
Wurundjeri Woi Wurrung Country
Based at: Yellingbo Nature Conservation Area (at the centre of Liwik Barring Landscape Conservation Area. 'Liwik Barring' meaning Ancestors' Trail. The name reflects the rich First Peoples history of the area and the network of rivers and streams that connect and link the area.)
P: 0490 747 665
E: friendsvolunteer1989@gmail.com
Check out the Friends Website | Like us on Facebook

Above: Young people on a fog survey.

Photos: S. Tardif

Dwarf Tree Frog *Litoria fallax*

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10 Day South Australian Outback Camping Tour
Adelaide to Alice Springs • 21 - 30 April 2022 • Small Group Tour
The heavy summer rains around Lake Eyre have resulted in the lake receiving substantial in-flows from local rivers and creeks, as well as saturating the surrounding area. This early-season trip will give us the best chance of seeing water in Lake Eyre and the desert covered in green. There should also be an explosion of wildlife as they make the most of a good season. 2022 is looking like a great year to visit this usually arid remote area.

13 Day Pilbara Reef and Ranges Accommodated Tour
Perth to Newman • 25th April - 7 May 2022
Good summer rains in the north will ensure 2022 offers excellent wildlife and botanical highlights in the Pilbara. Head north of WA for seabird colonies on coral islands, marine life, coral reefs, and beautiful gorges. Discover the Abrolhos Islands, Shark Bay, Ningaloo Reef and Karijini National Park on this 13 day fully accommodated expedition.

15 Day Western Wanderer Easy Camping Tour
Perth to Broome • 28 May - 11 June 2022
Highlights include the Abrolhos Islands' marine life and coral reefs, Shark Bay, and Ningaloo Reef. Also, explore Karijini National Park's picturesque gorges and the history and wildlife of the Marble Bar and 80 Mile Beach areas.

12 Day Lake Eyre and Flinders Ranges Camping (7 nights) and Accommodated (4 nights) Tour
Alice Springs to Adelaide • 18 - 29 July 2022 • Small Group Tour
The heavy summer rains around Lake Eyre have resulted in the lake receiving substantial in-flows from local rivers and creeks, as well as saturating the surrounding area. This should lead to an increase in wildlife and arid zone plants.
In addition to Lake Eyre, this tour also covers some of South Australia's most historic outback locations in both the Northern and Southern Flinders Ranges. The Flinders and the arid Lake Eyre Basin offer vastly different examples of our great country and provide an opportunity for a wide range of dry zone flora and fauna sightings.

10 Day WA Mid-West Wildflower Accommodated Tour
Perth to Perth • 17 - 26 September 2022
See botanical hotspots north of Perth during wildflower season. The trip covers a diverse array of landscapes, including the wheat belt's farmlands, the natural geological features of Kalbarri National Park, and the northern sandplains around Eneabba, Badgingarra and Mt Lesueur National Park.

9 Day Golden Outback Camping Tour - Tag Along Places Available
Perth to Perth • 22 - 30 October 2022 • Small Group Tour
Maximum of 10 participants (6 Participants in lead vehicles plus 4 participants in 2 tag along vehicles)
This is a trip with a bit of everything – historic goldfield towns, the Gormley outback sculptures at Lake Ballard, Credo Station, Rowles lagoon and the recently protected Helena and Aurora Ranges; one of the last examples of banded ironstone formations still left in Australia and home to many endemic species.

Please visit our website and sign up for our e-newsletter for monthly updates for more information.

Ph: 1800 676 016 or 08 9330 6066 - Web: www.coateswildlifetours.com.au - Email: info@coateswildlifetours.com.au
Facebook: https://www.facebook.com/coateswild Instagram: https://www.instagram.com/coateswild/

Fungi Group

Where Do Fungi Grow?

A presentation by Dr Tom May, Principal Research Scientist (Mycology) at Royal Botanic Gardens Victoria, ***7th March 2022***

At our first meeting for 2022, Dr Tom May spoke about the wide variety places in which fungi can grow. These amazing organisms are able to live in almost any habitat, from marine algae to the International Space Station! Unlike animals, which digest their food internally, fungi live in their food, 'slobbering' (excreting) their digestive enzymes over or in their chosen substrate and absorbing the breakdown products of the ensuing digestion. The readily visible parts of fungi that we are used to seeing (such as mushrooms) are the sporing bodies, but the main part of the fungus is the mycelium, which consists of microscopic, threadlike hyphae that can be seen only when *en* masse.

Fungi that grow on other fungi

One of Tom's favourite fungi is the 'Grey Jockey' *Asterophora mirabilis*, a small agaric (gilled fungus) that grows in groups on decaying sporing bodies of fungi in the family Russulaceae. In addition to its normal spores, it produces fusoid-stellate chlamydospores, which are resting spores. In Australia, this is the only agaric that grows on another agaric, and it is quite rare.

Another rare fungus, possibly Australia's rarest, is 'Tea Tree Fingers' *Hypocreopsis amplectens*, which grows on members of the *Hymenochaete* family, crust fungi that inhabit small, fallen branches of tall shrubs such as *Leptospermum* and *Kunzea* in long unburnt stands. Microscopically, *H. amplectens* is unusual in that it has three-spored asci (the finger-shaped sacs that the spores are produced in). Most ascomycetes have 8-spored asci.

More commonly seen, at least by sharp-eyed observers, is *Neobarya agaricicola*, a tiny yellow flask-shaped ascomycete found in numbers on the sporing bodies of small agarics. The host fungus is probably a *Mycena* but the colour of the host once infection is advanced is usually a brownish shade, making it resemble a species of *Galerina.*

Fungi that grow on parts of plants

The montane daisy *Leptinella filicula* is host to the tiny dark discs of *Fabraea rhytismoidea*, which usually grow on the upper surface of its leaves. According to records of observations, the daisy has a much wider distribution across south-eastern Australia, including Tasmania, in comparison to the fungus, which is reported mainly from the Baw Baw plateau and a few other subalpine areas in Victoria. Since this fungus is easily missed, more searching is needed to find out if this is really the case.

Photos of rust fungi *Puccinia tetragoniae* on Bower Spinach *Tetragonia implexicoma*, and *Aecidium eburneum* on Showy Bossiaea *Bossiaea cinerea* illustrated the superficial similarity of these fungi. Rust fungi often produce multiple spore types, one of which is the asexual aeciospore, produced in aecia, also known as "cluster cups". The aecia are tiny cups with a fringed edge, containing the yellow spore mass. *Puccinia tetragoniae* grows on the host leaves while *A. eburneum* inhabits the pods of the host.

The fungus *Fusicolla merismoides* flourishes in the orange to yellow slime flux arising from Bamboo Bambusa sp. The fungus grows on sap released when the bamboo is cut, along with a community of other fungi and bacteria.

There are several Banksiamyces species, each of which grows on cones of a particular species of *Banksia.* Many of us are familiar with the Fungimap target *Banksiamyces macrocarpus*, found on Hairpin Banksia *Banksia spinulosa* cones. Tom introduced us to the tiny greyish cups of *Banksiamyces macannii*, growing in grooves between the seed capsules of Grampians Banksia *Banksia saxicola* cones.

Banksiamyces macannii on *Banksia saxicola*. Photo John Eichler. CC-BY-NC-SA

Hymenoscyphus berggrenii lives on fallen Myrtle Beech *Nothofagus cunninghamii* leaves. One leaf can be home to many tiny sporing bodies. There are patches on the leaf with a thin dark line like a boundary fence marking the perimeter of each patch or 'territory'. Each patch probably represents the area occupied by one genetic individual and each patch may have one to several sporing bodies.

Massarina cystophorae is unusual in that it grows on a marine alga *Cystophora retroflexa*, but perhaps even more unusual is *Rhizidium phycophilum,* which grows on pollen grains! This latter fungus belongs in the phylum Chytridiomycota, and produces zoospores, motile spores that resemble the sperm of animals, with a body and a long flagellum.

Fungi attached to plant roots (mycorrhizal fungi)

Most plants form mycorrhizal relationships with fungi. The Death Cap *Amanita phalloides* is an example of a mycorrhizal fungus. It lives with exotic oak trees *Quercus* spp. and, as its name implies, is deadly poisonous.

Left: Enlargement of *Hymenoscyphus berggrenii* on fallen Myrtle Beech *Nothofagus cunninghamii* leaf, showing patches created by genetic individuals of the fungus, separated by dark lines, and with each patch having one to several sporing bodies.

(Continued on page 11)

(Continued from page 10)

Fungi that grow on or inside insects

Spherical bodies (probably sporangia) produced by the fungus *Myrmicinosporidium durum* in the ant

One of the most fascinating relationships in nature is that between fungi and animals. Most of the fungi noticed by field naturalists are from the phyla Ascomycota or Basidiomycota. The different phyla of fungi are characterised by different methods of producing spores, but there have been additional phyla recognised recently at the base of the fungal tree of life, and many of these phyla have representatives that parasitise animals. Tom spoke about five fungi that parasitise insects. Some fungi possess the ability to manipulate their hosts' behaviour in order to increase their own spore dispersal. *Ophiocordyceps oecophyllae* (phylum Ascomycota), for example, infects the ant *Oecophylla smaragdina.* These 'Zombie Ant Fungi' are thought to cause the ant host to climb to an elevated position on a plant and then bite into a leaf and stay there, thus maximising the area over which spores can be dispersed. Another ant, *Camponotus* claripes, can be infested by *Myrmicinosporidium durum* (phylum Blastocladiomycota), which lives inside the ant. Spherical bodies that are visible through the ant's cuticle are thought to be sporangia (spore-producing bodies), but the spores have not yet been observed. *Plecopteromyces trinotoperlarum* (phylum Kickxellomycota) also lives inside its host, attaching itself to the hindgut lining of stonefly *Trinotoperla zwicki* nymphs. Different again is *Septobasidium* (phylum Basidiomycota), a particularly interesting felty, crust-like fungus that surrounds small tree branches. It is associated with colonies of scale insects but does not necessarily kill all of them. For some of the scale insects, the fungus covers all except the mouthparts of the insects so that they can continue to feed normally. *Rhachomyces moorei* is a member of the order Labuolbeniales (phylum Ascomycota) and attaches to the exoskeleton of the beetle *Trechimorphus diemenensis*, which lives in rotting logs.

Septobasidium on scale insects (hidden beneath the fungus) on *Exocarpos cupressiformis*. Photo John Eichler. CC-BY-NC

Fungi that grow in dry places

Many fungi are not deterred by inhospitable conditions: *Podaxis beringamensis* is found only on termite mounds in arid areas of Australia, and *Phaeotrametes decipiens* grows on Sheoak *Allocasuarina*, producing a pored bracket that is brownish above but with a greyish bloom on the pore surface. *Agaricus wariatodes is a sequestrate fungus found in drier areas. It has no lamellae (gills) but its spores at maturity form a powdery mass. All the examples presented of fungi in nature were from Australia with the exception of the American Battarreoides diguetii,* a gasteroid fungus with a white spore sac atop a rough brown stipe. It strongly resembles *Battarrea phalloides,* the Drumstick Fungus, which is found across the globe, including Australia. However, in *Battarreoides* the outer covering of the spore sac has several perforations, through which spores escape, while in *Battarrea* the covering of the spore sac falls away in one piece to reveal the powdery spore mass.

Fungi that grow in extreme conditions

Thamnolia vermicularis (whiteworm lichen) is an example of a fungus growing in higher elevation locations in Australia, found on rocky hillsides. Lichens can tolerate extreme conditions, including the climate in Antarctica, due to the combination of a fungal body growing in partnership with an internal layer of photosynthetic algae or cyanobacteria.

There may be fungi in your dishwasher! Mycologists have examined the slime that forms around the rubber seals of dishwashers and found a variety of fungi that can tolerate the extreme conditions caused by the detergents used in dishwashers, along with the heating of the dishwasher cycles. Two species of *Exophiala* are prevalent in this environment. They are known to be human pathogens and have a remarkable thermotolerance, halotolerance (salinity tolerance) and pH tolerance, the combination of which has not previously been observed in fungi.

Aspergillus niger is very common on Earth, but is also one of the main contaminants inside the International Space Station. A photo from NASA showed this mould spread over an area where exercise clothing had been hung to dry. The Space Station would have been infected with spores while being prepared for launch. Moulds can exploit a wide range of food sources, including traces of organic material, and produce huge numbers of microscopic spores that blow around in the atmosphere.
Tom finished his presentation with a few words about the Atlas of Living Australia, iNaturalist and Fungimap, plus a reminder: when lodging images in portals such as iNaturalist, be careful to capture all the important features of fungi that we photograph—this may mean submitting multiple images showing the upper and under-side.

Thank you, Tom, for a very interesting evening, and for helping to prepare this report.

Virgil Hubregtse

In my garden, *Praying Mantis*

Praying Mantis are close relatives of Katydids. There are many different species and they are found in almost all parts of the world especially in the warmer regions.

The one I discovered recently in my garden was an unusual pinkish brown colour. It was approximately three and a half inches long. They are very alert with large eyes and have very good vision. So voracious are Mantids that they has been observed eating their own species. The female usually consumes her smaller mate, sometimes even during the mating process. Males can usually fly but the female has reduced wings or can be wingless. They occur as single individuals and not in groups. My mantis, in spite of being provided with lots of green leaves did not change colour and although it showed interest in all the aphids I provided it with, it did not feed. Mantids mostly spend their time with forelegs raised in a supplicatory attitude, hence the name Praying Mantis. If disturbed they may run quite fast or take flight . Many species can make short jumps and some move with a gently swaying movements.

All Mantids are carnivorous, feeding on a variety of insects and even sometimes spiders. Most people are familiar with the egg mass or ootheca of Mantids. Depending on the species they may be a hard peanut-size brown object attached to a twig or the larger "'foamy" mass attached to twigs.

After a couple of days with it appearing not to eat, I released my specimen back into the garden fearing that it might die.

I usually spend some time every day or night patrolling my garden looking for interesting things to observe, it might be birds, insects or spiders. And with the fungi season approaching. fungi. For anyone interested in nature, their own gardens are often a rich source of a variety of specimens.

Cecily Falkingham (Photos: C. Falkingham)

Library News

Recent additions to the library

The following monographs are about to be accessioned, and may then be borrowed.

The Acacia project: rare, endangered and unusual Acacias. (2021) [583.321 ACA]
Debus, S. (2012) *Bird of prey of Australia: a field guide* (2nd Ed.) [598.2/94 DEB]
Horne, P.A., Crawford, D.J. (1996) *Backyard insects.* [595.7 HOR]
Lepp, H (2021) *Snippets of mycological history.* [589.2 LEP]*
Wings over Western Port: three decades surveying wetland birds 1973–2003. [598.2/94]

* The monograph by Heino Lepp is a detailed study of the history of fungi. It comprises two volumes, the second of which contains the appendices, notes and index to the first volume. In donating a copy to the FNCV Library, the author also supplied a PDF copy of each volume on a USB, with permission to provide a digital copy of the complete work to any FNCV member who would like it in that form. The only proviso in this offer is that recipients should not upload a part of the work to any website. If you wish to obtain a PDF copy of *Snippets of mycological history*, please contact the Librarian.

Library collections now on the website
Don't forget that you can now search the library's collections on the FNCV website. Click 'About us' è 'Library' and you will be able to download searchable lists of books, periodicals, maps and photos.

Dr Gary Presland
Honorary Librarian

Thanks to the editorial and layout team who put together FNN 329

Joan Broadberry
Wendy Gare
Sally Bewsher

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

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

Extracts from SIG reports given at the last FNCV Council Meeting

Botany Group: Meeting 17th March Julia Askeland presented on the topic of Bryophytes - mosses, hornworts and liverworts. They are non-vascular, spore producing and of course photosynthesizing. Micro-habitats have implications for biodiversity. Julia has a field work project on *Leptotheca gaudichaudii* this autumn. Attendance was 13

Ken Griffith

Geology Group: Meeting Wednesday 23rd March Neil Phillips spoke about the s-type (sedimentary in origin) granites and in particular on a field survey project of Strathbogie granites. A surprising result was that both the top and bottom of the extensive emplacement could be traced, and that the thickness was much less than previously thought, at 300 m. Attendance was 27. **Ken Griffiths**

Juniors Group: On 13th March the Juniors had a great excursion to Point Cook Marine Sanctuary. Our activity leader was Andrew Christie. The excursion was well attended by 25 people. We had an amazing time and again we learned a lot about marine life and its creatures. Some of the children found invasive sea stars and were happy to take them out of this environment. Good on them. **Patricia Amaya**

Microscopy Group: The meeting at the hall on Wednesday, 16th February was attended by eight members: two members new to microscopy, and one member very recently joined FNCV. He very much enjoyed the meeting and he is excited to attend many other meetings. We all enjoyed many specimens and videos, using several microscopes set up for members use. **Philippa Burgess**

Day Group: Friends of the RBGV art group. *The Acacia Project* see FNN p14

Fauna Survey Group: *Protecting our public land, our wildlife and vegetation, how to identify suspicious behaviour and what to do.* Speaker Katrina Harrison, Manager Regulatory Intelligence Unit, Conservation Regulator, DELWP.

Fungi Group: *Where do fungi grow*? Speaker: Dr. Tom May. See FNN p10 –1`

Terrestrial Invertebrates Group: Lerderderg State Park. 6th March, cancelled;
Royal Botanic Gardens Cranbourne, 20th March.

Maine Research Group: Field work was undertaken in the Pt Fairy area, 23rd to 26th March. Surveys were carried out on Griffith Island, Sister's Point Killarney, the Southern Abalone Farm and on the far side of the channel at Griffiths Island. Low tides were early in the day. The weather good - fine with little wind over the four days. Between 10 and 12 people attended. All areas proved to be rich habits, producing a wide range of marine invertebrates. A complete list of species can be obtained from Leon Altoff leon.altoff@gmail.com See also FNN p5—6 *Photos below*. **Joan Broadberry**

Photos from Marine Research Group field work at Pt. Fairy *(left to right):*
Volutomitra obscura; Metabonellia haswelli, Green Spoon Worm; compiling the list*; Ceradocus sellickensis; Australaria Australasia; Alloiodoris marmorata* (confirming its presence in Western Victoria); working the rock platform near the Southern Abalone Farm- (photos 1-7 Joan Broadberry) *Thyone migraine,* Sea Cucumber tentacles. (photo: Barbara Burns)

Day Group

Friends of the Royal Botanic Gardens Art Group

Speaker: *Pam Diarmid*

The Whirlies or Botanical illustrators of the Friends of the Royal Botanic Gardens Melbourne (FRBGM), are a group who have gathered weekly for over thirty years to study and paint plants. They met initially in the Whirling Room at the southern end of the Great Melbourne Telescope House in the observatory, hence the name. The Whirlies are a self-help group, currently with 24 members, who share ideas and support each other in the field of botanical art. Over time the members have created individual artworks to exhibit and have undertaken a number of projects including depicting the Oaks and Eucalypts growing in the Royal Botanic Gardens Victoria (RBGV). The FRBGM have published a botanically illustrated book titled *Alphabotanical,* featuring the A-Z of Australian flora and have recently completed a group project illustrating 23 species of the rare, endangered and unusual Acacia species growing in the RBGV.

The Acacia Project was proposed for a number of reasons. Wattles are one of Australia's most popular and recognisable flowers with over 1000 endemic species, ranging from tall trees to prostrate ground-cover. The flowers do not have petals and are either fluffy balls or cylindrical spikes. Australia's national floral emblem is the Golden Wattle ,*Acacia pycnantha.* Golden Wattle is also depicted on the Coat of Arms and The Order of Australia. Wattle species are found throughout the world, but the genus Acacia is reserved for those native to Australia. The project also served to highlight the plight of some of the threatened Acacias, examples of which could be seen growing in the botanic gardens.

There was a lot to learn. The Whirlies invited Botanist Dan Murphy to introduce them to the Acacias. The parameters of the project were laid out, species were allocated to artists and the work began to identify the characteristics and discover more about the natural habitat and endemic location of each wattle. The group toured the gardens in the buggies to see where each particular Acacia species was growing. During the project artists made frequent trips back to witness the seasonal changes in their plant. The Herbarium Librarian prepared a display of historic botanical references depicting Acacias as only a few of the artists had attempted scientific botanical illustrations before, so were interested to see how professional artists had rendered this subject.

Members of the Whirlies painted the acacia species allocated, incorporating its particular identifying features, its habitat, flowers and seeds. They each pressed a specimen of the plant for the Herbarium and a video was compiled explaining the project. A small exhibition is planned to display the works in the RBGV Visitors Centre, to coincide with National Wattle Day on the 1st of September. All proceeds from the sale of the book go towards Acacia research at the National Herbarium of Victoria.

Our speaker, Pam Diarmid, co-ordinated the filming of the forty minute video of the Acacia Project. After she had introduced us to the group, we watched her excellent production and learned a great deal more about the creation of the book, in particular through interviews with several of the artists. The work took place over about 18 months using a variety of mediums including water colour paint and water-colour pencils. For scientific accuracy, photographs and pressed specimens from the Herbarium were used. Over the life of the project, fresh specimens of buds, leaves, flowers etc had to be obtained. It was important that the group agree on conformity of presentation for each of the 23 Acacias. As well, they had to learn and understand botanical terminology.

We also welcomed Graham Diarmid who made available copies of *The Acacia Project* for purchase. It can be obtained on line https://rbgfriendsmelbourne.tidyhq.com/public/shop/products

I would like to thank Pam and Graham for sharing the wonderful story of this long established, local group of talented botanical artists. It is exciting to know that we can visit the RBGV, see examples of rare and endangered wattles, many of which are only found in remote parts of Australia and using *The Acacia Project,* learn about them.

A big thank you also musts go to Jan Rosenberg for her generous assistance with the February Day Group program.

Joan Broadberry