



Field Nats News No.234

Newsletter of the Field Naturalists Club of Victoria Inc.
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Understanding Our Natural World
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September 2013

From the President

It is hard to believe that Spring is nearly here, so welcome to the September edition of the Field Nat News



Weasel skink

.Being out in the field, again, in the past week, it is always nice to find little surprises like frogs in unexpected places and reptiles nicely tucked away for the winter. On a wet Friday afternoon last week, I found Spotted Marsh Frog *Limnodynastes tasmaniensis* and Common Froglet *Crinia signifera* along with three species of Skink – Weasel, Garden and Grass (*Saproscincus mustelinus*, *Lampropholis guichenoti* and *Pseudemoia entrecasteauxii* respectively) and this was the middle of Winter

FNCV Administrator

Last month I said I wanted to pay tribute to Hali's contribution to the FNCV during her four years as our Admin Officer. She has been responsible for many things that are now accepted as part of what we do.



Fund-raising suggestions like Sausage Sizzles, Book Sales and the Photographic Competition were all her "brain-children". While many other things can be attributed to Hali's efforts, her dedication to getting the Club back on its feet after the fire, as expeditiously and economically as possible is a shining light. Hali organised a team of tradies to match or better that of quotes provided by the insurance company and then got them cracking on the repairs so that the members would be disadvantaged as little as possible. Once the hall was back in shape, she then organised an artist to paint the murals that we see on the walls now. Much of the work she did to get the hall back together was done in her own time and she often co-opted members of her family as well, to lend a helping hand. On behalf of all the members, I would like to say **THANK YOU VERY MUCH HALI** and I hope that we will see you around the club in future.

That said I would like to welcome our new Admin Officer **Wendy Gare** to the FNCV. Wendy is a local Blackburn resident who has had many years of experience running a single person office, working with volunteers and seeking to promote activities of an organisation, in her case, a theatre group. Wendy has been working through the office procedures with Hali and will be "flying solo" from September. If you are passing, please pop in and introduce yourself.



Volunteers Needed:

Book Shop

I would like a member/s to take on the running of our bookshop. It was done for many years by Ray White before

Due date for FNN 235 will be **10 am on Tuesday 3rd September**. We go to the printers on 10th and collation will be on Tuesday 17th.

Hali arrived. This job could be done once a fortnight and will involve compiling the order and preparing it for posting. Please contact the office if you are interested in helping out with the bookshop.

Book Sale

The Club is planning another Book Sale for Saturday October and we need people to sort, price, set-up and run the day. More details p 12.

John Harris

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CALENDAR OF EVENTS

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

September

Monday 2nd – Fungi Group. Meeting - *Members night*. Mini conference. Contact: Virgil Hubregtse.9560 7775

Tuesday 3rd - Fauna Survey Group. Meeting. Speaker: Dr. Patrick Guay, Victoria University. 'Bird Flight Initiation Distance as a management tool for human disturbance in Australia'. Contact Ray Gibson 0417 861 651

Monday 9th – Marine Research Group. Meeting - For details contact: Leon Altoff 9530 4180 AH; 0428 669 773

Sunday 15th—Juniors' Group. Excursion— Edithvale Wetlands. For full details please contact Claire Ferguson 8060 2474; toclairéf@gmail.com

Tuesday 17th—Collate FNN. Starting about 10.30 am. Some folk come earlier. Morning tea provided, all welcome. Contact Joan Broadberry 9846 1218

Wednesday 18th – Terrestrial Invertebrates Group. Meeting – Speaker Phil Bock – *“Terrestrial Invertebrates: A Paleontological Overview”*. Contact Maxwell Campbell 0409 143538; mcam7307@bigpond.net.au

Wednesday 18th—Grey-headed Flying Fox Survey. Meet at Yarra Bend Golf Course carpark, Mel 2D G7 at 6.00 pm. More information from Rod Van Der Ree (rvdr@unimelb.edu.au), Jo Ainley (j.ainley@unimelb.edu.au) or Ian Kitchen (iankitchen@optusnet.com.au) (see article p9)

Thursday 19th – Botany Group. Meeting - 7.45 pm start. *Get to know our eucalypts - an identification workshop.* Speaker: Leon Costerman, suitable for novices and those with some experience, bring 'Trees of Victoria' 5th/6th edition if possible. **Limited numbers. booking essential.** Contact: Sue Bendel 0427 055 071

Sunday 22nd – Botany Group. Excursion - 9.45 am to 3.45 pm. Leader: Leon Costerman, carpool, take lunch. Excursion will visit several sites, finishing at Warrandyte. **Limited numbers, booking essential.** Contact: Sue Bendel 0427 055 071

Monday 23rd- FNCV Council Meeting - 7.30 pm sharp. Agenda items and apologies to Wendy 9877 9860 or admin@fncv.org.au

Tuesday 24th – Day Group. Meeting.. 'Human movement resulting in extinction in the Indo-Pacific fauna.' Speaker Nick Porch. Meet at 10. 30 am for coffee and a chat. Speaker at 11 am. Contact Gary Presland 9890 9288.

Wednesday 25th – Geology Group. Meeting - *The Flourishing Forests of the Aurora Australis: A Cretaceous Analogue for our Greenhouse Future.* Speaker: Dr. Chris Mays, School of Geosciences, Monash University. Contact: Kaye Oddie 9329 0635

Friday 27th – Juniors' Group. Meeting 7.30 pm – Contact Claire Ferguson 8060 2474; toclairéf@gmail.com

Sunday 29th September – Saturday 5th October - Fauna Survey Group. Survey - Anuello Flora and Fauna Reserve. South east of Hattah-Kulkyne National Park, near Anuello. Prior registration at least 10 days before the trip essential. Contact: John Harris 0409 090955



The policy of the FNCV is that non-members pay \$5 per excursion and \$2 per meeting, to cover insurance costs. Junior non-member families, \$2 per excursion only.

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: fnnews@fncv.org.au 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: *James Cordwell, Mark Davidson, Alena Lindsay, Alvares Gonzaga, Caroline Gonzaga-Wilkinson, Jorge Gonzaga-Wilkinson, Sarah Nicholson, Trina Nicholson, Michelle Yang.*

Passenger Wanted for trip to WA Sept 30 - Oct 23rd 2013

I will be travelling by car to Western Australia, stopping frequently to look at flowers etc

Destination: Margaret River/Perth
Leaving Melbourne Mon 30th Sept
returning Wednesday 23rd October.

No driving required,
just a share in petrol costs etc.

Enquiries: Wendy Clark ph 9877 9266



Congratulation to the winners of the FNCV photography competition

'From the Forest to the Foreshore'

Artists' depictions of Natural History: Fungi, Ferns and their Allies

This exhibition will include paintings and studies of lower order plants such as ferns, mosses, lichens, fungi, seaweed, crabs, fish, shells, rocks, butterflies, beetles, insects, spiders, birds, nests, skulls, feathers, etc. A range of works will be available for purchase.

The exhibition will run from Saturday 5 to Sunday 20 October (closed Sunday 13 October due to the Melbourne Marathon). Opening hours are 10 a.m. to 4 p.m. each day. The venue is Domain House, Dallas Brooks Drive, South Yarra.

Sandra Sanger and Pam McDiarmid



Photography Competition

People's Choice Awards Winners
(not available for the previous newsletter)

Juniors

Naimh Horobin "Frozen Grass"

Nature from a Distance

Michael Gage "Mount Bogong - No cattle in sight"

Nature Up-close-and-personal

Joan Broadberry "Silvereye"

Juniors at Dingo Discovery Centre see p4



Thanks to the editorial and layout team who put together FNN 234

Joan Broadberry
Platon Vafiadis
Hali Ferguson
Sally Bewsher

This newsletter is printed on recycled paper.

Extracts from SIG reports given at the last FNCV Council Meeting

Fauna Survey Group

Presentation by Dominique Potvin

Dr Dominique Potvin from the Melbourne Museum gave a presentation on the impact of the 2009 bushfires on the frog populations around Kinglake. The project aimed at studying the effects of fire on frog abundance and species diversity as well as any effects on population genetics. The area is a hybrid zone for two very similar species of frog – *Litoria ewingii* and *Litoria paraewingii*. These species interbreed. The results showed that both the habitats and frog populations recovered well after the fires. Early results show a major genetic change between 2008 and 2009. Other results such as the fire affect on population size and the genetic makeup of frogs that survived are still to be determined.

Conservation of Tree Kangaroo populations in Papua New Guinea

In June Dr Euan Ritchie from Deakin University gave a presentation on a project to involve the indigenous people of Papua New Guinea in the conservation of rare species of tree kangaroo. The project involved reinforcing the importance of the rare fauna and developing alternative sources of food. This component of the project involved the placement of remote cameras throughout the target areas of mountain rain forest. Funding for the project was assisted by “Pozible” a crowd-funding scheme in which people offer donations but only contribute if the target is met. Donors can receive a CD containing copies of the best pictures.

Eastern Parks Fauna Survey

Teams have been created to carry out frog surveys at over 40 wetland sites. Each site will be surveyed for two nights in the months of August, October, November and April. The 100 sites for our reptile surveys are now being selected and it is hoped that the tiles and tin will be deployed in the next month.

Dates for the bat survey and spotlighting have been tentatively set with Cup Weekend and Labour Day weekend plus three other Saturday nights being earmarked.

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

Fungi Group

On 3 July, Jurrie gave a presentation titled 'Introduction to Fungi' to the Manningham Group. This was followed on 11 July by a foray at Jumping Creek Reserve, Warrandyte State Park. Both events were very well attended. Jurrie will donate the payment from Manningham Council to the Club.

Juniors' Group

On 14th of July, 23 Junior members met at the Dingo Discovery Centre in Toolern Vale to experience this amazing creature. They were taught about the plight of the dingo in Australia and the differences there are between them and dogs. They then got to experience this year's dingo puppies by feeding them, handling and playing with them. The weather was less than perfect but the experience was enjoyed by all. (Photo page 3)

Microscopy Group

No Meeting. During the last month Philippa attended a Hair Tube analysis day. She has decided to build up a bank of hair samples to examine and cross section. Philippa went to a reptile park and was given several samples of fur, quills and snake skin to start this bank. Keep this resource in mind when you are out in the field, and if you have the opportunity to collect more samples, please do.

Terrestrial Invertebrate Group News

The meeting was well attended and included members of the Entomological Society of Victoria and its President, Patrick Honan. There was the usual discussion on reports and observation from members. Members were asked if they would be prepared to attend monthly meetings if the alternate meetings were for workshops, planning or project activities. There was agreement that more frequent meetings would elevate the profile if the TIG. Excursions were also thought to be productive for good membership numbers.

There was also a brief discussion on the New York Museum of Natural History, invertebrate calendar and other documents produced for community interest and information. It was generally agreed that producing similar documents might be something that the TIG could be involved with as an ongoing project. The possibility of increased liaison between the ESV and TIG was also discussed and will be further explored. Mapping the current urban distribution of the Emperor Gum Moth was suggested as a possible joint project for the two groups.

Max Campbell presented “An Introduction to Invertebrates with a special reference to Leaf Litter”. The presentation covered the range of invertebrates to be found in leaf litter and soil. All major groups from protozoans to arthropods were covered. Each group was supported with detailed macroscopic and microscopic photographs and high resolution video.





Geology Group

'Magmatic and Phreatomagmatic Eruption Styles of Mt. Gambier Volcanic Complex'

Dr Jozua van Otterloo
School of Geosciences, Monash
University, 26 June 2013

Dr. Jozua van Otterloo presented the research work he undertook as part of his recently completed PhD at Monash University; along the way being a recipient of a Geological Society of Australia Research Scholarship and a Royal Society of Victoria 2012 Young Research Scientists prize winner.

Set against Australia's volcanic history of more than 400 eruptions over the past 4.5 million years, Mt. Gambier is our youngest volcano with its last eruption only about 5000 years ago.

Volcanic eruptions, including Mt. Gambier, can show great complexity with alternations in eruption styles, from non-explosive, lava-flow forming to highly explosive, ash-cloud forming styles that could take place during the same eruption event. These alternations are still poorly understood and which factors play a role: magma ascent rates, viscosity, temperature, gas contents, dynamics of the aquifers (groundwater bodies) in the host rock.

The relationship of different types of eruptive styles were depicted (see Diagram 1) and magmatic and phreatomagmatic further characterised.

Magmatic eruption styles have the following general characteristics:

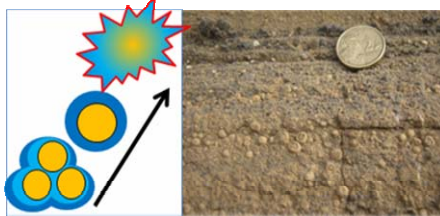
- driven by escaping gasses
- mildly explosive to very explosive
- deposits consist of fragmented magma and lava; ash particles are glass-like



Phreatomagmatic eruption styles are characterised as:

- driven by the rapid expansion of water in contact with rising magma

- always very explosive
- dense bombs; very fine ash forming tuff rings and cones
- next to fragmented magma, lots of fragmented country rock
- usually leave large craters



Jozua then described in more detail the different styles of magmatic eruptions, working through the scale in Diagram 1, from

'Effusive' (non-explosive, low magma rise rate, A'a', blocky and pahoehoe lava flows);

'Hawaiian' (fire fountains, high magma rise rate, spatter, agglutinates and clastogenic lava and cinder and spatter cones);

'Strombolian' (pulses of gas explosions, low rise rate producing spatter, scoria, dense bombs and minor ash and cinder or scoria cones);

'Violent Strombolian' (increasing explosivity and sustained gas explosions of more volatile-rich magma (*is water involved?*); and small scoria, abundant ash and stratified deposits, scoria cones and wider dispersal);

'Volcanian' (short-capped explosions of volatile-rich magma (*or phreatomagmatic explosions*) with big ballistics, pyroclastic flows and abundant ash; these are usually the ones that kill people).

Phreatomagmatic eruptions (continental) are highly explosive, caused by the interaction of rising magma with ground water, producing abundant ash, base surge deposits, dense bombs, abundant country rock, maars, tuff rings and tuff cones.

The Mt. Gambier volcanic complex exhibited many of these eruptive styles – magmatic, phreatomagmatic

Many thanks to those who helped collate and label FNN 233

Margaret Corrick
Geoff Corrick
Keith Marshall
Andy Brentnall
Hazel & Edward Brentnall
Margaret Brewster
Bob Rowlands
Joan Broadberry
Pieta Boschma

and transitional - sometime about 4000-7000 years ago, as identified from their typical geological facies using mapping and field descriptions and a number of specialised techniques, including geochemistry, electron microprobe of crystals-glass, degassing analysis, viscosity of elements, fluorine and chlorine, and degassing analysis combined with petrology and petrography of basalts and mantle xenoliths.

Jozua detailed these different facies/eruption styles of the Mt. Gambier volcanic complex using the results from the technical measurements. He also showed a series of illustrative slides where in the Mt. Gambier complex the different eruptions occurred and their chronology. A stratigraphic diagram also showed the relationships between the deposits in different areas of the complex and the multiple magmatic, transitional and phreatomagmatic eruptions that occurred.

Mt. Gambier's vulcanology is part of what is called the Newer Volcanics Province (NVP) of southeastern Australia, set in the geological context of Delamerian and Lachlan Orogenies during the Palaeozoic; eroding mountain structures leading to formation of the Otway Basin 90 Ma ago; then present-day NW-SE compression. It is this NW-SE compression that characterises the Newer Volcanics Province, contrary to the usual association of volcanoes with rifting or mantle plumes. Mt. Gambier is interesting too in its association with two ground water bodies (aquifers) at different depths. So when Mt. Gambier erupted (over a space of days-weeks) around 5000 years ago, with two simultaneous magma eruptions (from 90km and from 60km deep), spewing out 0.33 cubic kilometres of volcanic material and a 10km high ash cloud (similar to that from the 2012 Icelandic Eyjafjallajökull eruption), it is believed that the dynamics

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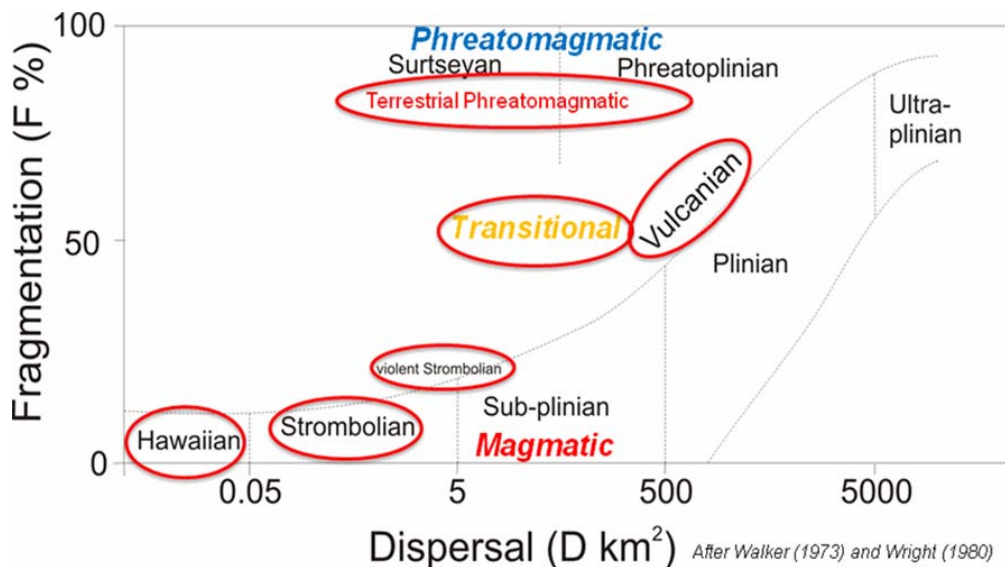
of the aquifers were the main controlling factor for the alternations (magmatic, transitional, phreatomagmatic) found in the eruption styles, not the magma itself.

In closing, Jozua reassured us that although the NVP is still active and there is potential for great damage, the likelihood of anything happening soon is very small.

The audience expressed their appreciation of Jozua's presentation of the far more complex volcanic story of Mt. Gambier and the detailed research work undertaken to elucidate its complexity.

Kaye Oddie

Explosive Volcanic Eruption Styles



Fungi Group

"Molecules in Mushrooms"

On Monday 1/7/13, Fungi Group member Bill Leithhead gave a presentation titled "Molecules in Mushrooms". Bill is a retired lecturer in Organic Chemistry. He explained that all organisms, including fungi, are made of molecules, and that their structure contributes to their properties.

We heard of some methods used to extract pure substances from fungal tissue, and how spectroscopy can help determine their structure. Then followed a simple review of the nature of the atom, and how atoms share electrons to form molecules. We were told that most molecules in living cells are composed mainly of hydrogen, carbon, nitrogen and oxygen. After a quick overview of various structural features in molecules, Bill gave examples of the substances found in fungi, particularly pigments and toxins.

Bill discussed eight examples of fungal pigments, showing that in almost all cases the colour was caused by certain molecules containing a "quinone" structure, which strongly absorbs light in part of the visible spectrum, leaving other colours to be reflected or transmitted.

We were then shown the molecular structure of wood, on which many fungi grow. Wood consists of two substances, a dark one, lignin (25-33%), plus the main white

part, cellulose. Fungi vary in their ability to break down these two substances.

Lignin has a highly complex polymeric structure based on units consisting of a 9-carbon atom unit, all joined together, linkages involving oxygen atoms. This structure is highly complex and is digested by only some fungi. Any undigested matter finishes up in the soil as part of the humus, which is necessary for plant growth.

The white part of wood, the main part, is cellulose, consisting of 6-carbon "glucose" units, each cyclized in a

hexagonal form, with thousands of these glucose ring units joined together in a long string by oxygen linkages at a set angle. These special linkages are broken only by complex protein catalysts called cellulases. Humans lack cellulases and cannot digest cellulose; neither could ruminant animals, were it not for their gut bacteria and fungi supplying cellulase enzymes.

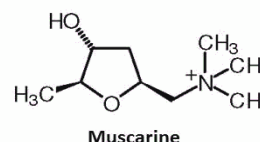
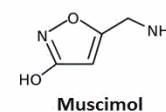
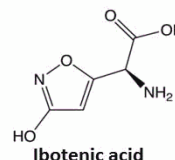
The glucose molecule is a key molecule needed by living organisms to drive the energy machine deep within all cells. Therefore, fungi need to make or acquire glucose. Most wood-rotting fungi possess the cellulase enzymes needed to digest the cellulose to obtain glucose. The main other kind of fungi, the mycorrhizal fungi, obtain their glucose and other molecules in partnership with the

Amanita muscaria toxins



Amanita muscaria (Fly agaric)

Not as toxic as some other fungi. General illness plus hallucinations ensue. Mainly from muscimol and muscarine, which can be removed by parboiling before eating. Has been used by ethnic shamans.



Muscarine toxin also occurs in some species of *Inocybe*, *Clitocybe*, *Entoloma* and *Mycena*. It can give rise to convulsions and death.

Other molecules in partnership with the rootlets of the plants with which they are associated.

Chitin is the tough substance which constitutes the cell walls of fungi (and of most insects and crustaceans). By looking at the molecular structure of fungal chitin, compared with that of cellulose (in plants), we could see that at one point, the cellulose has a hydroxyl group (-OH), but the chitin has an acetamido group (-NH-COCH₃). That's the only point of difference between these molecules in living tissue.

Then we were shown seven examples of poisonous fungi. The hallucinogens psilocin and psilocybin, found in various *Psilocybe* species, were compared with various other psychoactive molecules with the same structure. We learned that the fungus *Claviceps purpurea*, which infects the ears of various grain crops, causes illness when the contaminated bread is eaten. Bill drew our attention to the similarity to the drug LSD.

Orellanine toxin, which is found in various *Cortinarius* species, ultimately causes severe kidney damage, necessitating dialysis or a transplant. Its unusual structure is similar to that of the highly toxic common herbicides Diquat and Paraquat.

When eaten, *Amanita muscaria* (the bright red "toadstool" with the white spots), causes general illness, plus hallucinations, but apparently not usually deaths. The toxins involved are ibotenic acid, muscimol and muscarine. Some species in the genera *Inocybe*, *Clitocybe*, *Entoloma* and *Mycena* also contain these toxins.

Found in Europe and parts of the USA, *Gyromitra esculenta* (False Morel), contains a volatile toxin which, when digested, gives rise to a liquid, methylhydrazine, distinguished by its use also as a rocket fuel! It is toxic to some people but not to others, for reasons not known. Some researchers investigating it suffered damage to their oesophagus and cornea, merely from handling it!

If the common edible toadstool *Coprinopsis atramentaria* is eaten in conjunction with alcohol, a severe and unpleasant set of symptoms follows, very similar to a hangover. Hangover symptoms occur because a molecule called acetaldehyde builds up in the brain, and the fungal toxin interacts with the imbibed alcohol

to produce an excess of this substance.

Amanita phalloides (Death Cap) is responsible for most fungal poisoning deaths throughout the world. If more than 30g of this fungus is ingested, there is a symptom-free period of several days, after which gastrointestinal symptoms set in, followed by severe damage to the liver and the kidneys, then death. The toxins are cyclic peptides, which fit into a pocket inside one of the critical enzymes in our metabolism - an enzyme involved in processes by which our body creates new RNA and DNA. Hence, the body no longer repairs itself, so is poisoned by the debris from its own decayed cells. The liver is overwhelmed and itself starts to decay. The usual treatment is a liver transplant.

Bill Leithhead



FUNGI GROUP FORAY, WOODLANDS HISTORIC RESERVE, June 16th 2013

Vegetation: Hills Herb-rich Woodland
One of our first finds was the jelly fungus Yellow Brain *Tremella mesenterica* group. These were scattered but widespread and its bright golden-yellow colour made it stand out against the greyish background wood of fallen eucalypt branches and small logs.

We were fortunate to see several groups of the iconic Nargan's Bonnet *Mycena nargan* with the distinctive, white scales on the dark brown caps. Richard Hartland pointed out one group where the fruit-bodies, and the wood on which they were growing, was completely hidden by litter and grass. On this foray we saw more Nargan that we have seen for a number of years, even

though the numbers were usually only single or a couple of specimens.

While Macropod dung was plentiful, only two examples of *Stropharia semiglobata* were seen. One of these was unusually small with cap diameter 4mm and stem height 8 mm. This may have been due to the lack of nutrients in the very old dung on which it was growing. John Eichler found good specimens of the Small Dung Button *Poronia erici*, again on old macropod dung. We haven't seen this since 2009 and these were magnificent examples with clusters of fruit-bodies on each piece of dung.

Most of the fungi were scattered through the area and this was the case with the smooth, pale pink-brown *Clitocybe clitocyboides*. The fruit-bodies with their funnel-shaped caps were relatively small with cap diameter to 45 mm but the typical, pale gills. We did note that the colour was somewhat darker than the usual cream to cream-brown, but subsequent microscopical work by Virgil Hubregtse confirmed the identification.

In some algal layers amongst moss were two species of *Lichomphalia*. The first was a golden colour, but did not seem quite like the colour of *L. chromacea*. Luckily in another patch both species were growing together and could be clearly distinguished. *L. chromacea* was very small and an intense yellow, while the other was a golden species and much bigger. Thus according to the Bruce Fuhrer description (*A field guide to Australian fungi*, nos 222, and 223, under *Omphalina*), the latter was not *L. umbellifera*, since this is a smaller species than *L. chromacea* and
(Continued on page 8)



Hjortstamia crassa

Photo: Pat Grey



(Continued from page 7) Possibly *Galerina unicolor* Photo: Richard Hartland also more brown than the golden one we saw.

One of the most beautiful finds was a deep purple crust (drying to dark brown) fuzzy-looking with no sign of pores, and with mauve to pale lilac margins that formed very furry shelves. The shelves seemed to form at the edge of the wood or where the surface was broken.

We had no idea what it could be, so contacted Bruce Fuhrer and Heino Lepp (mycologist in Canberra) and emailed them a photo of it. Bruce answered – “Only a guess, but without closer inspection, could it be *Chondrostereum purpureum*? Perhaps it could be checked with the literature if there is a specimen.” Heino replied: “My first suggestion is *Hjortstamia crassa* (with older synonyms of *Porostereum crassum* and *Lopharia crassa*). Certainly I'd go for that if, in from the margin, there is no sign of pore development. From the photos I can't tell. If there are pores I'd go for the genus *Trichaptum* (perhaps the species *byssogenum*). Both have furry margins and colours that are strikingly purplish in younger or fresh specimens, but which can become brownish with age or on drying, though the margins may remain purplish. The *Trichaptum* keeps a marked sterile margin but develops irregular pores inwards. The *Porostereum* stays pore-free and in from the margin is a little less furry but keeps a somewhat velvety surface.

That's because encrusted, thick-walled cystidia are abundant and protrude beyond the hymenial layer. *Hjortstamia*

crassa and *Trichaptum byssogenum* are fairly common and I've found them both in a great variety of habitats, from moist to dry (with the *Trichaptum* extending further into arid areas, if my recollection is right). Both have similar growth forms, often completely flat but at times with slight, protruding margins like those in your photos. Also, both often produce numerous fruiting bodies that can coalesce to cover quite large areas. I had a dead trunk that I let lie in my yard and one year found *Porostereum* covering an area of about a metre by 10-15 cm on the trunk's underside. A less likely guess is *Chondrostereum purpureum*, but that has a smooth hymenial surface.”

Thus it seems that the species is most likely to be *Hjortstamia crassa* because it has no pores, and a fuzzy, not smooth, surface. Virgil Hubregtse has emailed an image of the microscopical 'spears' in the fungus, further supporting the view that it is *Hjortstamia crassa*.

The large earthball *Mycenastrum corium* Tennis Ball Puffball (as IR McCann calls it in 2003 in *Australian Fungi Illustrated*, p101) was not as plentiful as last year. We saw only one young specimen, still half buried in the ground and a couple of old ones, where only the outer lobes remained after the spores had dispersed. The young specimen showed a tough, dark grey, cracking outer layer, and the spores were still enclosed.

We were very excited to see what we thought was *Galerina unicolor* as that species had not been seen before on other forays. This *Galerina* species grows in soil. These fruit-bodies were fairly young and clearly showed the defining characters which were a smooth caramel cap, stem with distinctive ring and the spores yellow-brown (seen as they were caught on the ring). However, microscopic examination by Jurrie Hubregtse showed the spores to be smooth rather than ornamented, as all the literature denotes for *Galerina* (*Studies in the Genus Galerina* (Agaricales) in Australia by A.E. Wood in *Australian Systematic Botany 2001 Vol 14* pp 615-676 and *A Monograph on the Genus Galerina Earle* by Smith and Singer, 1964). Jurrie ended by saying “We have no clue as to what it may be at this stage”. Paul George stepped in to help by using ‘FunKey’ an interactive key to the gilled fungi of Australia – the Funkey came up with *Pholiota* or *Psilocybe*. Which one depended on whether the spores were dark brown or purple-brown. Jurrie and Virgil after more study noted that the spore print was a darkish brown, the pileus was very finely fibrillose (x10), and a slice through the pileipellis revealed a mass of fine fibrils. Thus it would seem that *Pholiota* is the best bet.

A fallen branch had a resupinate, whitish fungus spread widely over the surface. Close examination showed the surface covered with pores, which, under a hand lens, appeared as angular or broken tubes. This resembles an *Antrodiella* species but not *A. zonata* which forms orange-capped brackets. Several whitish species are known to occur in Australia e.g. *A. semisupina* and *A. subcrassa* which are mainly resupinate with white to pale buff, angular pores but only microscopical work can differentiate between them.

Thanks to Bruce Fuhrer and Heino Lepp for their help in identifying our unknown purple crust and thanks to Carol Page and Richard Hartland for their images.

Ed Grey and Pat Grey

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

Grey-Headed Flying Fox Counts

A quick reminder about next month's bat count. Wednesday 18th September, meeting at 6 pm. This will be at the usual meeting place at the car park for the Yarra Bend Park Golf Course (Melway map 2D G7), which is on Yarra Bend Rd, which runs off Heidelberg Rd.

It is a real challenge for many people to make the early count times, so if you are available and able to get there – it would be much appreciated. The more counters we have, the more reliable the counts and the better we can manage the colony! Why not bring a friend or two! New counters and regulars are very welcome. Please contact us if you want to participate so we can be in touch.

Contacts: Rod Van Der Ree (rvdr@unimelb.edu.au), Jo Ainley (j.ainley@unimelb.edu.au) or Ian Kitchen (iankitchen@optusnet.com.au)

Cheers, Rod

PS. People often ask about weather and counts – here is what we usually do: The count will go ahead unless the weather is cold, wet and windy. If the weather forecast is bad, I usually make a decision to cancel by about 3 pm on the day of the count – so please check your emails then if you can. If you can't check your email, and the weather is inclement and you are unsure whether to head out to Yarra Bend, please call Jo on 0455373140 to confirm.

PPS – want to know a bit more about the flying foxes or bats in general – check out a bunch of really interesting fact sheets at

<http://ausbats.org.au/#/bat-fact-packs/4562894228>



Field trip to *The Inlets* Waterway between Tooradin and Koo Wee Rup July 2013

The Inlets is located on the edge of The Great Swamp otherwise known as Koo Wee Rup Swamp. This swamp was impassable until drainage works and clearing began in 1876 continuing until 1962. From 1889-1893 the Bunyip Main Drain was constructed.

Before European settlement the Woi wurrung people lived inland from the swamp while the Boon wurrung people were coastal inhabitants. The indigenous people would have eaten fish and waterbird eggs from the inner swamp, as well as the edible tubers of Water-ribbons, *Triglochin procera* and edible rhizomes of *Cumbungi* *Typha spp.* There is evidence that the indigenous people used fire to control the Melaleuca and extend the grassland, but the water in the inner swamp prevented the peat from burning.

William Lyall introduced Sambar Deer. In 1873 he also set up a farm of Sydney Rock oysters but they were killed by freshwater flooding. There has been some agriculture on the island in the past and a fallen windmill remains there.

The Inlets is managed by Melbourne Water who protect the grassland by controlling the Melaleuca and weeds.

The edge of the swamp is marked by a group of Swamp Paperbark Melaleuca (*Ericifolia*) scrub, which grow on mineral clay soil and is not permanently inundated by water.

The swamp formed after the last Ice Age when the climate warmed and there was an increase in rainfall. The inner swamp was permanently under water and developed peat deposits. The island formed about 6000 years ago.

The Inlets are a compound estuary bordered by the eastern Moodys Inlet, Koonham and the western inlet, Lalln,

Botany Group

which share a floodplain but have separate entries onto Western Port Bay. Moodys Inlet has mangroves growing on its sheltered bank with Prickly Spear-grass, *Austrostipa stipoides* growing behind them. Coast Saw-sedge, *Gahnia trifida* dominates the estuary vegetation. The vegetation growing in the estuary is dependent on micro-topography and salinity with different vegetation growing on the mounds constructed by nesting swans.

The estuary consists of three coastal Saltmarsh Ecological Vegetation Classes, (EVCs) Wet Saltmarsh Herbland, Wet Saltmarsh Shrubland and Coastal Tussock Saltmarsh. The Inlets also consists of the following EVCs: Mangrove Shrubland, Estuarine Wetland, Estuarine Scrub, Estuarine Flats Grassland, Brackish Grassland, Swamp Scrub and Plains Grassland on the island.

The Brackish Grassland which is on the edge of the island is dominated by Common Tussock-grass, *Poa labillardierei* and Rounded Noon-flower, *Disphyma crassifolium*. The higher Plains Grassland is dominated by Kangaroo Grass *Themeda triandra* with Branching Bluebell, *Wahlenbergia multicaulis* and Grass Triggerplant, *Stylidium graminifolium*. There are also a few Acacia species and Pale-fruit Ballart, *Exocarpos stricta*.

Southern Brown Bandicoot, Swamp Skink, Metallic Skink, Blotched Blue-tongue and Lowland Copperhead inhabit the island.

Vegetation observed also included Vulnerable, rare or threatened Plant, (VROT): Salt Lawrenceia, *Lawrenciana spicata*; Marsh Saltbush, *Atriplex paludosa*; Australian Saltmarsh-grass, *Puccinellia stricta*; Shrubby Glasswort, *Tecticornia arbuscula*; Chaffy Saw-Sedge, *Gahnia filum*; Buck's horn Plantain, *Plantago coronopus*; Coarse Twine Rush, *Apodasmia brownie*; Bare Twigrush, *Baumea juncea*; Variable Saw-Sedge, *Lepidosperma laterale* and Variegated Groundsel, *Senecio pinnatifolius*.

Thank you to Jeff Yugovic for a very interesting and informative field trip to The Inlets on Western Port Bay.

Sue Bendel



Terrestrial Invertebrates Group

TIG meeting

“An Introduction to Invertebrates with a special reference to Leaf Litter”.

Wednesday 17th July

The presentation covered the range of invertebrates to be found in leaf litter and soil, encompassing all major groups from protozoans to arthropods. Each group was supported with detailed macroscopic photographs, photomicrographs and high resolution video. A highly diverse fauna can be found virtually under our feet, living in leaf litter and the top few centimetres of soil. Many of the terrestrial invertebrate groups are represented, and for that reason, leaf litter extracts are an excellent medium to use for teaching invertebrate zoology.



Photomicrograph of leaf litter extract, illustrating its biodiversity.

Leaf litter faunae can be used as indicators of biodiversity and ecological health – ratios of groups change with environmental conditions including pesticide levels and other pollutants. The leaf litter and its fauna vary from site to site in many ways depending upon constituent vegetation, season and general climate. In arid areas where termites are in abundance there may be very little leaf litter since the cellulose is quickly recycled by their colonies. Wet forests may have deep, rich litter with high biodiversity and large biomass. The level of moisture varies considerably and very much influences the composition of the biota. Many

terrestrial invertebrates still have a high dependence on moisture. Molluscs, crustaceans, protozoa, annelids and flatworms need moisture to survive although many have quiescent states that enable them to survive periods of desiccation.

Most cryptozoa are less than 1mm in length and may occur in enormous numbers. The various faunae comprise both permanent and temporary inhabitants. Adult stages may move out of the litter for dispersal and diet. They are thought by some to resemble the earliest terrestrial invertebrates as we might imagine them to have been and are considered therefore to be primitive. They are none the less highly adapted to their niche.

In a productive ecosystem an acre of soil and leaf litter may contain over 550 kg of earthworms alone (approximately equal to a steer). A square metre of leaf litter and 10 cm of underlying soil may contain over 500g of invertebrates (excluding Protozoa). Even in the arid zones of South Australia there are significant numbers of invertebrates in the leaf litter where over 4,500 invertebrates have been recorded. The diversity was low with predominantly mites, springtails and a few crustaceans comprising the fauna.

The phyla covered in the presentation included:

- Protozoa



Geophilomorph Centipede



Mite



Terrestrial fatworm



Isopod crustacean

- Nemertea
- Platyhelminthes
- Nematodes and other pseudocoelomates (Rotifers, nematodes and gasterotrichs)
- Annelids
- Molluscs
- Arthropods (Arachnids, Crustacea, Myriopoda primitive hexapods and insects)

**all photos by Maxwell Campbell*

Maxwell Campbell



Marine Research Group News

Report on the MRG meeting Monday 8 July, 2013. Melanie McKenzie of the Marine Invertebrates Department, Museum Victoria, spoke on the topic “The Falkland Islands—A brief visit”.

In February—March, 2012 Melanie had visited Antarctica as part of the British Antarctic Survey (see FNN 223, MRG page 11). During her stay on the Falkland Islands at that time, Melanie visited the local fisheries department and volunteered her time and expertise. As a result, she was invited to return earlier this year on a Shackleton Scholarship.

The Falkland Islands are part of the British South Atlantic Territories, but have close links to Ascension, St. Helena and Tristan da Cunha Islands. South Georgia is also governed by the Falkland Islands.

Melanie spent 1 month in the Falklands, from Feb-Mar, 2013 to:

1. study and identify the local holothur-oid collections;
2. give curatorial advice on setting up new collection stores;
3. assist in upgrading collection management systems, processes and policies, and
4. see as much of the Falklands as possible!

Most time was spent in Stanley (population approx. 2000 people—another 200 or so reside at the Mount Pleasant Army base, with relatively few people elsewhere). Stanley is home to a museum, post office, bank, newspaper (*The Penguin News*), some hotels, pubs, and a few supermarkets. Melanie showed many scenic pictures including of the wrecks of the *Lady Elizabeth* (a 3 masted freighter which sank in 1913) and the *Jholium* (an East Indies ship which sank in 1871, now home to many cormorants), and local beaches (Gypsy and Yorke) with their fauna of Magellanic Penguins, herons, geese, cormorants, seals and sea lions.

Interesting local jargon included the words “camp”, referring to any region outside Stanley and “squaddys”, referring to soldiers from the army camp. Locals also used to eat “fishy red” penguin eggs. Meat is relatively cheap but vegetables are expensive (many are now beginning to grow vegetables in their

gardens). There is no availability of fresh milk (only UHT milk), fresh dairy products or fresh fruit on the islands. Education in the Falklands extends to year 10 equivalent, and beyond this it is continued in the UK at no cost to the Falkland citizens.

Melanie met many local and colourful identities and experienced the very English lifestyle. Main issues in *The Penguin News* included their local unofficial referendum (on whether citizens wished to remain British citizens—and they did), oil and fisheries news (the region is scheduled to be explored for oil in 2017), the 2 inmates at the local jail, and South Georgia reindeer meat for sale. The radio announces a ‘sheep chill’ factor each day.

Environmental groups on the Falkland Islands included:

1. The Shallow Marine Survey Group (SMSG): this is roughly equivalent to the MRG except they also do considerable sub-tidal surveys via SCUBA. This body undertook a detailed collecting trip to South Georgia in 2010, sampling at depths of 0-18m and thereby completing the most comprehensive survey of the region since the early 1920s;
2. The South Atlantic Environmental Research institute (SAERI), a relatively new body formed in 2012, with whom Melanie was based;
3. Falklands Conservation (FC); and
4. The British Antarctic Survey (BAS).

Current areas of research focus include maintenance of sustainable fisheries and introduction of streamer (or tori) lines to prevent albatross from attacking baited long-line hooks; native planting projects; eradication programs for the non-native reindeers, rats and earwigs introduced to the islands; whale research; ongoing coastal marine surveys; and, currently, environmental impact preparation studies in preparation for the proposed oil exploration drilling in 2017.

Whilst on the Falklands, Melanie was based at SAERI, itself next door to the BAS (she also spent time at the Dept. of Aquaculture and Fisheries, which also doubled as the local veterinary service.)

Melanie showed images from the SMSG survey work that included nudibranchs, pycnogonids, sea stars, anemones,

ascidians and sponges. Melanie examined and reported on the local holothur-oid collections made by the SMSG and identified 2 orders which between them held 9 genera and 10 species.

Whilst in the Falklands, Melanie also immersed herself in volunteer work, going to Yorke Bay with the SMSG, Bleaker Island with the FC, and Volunteer Point, Cow Bay with the FC. She discussed the Millennium Seed Bank project, which aims to preserve the more than 160 native flowering plants (14 of them endemic to the islands) which are threatened by invasive species, agriculture and land use impacts. Melanie also discussed the local research work looking at feathers and beak dimensions to sex Gentoo Penguins—handling the birds for sampling and measurement was certainly challenging but also a rewarding experience.

Many images were shown from Bleaker Island (which is part national nature reserve, part organic farm) and its many natural attractions. These included whale bones from previous strandings, Ruddy-necked Geese, Black-necked Swans, Imperial Cormorants, Rock Cormorants, Caracaras, Gentoo, Magellanic and King Penguins, Southern Sea Lions, Elephant Seal pups, Falklands Steamer Ducks, Albatross, Oystercatchers and Giant Petrel chicks.

Nearly 35 years since the Falklands War between Britain and Argentina, the islands are left with many reminders of that conflict, including minefields and relic military hardware that still remains on the landscape.

The talk concluded with some images from the Torres Del Paine National Park in Patagonia, Chile, which Melanie visited on her way back to Australia. The breathtaking terrain and the beautiful fauna and flora images were a perfect way to finish a fascinating presentation. Many documents relating to the Falkland Islands were also displayed, including a copy of *The Penguin News* and local field guides.

We thank Melanie for her informative and very interesting talk, and look forward to further feedback from her after future trips to the region.

P. Vafiadis

From the Office



This is my last newsletter, as I will be finishing at the end of August. My replacement, Wendy Gare, is now in the office, so, please make her welcome.

Dates for your diary

Yarra Yarra Plant Expo:

We desperately need help to man a stall at the Yarra Yarra Plant Expo. This is a very interesting event, well worth a visit if you are free on Sat 6th or Sun 7th of September. The Expo is open from 10am to 4pm and is being held at St Sava's Church Hall, 212 Diamond Creek Road, Greensborough.

If you have some time that you could give to help staff the Club's stall for this event, please contact either the office or Sue Bendel (0427 055 071)



Printers Blocks:

We are having a sale of the old Vic Nat Printer's Blocks on Friday 13th and Saturday 14th September from 10am to 2pm. We will need volunteers to help set up and to man this sale. If you would like to own a unique piece of the Club's history, come and have a look.

The Whitehorse Festival:

is on Sunday 20th

October and the FNCV will once again staff a display. Please contact the office if you can assist.

Donations for Hall:

This month we need:

Rubbish bags (large)

Coffee (Mocona/Nescafe)

A4 copy paper

Gift cards from Coles, Safeway or Officeworks.

Thanks, Hali and Wendy

FNCV SECOND-HAND BOOKSALE FUND-RAISER, SATURDAY 12th OCTOBER

The Club is once again planning to hold a second-hand book sale to raise funds. This date coincides with a scheduled market in Blackburn. It will run from 9 am to 2 pm.

Donations of pre-loved books for the sale can now be dropped off at the hall for sorting and pricing during office hours, (Monday & Tuesday) or if attending a meeting.

We will also need volunteers to:

- ◆ sort and price books a few days beforehand
- ◆ help set up on Friday 11th October
- ◆ help on the day.

Contact Gary Presland 9890 9288 if you can assist.



Good Will Wine– fundraiser

The FNCV in partnership with Goodwill wine has started to raise money for the Club. This fundraising endeavour will be ongoing and will hopefully benefit the Club for many years to come.

Goodwill wine is a fundraising website, which offers Charities and Not for Profit Organisations the opportunity to raise money through wine sales. Simply go to the website www.goodwillwine.com.au or call them on 59629155 and order half a dozen or dozen bottles of wine. Most of the wine is sourced within Victoria, Yarra Valley, Mornington Peninsula etc, with the rest coming from elsewhere in Australia.

For every dozen bottle sold the club will receive \$20.00 (\$10.00 per ½ dozen). The wine comes with a 100% money back guarantee and will be delivered to your door. These bottles of wine, with our FNCV label, would make a great gift and a wonderful way to advertise the Club. So drink up, enjoy a good wine and raise money for your Club.



Field Nats News 234



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