



Field Nats News No.224

Newsletter of the Field Naturalists Club of Victoria Inc.
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Understanding Our Natural World
Est. 1880

Reg. No. A0033611X

Patron: Governor of Victoria

Office Hours: Monday and Tuesday 9 am-4 pm.

October 2012

From the President

Welcome all to the October edition of Field Nats News.

If there was ever a doubt that spring is already here, then the weather over the last few weeks should have clarified that. If that wasn't enough, while I was holding a 'Bird for Threatened Species' day recently, I heard a number of cuckoo species call and saw a pair of Pallid Cuckoos flying around at Plenty Gorge Park.

Solar Energy System (Photo below)

A number of people have asked about our new solar energy system, so I thought I would take this opportunity to share some information regarding it.

Our system was purchased from the Mark Group, a leading renewable energy company from the UK who have set up an office in Australia, under agreement with the Federal Government. This lasts for the next 20 years.

Our system consists of 20, 250W Trina multi-crystalline panels and a 5kW S a mil inverter.

These panels have been used for a 1.2MW system at the University of

Queensland (5000 panels in total) and the inverter make has been used on many renewable energy systems installed by local councils as a good quality, economical inverter. While the inverter is operating, the energy production data can be accessed by pushing the button on the inverter. This tells how much is being produced, at what voltage, how many hours of operation (on a daily basis, production and hours on a yearly basis. These figures will appear in FNN each month.

The panels themselves have a 25 year warranty and a guarantee that after 25 years they will still be producing at 80% of the original capacity.

As the system has now been turned on, the club is already benefiting from the energy produced as the meter is winding backwards. Once all the paperwork with AGL has been finished, the excess energy produced will be exported to the electricity grid and available as "green" energy. This is when the Club will start gaining credits for the excess energy produced .

**Yours in all things Green
John Harris**

Deadline for the November issue of FNN will be **Tuesday 2nd October at 10 am**. FNN 225 will go to the printers on 9th Oct. with collation on the 16th of the month.

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

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Our new solar panels
Photo: J. Broadberry





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.

October 2012

Monday 1st – Fungi Group. Members' night. Planning for 2013. If you would like to present a topic at one of our meetings, please contact Virgil Hubregste 9560 7775

Tuesday 2nd - Fauna Survey Group. Meeting. Conservation with bite: the functional roles of predators and their importance for biodiversity. Speaker: Dr Euan Ritchie, Deakin University. Contact: Sally Bewsher 9752 1418

Monday 8th – Marine Research Group. Meeting. Some Frontiers of Antarctic Marine Research. Speaker: Mark O'Loughlin. Contact: Leon Altoff 9530 4180 AH: 0428 669 773

Saturday 13th – Sunday 14th – Photographic Exhibition. Come and join us for the culmination of our inaugural Natural History Photographic competition. Voting for the People's Choice award on Saturday 13th. Prizes will be awarded at 2.00 pm in Sunday 14th. Contact: FNCV Office 9877 9860 office hours: email admin@fncv.org.au

Tuesday 16th - Collate FNN 225. Starting about 10.30 am. Some folk come earlier. Contact Joan Broadberry 9846 1218

Wednesday 17th – Terrestrial Invertebrates. Meeting Collecting beetles in Victoria. Speaker: Dr John Wainer will talk about his experiences collecting beetles in Victoria. He will show some of his magnificent beetle collection, and will identify beetles for you if you bring specimens (or very good photos). Contact: Alan Yen 0409 194 788

Thursday 18th - Botany Group. Meeting. Grassland Flora Conservation in the Merri Creek Catchment. Learn about three trials to help restore floral diversity in urban grassland reserves and secure the future of the rare Plains Yam Daisy. Speaker: Brian Bainbridge. Contact: Sue Bendel 0427 055 071

Saturday 20th - Fauna Survey Group. Stagwatch. Join us for an evening outing, as we survey for Leadbeaters Possum and other native wildlife in the nearby Yarra Ranges. Contact: Ray Gibson 0417 861 651

Sunday 21st - Botany Group. Field trip. Grassland flora conservation, Ngarri-djarrang (Central Creek Grassland. Meet at Davidson Street, Reservoir. (Melway Map 8 B12) 10.30 am, for a guided tour of flora conservation projects of the Merri Creek Management Committee and enjoy the peak flowering display of this 'urban grassland'. Contact: Sue Bendel 0427 055 071

Sunday 21st – Juniors' Group. Excursion. 11am, Werribee Gorge Walk. Contact: Claire Ferguson

Monday 22nd - FNCV Council Meeting. 7.30 pm sharp. Agenda items and apologies to Hali, 9877 9860 or admin@fncv.org.au

Tuesday 23rd – Day Group. Excursion. Visit to Wandinong Sanctuary, Blackburn (Melway ref 61 K1) and on-site talk by Bill Ellemor. Meet at Ronley Street entrance, 11.00 am. Contact Gary Presland 9890 9288

Wednesday 24th – Geology Group. Meeting. Travels in the Canadian and Russian Arctic regions – Geology, Plants and Animals. Speakers: Kaye Oddie and Neil McLachlan, Members, FNCV Geology Group. Contact: Kaye Oddie 9329 0635

Friday 26th – Juniors' Group. Meeting. New Zealand North Island Volcanics. Speaker: John Bosworth. Contact: Claire Ferguson 8060 2474

Wednesday 31st - Grey-headed Flying Fox Survey. Meet at Yarra Bend Golf Course carpark Mel 2D G7 at 7.30 pm. RSVP as a courtesy by phone or email to Megan Davidson 9380 5062: m.davidson@latrobe.edu.au



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:

Don Saunders, Alex Hlawaty, Sarah Devries, Jonny O'Riordan, Alisha Murphy, Robert Barker, Brett Macdonald, Melanie Mackenzie, Darren Carman.

HONORARY MEMBERSHIPS BESTOWED

Dorothy Mahler was elected in 1985 and has held the following positions within FNCV:

- Council member, 1994.
- Excursion Secretary and Tour Operator, June 1990 – May 1998.
- Assistant Secretary Botany Group 1989.
- Member of Field Nat News team, 1991 – 2012.
- Member of *the Victorian Naturalist* team, 2001 – 2012.

Noel Schleiger was elected on 29 November 1984 and has held the following positions within FNCV:

- Council member, 1990 – 2012.
- Vice President, 1998 – 2003, 2009 – 2012.
- Day Group Secretary, 1996 – 1997.
- Editor & founder of Field Nat News, January 1991 – 2012;
- Programme Secretary, 1990 – 1991.
- Activities Coordinator, 1991 – 1998.
- Australian Natural History Medallion Committee
- Environment Fund Committee, 2003 – 2012.
- SEANA Committee 1995 – 2012.

FNN would like to add their congratulations to Noel and Dorothy on their attainment of Honorary Membership status and thank them for their outstanding contributions to the FNCV.

In addition, Noel contributed 19 articles (contributions, reports, book reviews) to *The Victorian Naturalist* between 1984 and 2007.



LETTER TO THE EDITORS

Noel and I wish to thank the President John Harris and members of the FNCV for acknowledging our contribution to the Club by presenting us with Honorary Membership certificates at the recent Day Group meeting.

Looking back over the last 20 years or so, we both feel privileged to have had the opportunity to create the Club's first newsletter in 1991 during the presidency of the late Arthur Farnworth. In the beginning Noel wrote many of the articles and I enjoyed typing and arranging the pages in my spare time at work, before delivering them to the printer across the road. Six or eight dedicated members helped with collation in my home in Bulleen. After 10 years of being involved with the newsletter I retired, but Noel has continued the good work as editor until very recently. Today, with the help of modern technology, the newsletter team produces a beautiful, as well as informative Field Nats News.

During those earlier, busy years, I also organising monthly General Excursions and annual Interstate Tours, e.g. to the High Country, Mungo National Park, Binna Burra Qld., Kangaroo Island and northern Tasmania. It is very pleasing to hear that participating members have happy memories of those times.

We both wish our Club continued growth and prosperity in 'Understanding our natural world'.

Noel Schleiger & Dorothy Mahler, August 2012.

HELP!!! wanted

As part of the Future Directions of the Club, we are trying to raise our public profile in a number of ways, eg. the Photographic Competition, Speaker Data Base & increasing the number of Fairs and Festivals that we attend **In order to make this work we need some of your time.**

Photographic competition:

Set up Friday 12th October from 9.30 am.
Saturday 13th October 10.00 am to 4.00 pm
Sunday 14th October 10.00 am to 4.00 pm

I will be on site all three days, but I cannot do this alone and would like 1-2 people to help man the door and the kitchen (making cups of tea and serving drinks).

Whitehorse Spring Festival:

Sunday 21st October at the Council Offices on Whitehorse Road in Nunawading.

Set up: 8.00 am to 10.00 am
Festival: 10.00 am to 4.00 pm
Pack up: 4.00 pm to 5.00 pm

We need at least two people an hour to man this stall and talk to people about the FNCV. Two to three people to set up and pack up would also be required.

If you can help, call Hali in the office on Mon. or Tues. 9am to 4 pm or email at admin@fncv.org.au.



Geology Group

AURORA PHOTOGRAPHY ADVENTURES

Presentation by Phil Hart
Astronomical Society of Vic.
25th July 2012

On 25th July, the Geology SIG members were treated to a wonderful display of Phil Hart's photos of Auroras.

Phil is an engineer with Melbourne Water who, since the age of 16, has taken up a strong interest in astronomy – starting with binoculars, at age 17 building his first telescope (including grinding and polishing an 8" mirror), and then developing his skill in photographing the heavens. He is involved with the Astronomical Society of Victoria, runs workshops on night sky photography at Michael's Camera Store, and has published his first e-book called "Shooting Stars".

Phil's night sky photography got serious during a sojourn in Scotland between 2001 and 2006. He gained experience using a variety of cameras, lenses and tracking devices to photograph features such as the Andromeda Galaxy, a Lunar eclipse, the tracks of stars in the night sky as well as the Aurora Borealis. Auroras are seen

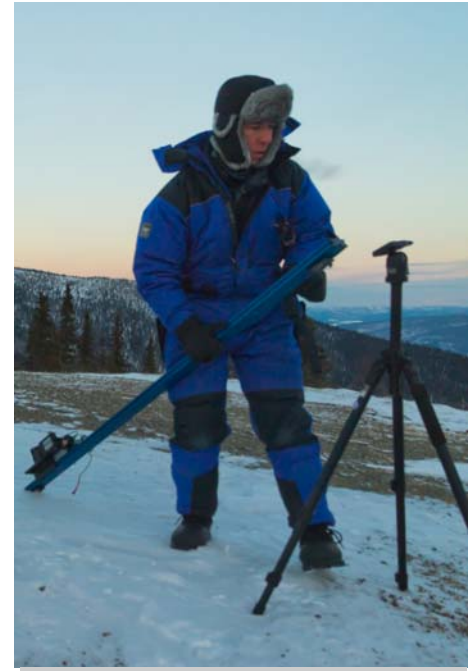
more regularly there than in the inhabited areas of the Southern Hemisphere and a phone app is available to alert interested people of aurora sightings.

Early this year Phil tackled nine weeks in Canada's Yukon Territory in mid winter, hoping to capture timelapse video footage of the aurora. In simple terms auroras occur when particles in the solar wind meet the Earth's magnetic field and are channelled toward the north and south magnetic poles. These particles react with oxygen and nitrogen in the upper atmosphere and their electrons emit light.

In the Yukon, Phil stayed north of the capital city Whitehorse (population 30,000) overlooking Shallow Bay on



Shooting stars



Phil setting up equipment in the cold

Lake Laberge, a 30 mile long very wide section of the Yukon River. Part of the

attraction of the area was the lack of light pollution. Whilst there, he stayed up until 4am most clear nights taking photographs of the aurora when it occurred, in temperatures down to almost -40 degrees. He uses a DSLR camera mounted on a tripod and a remote control to capture photos of auroras and other celestial features.

Although the talk was not purely about geology (not much at all really!), judging by the number of questions asked and the enthusiastic applause, members thoroughly enjoyed the evening.

For those interested in finding out more Phil has a website www.philhart.com, displaying many of his photos of the night sky and access to a book he has produced titled: *Shooting Stars - How to Photograph the Moon and Stars with your DSLR*. Phil has also offered a discount to FNCV members with the offer code "ASTROFRIEND".

* Photos are all by Phil Hart

Roger Needham



Microscopical Group

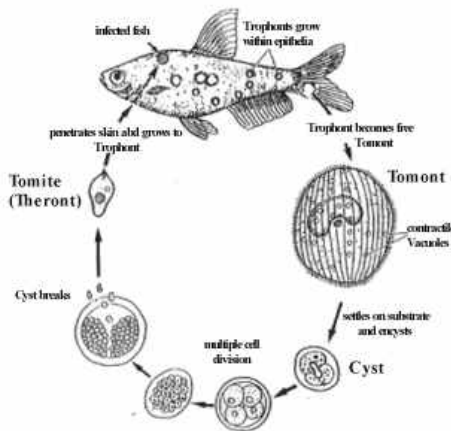
July Meeting White Spot Disease of Freshwater Fish Speaker: *Phil Littlejohn*

Phil has been working for Australia's largest importer/wholesaler of freshwater and marine fish for 33 years, and is a specialist in Victorian freshwater fish.

White Spot Disease (*Ichthyophthirius multifiliis*).

This scientific name translates as "the fish louse with the many children" which well reflects its reproductive capacity.

The earliest records of White Spot are from China around 1126 AD. Other early records of White Spot are from the Hamburg Aquarium in 1865. It was first recorded in Australia in 1933 and was thought to have been introduced to a trout farm in Tasmania via imported goldfish.

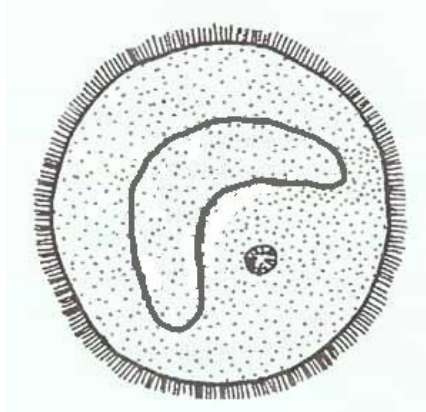


White Spot disease is rarely found in nature, but is a very common parasite in aquarium conditions, affecting marine and freshwater species, (marine species *Cryptocaryon irritans*).

If not treated immediately and correctly all species in the tank will die, unlike other parasites that may be host-specific. It is an obligate protozoan parasite, needing live fish to reproduce.

Understanding the life cycle is crucial for the effective treatment of White Spot.

They can only be effectively treated in the theront stage.



Theront stage = infective stage, free swimming stage, sometimes called 'swarmers'.

Trophont stage = parasitic stage, feeding and growth stage.

Tomont stage = reproductive stage, non-feeding stage.

Theront Stage

The anteriorly pointed theronts are short lived, attracted to light. They swim with the aid of cilia up from the gravel base of the aquarium. They are round to oval and measure .5 to 1mm. The adult is uniformly ciliated and contains a horseshoe-shaped nucleus. There may be thousands of thereonts looking for a host in the tank. They are thought to be attracted by the fish's blood. If they do not find a host within a couple of days they will die. Upon reaching a fish, it glues a sticky enclosed envelope to the fish, destroying cells in the process of establishing itself on the host. Within five minutes it uses pointed crests on the anterior end to bore into fins, eyes, scales, and within the gills and cheek cavity from where it is protected from chemical treatment. It starts to feed by constant circular motion of prebuccal cilia driving food particles of cell debris into the mouth, (cytostome). They are now in the Trophont stage

Trophont Stage

The trophont grow quickly. The fish are extremely irritated by the invading trophont and respond by encapsulating the parasite. This encapsulation is what enables us to be able to see the

infestation with the naked eye as the parasite itself is difficult to see.

Early symptoms or tell-tale signs can be sudden erratic movements, increased respiration, fish flashing, twitching or clamped fins. In advanced cases the fish may look like they are covered with specks of salt, with fin and skin erosion. When the trophont has grown sufficiently and is mature, it bores out and settles on the aquarium floor. It secretes a gelatinous cyst around itself where it is still protected from chemical treatment. They are now in the Tomont stage.

Tomont Stage

The tomont starts to reproduce within the cyst. 10-12 self-divisions produce identical-sized offspring without the size of the cyst increasing! Their size can range from 20 to 60 microns. Numbers of tomonts within the cyst can range from a couple of hundred to a couple of thousand tomites, depending on the temperature. After the reproduction is completed, the tomites break through the cell wall and become theronts again.

Microscopic examination and diagnosis.

A microscope with 40 to 100x magnification is a quick tool for correct diagnosis and the best way of being sure what parasite, if any, you are dealing with. A skin scrape, gill or fin biopsy can be taken without killing the fish. Many symptoms can also indicate they may have parasites, but this can be due to water quality only. Phil brought in some infected goldfish, with which he demonstrated taking a scraping from the belly of the fish with a blade and also cut a piece of fin, placing them on the slide with a drop of water and covering with a cover slip.

What we saw was a round parasite with the cytoplasm being granular in appearance with a constant rolling motion and covered in beating cilia. Depending on development of the parasite, a large, horseshoe shaped nucleus can be seen.

Treatment is aimed at the free swimming theront stage. In the other stages they are protected by either their embedment in the fish host during the trophont stage, or they are encysted during the tomont stage. Therefore the aquarium must be treated for the entire life cycle of the parasite to be assured all trophonts have left the host fish and all tomonts have completed reproduction to theront stage.

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Fungi Group

FNCV FUNGI GROUP FORAY 24 JUNE 2012

Jack Cann Reserve *Blackwood*

A large group of Field Naturalists and some members of the Wombat Forestcare group and others gathered at the Garden of St. Erths carpark for our foray. The weather was cold and overcast with no breeze. Near the carpark under pine trees, we found some exotic species including the common Fly Agaric *Amanita muscaria*, *Tricholoma aff. terreum* and *Russula integra*. The *Tricholoma* had an ashen coloured cap with white gills. *Russula integra* has a purple cap with pale gills that turn yellow when the spores mature.

Near a track south of the upper carpark, two green-capped *Entoloma viridomarginatum* were found. The pale gills of this species have a green edge. Later we saw another *Entoloma sp.* This one was a typical *Entoloma sp.* with a central depression in the cap. It had a dark cap and a dark stem with white mycelium at the base. The gills were white with a pink tinge of maturing spores. Nearby we saw a Wax Cap *Hygrocybe chromolimonea* in a shaded area on the ground next to a rotten pine log. The bright yellow convex caps were up to 20mm across. The whole fruiting body has the same translucent lemon colour, as if it was carved out of wax. The widely spaced gills form an arch from the cap edge to the stem. Later we saw *Hygrocybe apricosa* that had an orange coloured cap with an incurved margin. The Horse-hair fungi *Marasmius crinisequi* were found here and elsewhere in the litter throughout the bush. On the bark of some felled pine trees were some fan-shaped Split Gills *Schizophyllum commune*. The furry grey caps on some were tinged green by algal growth. Some fawn coral fungi *Ramaria gracilis* were seen here and elsewhere.

When you go on a fungi foray to the same spot for several years, you hope to see the same species near where you have seen them previously. Sometimes you are successful, other times you are not. We had seen the Orange Peel fungus *Aleuria aurantia* near the upper carpark, but it could

not be found. I suppose there are a lot of variables which come into play as to when or if a species will have fruiting bodies. Some truffle-like fungi *Rhizopogon luteolus* were found near pine trees. These were part buried in the soil. They were immature specimens, being off-white inside. When viewed with a hand lens, one could see the floccules and irregular cells within a cut specimen. Bolete species were scarce. One we did see near a pine tree was a *Suillus sp.* The cap was light brown. The pores were large and angular and arranged in radial

Suillus sp.

The purple Emperor Cortinarius *Cortinarius archeri* were not common this year. The cap on the mature specimen seen had turned from purple to brown. Cortinarians that we did see included the Slimy Yellow Webcap *C. sinapicolor*, a very young *C. rotundisporus* with a bluish pointed cap with the veil underneath still intact. Other Cortinarians were the vermilion capped *Cortinarius austrocinnabarinus*, the green capped *C. austroveneratus*, and *C. fibrillosus* that has a pale brown conical cap covered with fibrils. We did find one Cortinar that we were especially hoping to see. This was the bright yellow *Cortinarius canarius Dermocybe canaria*. The two specimens that



rows.

The brownish colouring suggested *Chalciporus piperatus*, but it didn't taste peppery, and the cap was too slimy, so it was considered to be a *Suillus sp.* *Suillus bovinus* was suggested – the cap did have a pale margin, and the pores were large, angular, and looked similar to the image in **I.R. McCann, Australian fungi illustrated (2003) p61**. The young fruit-body had white on the margin, but did not look as golden as *S. bovinus* in **Roger Phillips, Mushrooms 2006, p295e**. Also the flesh did not turn purple in vinegar (as **Mirko Svrcek mentioned in A field guide in colour to Mushrooms by, 2000, p216**). Neither is it *S. cavipes* (an endangered species, according to Phillips) because it had no white ring at top of the stipe. Thus, it remains a

we did see near the Lerderderg River road

were young ones. The cap on the biggest one was still a conical shape about 50mm wide. Other brown cortinarians were seen, but we were unable to identify them.

Another species that we were looking for was the Earpick fungus *Auriscalpium sp.* The small 10mm wide shell-shaped specimens were on the bark of a Narrow-leaved Peppermint. There has been only one sight reported for this fungus. This has been on this one tree. Among the fallen bark at the base of a Manna Gum was *Leucopaxillus eucalyptorum*. This species has a grey-brown cap with crowded slightly decurrent gills. Underneath the fruiting bodies there was a layer of dense white mycelium in the bark. A patch of the Yellow Tongues *Clavaria*

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Suillus spp.

Photo: Pat Grey

bodies of *Pleurotopsis longinqua*. The genus name is said to mean an ear on its side. The whole fruit bodies were a beautiful translucent pink colour.

We saw many *Mycena* species. One of the first that was *Mycena austrororida*. The stems of this species are covered with thick clear gluten. The blue capped Pixies Parasols *M. interrupta* were no-

ticed in a few spots. The creamy-brown capped *M. fumosa* is similar in shape and habitat to *M. interrupta*. Only a few fruit bodies of the tall-stemmed *M. cistidiosa* were seen. A small group of the yellow stemmed *M. epipterygia* group were on a tree trunk. The stems were not as sticky as some of this group that are found on litter on the ground. A large group of black capped *Mycena* was seen on a fallen log. The largest conical caps were 30mm wide. There was a suggestion that the species might have been *Mycena aff. atrata*. However a closer inspection of the younger specimens revealed white spots on the black caps, defining the species as *M. nargan*. On the foray over eighty species from many genera were seen. We were well rewarded for our effort.

Les Hanrahan

FNCV FUNGI GROUP FORAY 1 July 2012 Bunyip State Forest, Mortimer Picnic Ground and Nature Trail

The picnic area just before the start of the nature walk was most productive. Growing between the bases of the first two tall Manna Gums was a clump of large (cap diameter to 320mm) fruit-bodies. The caps were brown and very smooth, the palish gills showed a hint of pink, and when a small piece of this was taken, a mauve tinge could be seen. This suggested *Lepista nuda* (Wood Blewit)

and Virgil's microscopic analysis confirmed this. This species is found worldwide associated with pines and native forests. Young specimens have a mauve-violet cap that later turns brown, the gills age to pink-brown and the stem is sturdy and the violet colour turns pale but still retains some colouring.

Virgil pointed out what she thought was *Rickenella setipes*, but felt that the edge of the cap colour was rather darker (pale brown) than that illustrated by B. Fuhrer 2005, (A Field guide to Australian Fungi) no 251, although nearby we did see some with paler cap margins. This tiny species (cap diameter 10mm) is slightly larger than the more commonly-seen orange *R. fibula* (Little Pin) found growing in moss. *R. setipes* has a pale cap with a dark brown centre, and white decurrent gills at the base of which is a dark area above a pale stem. It grows in grass and moss. This species hasn't been seen at Bunyip before, but it is quite distinctive and we should keep an eye out for it. Apparently *R. setipes* is actually *R. swartzii*. The California Fungi web site says that *R. setipes* is a misapplied name.

Also seen were two species of *Clitocybe*, both had depressed caps with a greasy feel, and decurrent gills, but one was creamish with a hint of pink, and the other was grey. Virgil's microscopic study identified the cream one as *C. clitocyboides*, but the grey one is still *C. sp.* Just outside the ashes of the fire pit, Glenyce found *Pholiota highlandensis*. This small brown fungus (cap diameter to 30mm) always appears rather scruffy. The viscid cap attracts the black ash as does the yellowish fibrous stem. Pam and Jo, fungi enthusiasts new to our group, spotted some minute (to 10mm tall) yellow coral tongues *Clavaria amoena* growing in the grass. It certainly needed sharp eyes to spot these. In fact, from here along the nature trail most of the fungi were small to minute, apart from the huge (ca 500mm across) fallen rotting bracket of *Ganoderma australe* that Alanah held up.

At the start of the track growing on a small piece of wood in the litter was *Xylaria filiformis* which has very fine thin black stalks with a white fertile head. The fruit-body is unbranched up to 60mm with a diameter of 1mm or less and as it ages the whole fruit-body becomes black. In comparison with *X. hypoxylon*, the

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amoena was seen, as well as the reddish *Clavaria corallinorosea*. This has a pinkish upper section above a red sterile stem, which differentiates it from the all-red tongues of *C. miniata*. The white jelly fungus *Tremella fuciformis* and the dark brown *Tremella fibrinata* were found on fallen logs. Also on logs were the toothed jelly fungus *Pseudohydnum gelatinosum* with grey cap and white teeth, the little Ping-pong Bat *Panellus pusillus*, the tiny tongue *Panellus ligulatus* with an orange spoon-shaped fruit body. Leather shelf fungi on logs that were seen included *Stereum hirsutum*, *Trametes versicolor* and *Punctularia strigosozonatum*. On a sloping dead branch were the fruit



Rickenella swartzii

Photo: Jurrie Hubregtse

(Continued from page 7) stature is much finer and less rigid, and fruit-bodies are found in the litter not on wood. This species has been found here once before.

It was pleasing to again find the minute *Mycena* sp. 'tiny blue lights' on the stem of a dead frond of Smooth Tree-fern

(*Dicksonia antarctica*) and the hairy, yellow stalked cups of *Lachnum* pteridophyllum were found on dead frond stems of the Rough Tree-fern (*Cyathia australis*). The frond stem was very rough and spiky. *Lachnum lachnoderma* was also seen growing on a piece of curled eucalypt bark. It is a stalked cup that looks very like *L. pteridophyllum*, but grows on eucalypt bark. A third *Lachnum* species was found growing on a piece of eucalypt wood – *L. virgineum* which is slightly larger than the previous two and has cream/white cups and like the others are smooth inside and hairy on the outside.

Growing on the trunk of a Smooth Tree-fern Jurrie pointed out *Trichoglossum walteri*, an earthtongue where the black clubs have an enlarged spatulate top and were ca 35mm tall. Jurrie and Virgil have found it on that particular tree-fern in the past, and when examined, its microscopic characteristics, such as its 7-septate spores, were consistent with it being *T. walteri*. One of the specimens found this time had exactly the same characteristics, so we have verified that this species lives on that tree-fern. In general *Trichoglossum* spp. have a velvety texture due to a covering of long hairs or bristles (seen under hand lens). In the field *Trichoglossum* can be distinguished from the similar-looking earthtongue *Geoglossum* by the minute spines (setae, brown lance-shaped cells) that protrude from the surface of the fruit-body giving it a finely bristly texture.



Xylaria filiformi Photo: Pat Grey

Geoglossum species have no setae in the fertile head and the texture varies from smooth to viscid or only slightly velvety.

Not a lot of fungi were seen today, and many of these were unknown; for example there was a distinctive small brown fungus growing out of the trunk of a living eucalypt. The fruit-body had a dark brown, extremely rough and fibrillose cap with free white gills and a longish stem with a slight knob at the top. With these distinctive characteristics it would be surprising if no-one could identify it.

At lunch it rained, and after lunch it was still raining hard, so most of us went

home apart from a couple of hardy souls, Carol and Cecily, who walked further up the road and sent me images of what they saw - *Clavaria corallinorosea*, *Hohenbuehelia? clelandii*, and *Ramaria? gracilis*.

Pat Grey

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The treatment time is also dependent on the water temperature as the warmer the temperature, the quicker the life cycle. At 28.C the complete life cycle can be 3 to 6 days, whereas at 20.C this can be up to 20 days. For cold water fish at 10o C this can stretch to over 28 days.

Treatments used include copper sulphate, malachite green and quinine. Preparations are available from aquarium suppliers.

Phil is a great, easily-understood speaker who gave a well illustrated presentation prompting many questions, helping to broaden our understanding of this and other parasites. We all enjoyed the practical demonstration of slide preparation of the specimens and the viewing of the parasite and watching its rolling feeding behavior.

Thank you Phil.

Phillipa Burgess



Library News

Recently catalogued books:

MacCormack, RB, *A Guide to Australia's Spiny Freshwater Crayfish*.

VEAC Remnant native vegetation investigation Final Report

Recent periodicals:

Wildlife Australia 49(3) has articles on manta rays and a new species of *Antechinus* from near Brisbane; *Australian Geographic* no.110 looks at some strategies of Australian orchids for seducing insects.

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

Disposal of items from the library

In order to make space for future acquisitions, the library is disposing of a number of items, mainly from the Geological Survey of NSW. They are mostly technical reports on particular mining areas and mines in NSW. If you are interested in having any of these items (for no cost to members), email the library at library@fncv.org.au. for a fully searchable list in MS Excel. You have until the end of November 2012 to request any of these items.

Gary Presland
Honorary Librarian

Many thanks to those who helped collate and label FNN 223

Keith Marshall
Margaret Corrick
Bob Rowlands
Sheina Nichols
Andrew Brentnall
Edward Brentnall
Hazel Brentnall
Joan Broadberry
Margaret Brewster

Fungi Group MICROSCOPICAL WORKSHOP 6 August 2012

Presented by **Jurrie Hubregtse**

This was the second microscope workshop held by the Fungi Group. The first took place in 2005, so it was certainly time for another one!

Fourteen people participated. Some brought their own microscopes, while six more were kindly provided by St Kevin's College and were transported and set up by Fran La Fontaine. This guaranteed that everyone had ample opportunities to use a microscope and get a feel for what is involved in using a microscope to identify a fungus.

At the start of the session, Jurrie gave a short presentation showing how a microscope can be used (1) as a measuring in-

strument, and (2) to examine a fungus, measure its spores, basidia, etc.

(2) Microscopic examination of a fungus

When you cannot rely solely upon the macro features to identify a fungus, it is necessary to examine the microscopic features. This process will give you extra parameters to assist in identification. You need to find a taxonomic description of the fungus in the published literature; this will give you a macro- as well as a microscopic description. The microscopic description will usually include the size and shape of spores, basidia, cheilocystidia, pleurocystidia, etc., and will also tell you whether or not clamp connections are present. Jurrie showed a diagram of a slice through a gilled fungus, indicating the locations of the cheilocystidia and pleurocystidia.

specimen must be squashed so that the piece of fungus is very thin, otherwise it is difficult to see features such as spores, basidia and cystidia.

Participants then put this into practice, examining both fresh and dried material. Jurrie demonstrated what is involved in using a microscope to assist in identifying a fungus, using a fresh specimen of what was assumed to be *Leratiomyces ceres* (= *Hypholoma/Stropharia auriantia*). During this process, Jurrie was able to connect his microscope to the overhead projector so that everyone could see what was being observed. He compared his findings with the description in Cheryl Grgurinovic's book *Larger fungi of South Australia* (pp. 537-539), and all the features matched so well that he was satisfied that the specimen was indeed *L. ceres*.

Thank you, Jurrie, for presenting an interesting and enjoyable workshop. Special thanks go to Fran La Fontaine for her valuable assistance, and to St Kevin's College for the loan of the microscopes. Thank you also everyone who participated.

Virgil Hubregtse

Reference

Grgurinovic, CA (1997) *Larger Fungi of South Australia*. (The Botanic Gardens and State Herbarium and The Flora and Fauna of South Australia Handbooks Committee: Adelaide)



Photo: Carol Page

strument, and (2) to examine a fungus, measure its spores, basidia, etc.

(1) Setting up the microscope

To set up a microscope as a measuring instrument it is necessary to place a scale in or on the microscope. The scale can be either a graticule placed in the eyepiece, or the fixed pixel array of a camera sensor. These scales need to be calibrated, and the best way to do the calibration is

The 'nip and squash' method is commonly used to examine a fungus. The procedure is as follows:

- (a) Using tweezers, nip a very small piece of the fungus from the appropriate part of the hymenium.
- (b) Squash it onto a microscope slide.
- (c) Add a drop of stain.
- (d) Cover it with a cover slip.
- (e) Gently squash it a bit more. The

**Thanks to the editorial
and layout team who put
together FNN 224**

Joan Broadberry
Platon Vafiadis
Hali Ferguson
Sally Bewsher

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

*This newsletter is printed on
recycled paper.*

INCREASE IN FNCV MEMBERSHIP RATES



There has been an increase in the FNCV subscription rates, taking effect from 1st October 2012. These have been calculated to be in line with rises in the cost of running the club.

Family Membership	\$95.00	Single Membership	\$75	Concession Membership	\$55	Additional Concession	\$20
Schools/Clubs	\$85.00	Student Membership	\$30	Junior Membership	\$30	Additional Junior	\$15
Australian Institutions	\$140.00			Overseas Institutions	\$150.00		

From the office....

Photographic Exhibition: just to reiterate

Our Photographic competition has closed and the judging is taking place. An exhibition of the best entries will be held at the FNCV Hall on Saturday 13th October and Sunday 14th October from 10 am to 4 pm. Voting for the People's choice award will take place on Saturday and the prizes will be awarded on Sunday. I need help to man the exhibition on the day 1-2 people per hour from 10 am to 4 pm on Saturday and Sunday. I will also require some help to set up on Friday 12th October from 9am and to pack up on Sunday. If you can help me, please contact the office and let me know.

Calendar of Events:

I would like to say a big thank you to all of the SIG organisers, for their prompt response to this edition of the Calendar of Events. You will notice that the Club is once again quite busy as it heads towards the end of the year. If you need extra copies to share with friends, family or clubs that you belong to they are available from the office.

Letter from Geelong Environment Council Inc.

A letter has been received urging FNCV members and friends to write to Minister Tony Burke in relation to National Park protection being given to the unused portion of Alcoa's Anglesea coal mining lease, More information on this urgent matter can be found at www.geelongenvironment.org.au 5244 2920 PO Box 771, Belmont 3216

Donations for Hall:

Just let you know that cost of running the kitchen and the hall is now almost entirely being borne by our outstandingly generous membership through their donations. Many thanks for getting behind this scheme. This month's requests are:

Biscuits (packets of biscuits are always needed).

Long Life Milk

Pine o clean wipes (for bin)

Coffee

Or Gift vouchers from Office Works, Coles or Safeway.



Once again, my thanks to all. Hali

Extracts from SIG reports given at the last Council meeting summarizing recent activities



Fauna Survey Group

- An equipment maintenance day was held on 11th August
- August talk on "*Remote cameras - Fauna Survey Group experience*", by Robin Drury.
- September talk on "*Bats of Melbourne*". Ian Kitchen stood in for advertised speaker, Lisa Godinho who cancelled because of illness. Lisa hopes to reschedule another presentation..
- Five remote cameras have been placed in the Lysterfield Parklands, with the hope of capturing images of bandicoots.
- September activity is a week in Mallacoota, staying at the Adobe Flats, with an emphasis on exploring the area.



Terrestrial Invertebrate Group

The TIG met this month and were given a very entertaining talk by Dr Sabine Perrone. Sabine talked about the morphology of the honey bee (*Apis mellifera*) and highlighted the adaptations needed to collect pollen. She illustrated her talk with excellent macro photographs and scanning electron images to give us a greater understanding of bee morphology.



Marine Research Group News

Report on the MRG meeting Monday 13/8/2012. Dr. Ursula Smith, Palaeogeologist and Curator of Fossils, Geology Dept. Melbourne Museum spoke on the topic, “Palaeontology: looking past the present”.

Key root words in the study of fossils are the Greek *palaeo* meaning old, ancient, and the Latin *fossilis* meaning of digging, or to be dug up. Conrad Gesner's 1565 work “On fossil objects” provided the first use of the term ‘fossil’. In 1669 Nicholas Steno spoke of fossils as having been previously living, based on the principle of “sufficient similarity” to currently living things. In addition to fossils, there are pseudo fossils such as concretions and mineral dendritic patterns in stones.

Fossils may be classified as 1. body fossils (eg. trilobites); 2. trace fossils (eg. footprints, resting traces, burrows, boreholes or 3. chemical fossils, which are residual chemical traces left over from metabolic processes.

Ursula then spoke of the geological timescale (eg. see <http://www.geo.ucalgary.ca/~macrae/timescale/timescale.html>) and discussed some of the key highlights in the evolution of early life. The earth is 4600 million years old. Most fossils begin from the Cambrian era in the Cambrian explosion, from 550-544 million years ago (mya). There is not much pre-Cambrian rock around to explore further back from this time, but recent advances have been made. The oldest known rock is about 4.303 billion years old (the Acasta Gneiss, North-West Territories, Canada). Gunflint fossils of cyanobacteria dated to 1,878.3 mya (± 1.3 my) show that life on earth existed well before the Cambrian era. This discovery stimulated the search for further pre-Cambrian fossils.

2.1 billion year fossils of large colonial organisms have been found. Cyanobacteria chemical markers in rock from the Pilbarra, Western Australia (WA) have been dated at 2.7 billion years old. Definite organic walled microfossils from South Africa have been dated at 3.2 billion years old. Rocks from the Pilbarra, WA dated to 3.4 billion years old exhibit sulphur-metabolising bacteria and body fossils of single cells are known

from the Strelley Pool formation, Pilbarra, WA. In the 1990s from the Apex Chert, Pilbarra WA, cyanobacteria-like organisms were dated to a debatable 3.465 billion years old. Ratios of C12 to C13 isotopes from 3.85 billion year old rock from south-eastern Greenland suggests the possible presence of cyanobacteria to account for these observations.

Ursula discussed *Bangiomorpha*, red algae from 1.2 billion years ago, the first known example of sexual reproduction in the fossil record. The oldest known skeletonised organisms, *Cloudina*, appeared 550 million years ago; no one really knows exactly what they are, but they were widespread and also exhibit bore holes within them, raising the question as to whether skeletons were an adaptive response to predation. Ursula then spoke about *Namacalathus*—discussed in Grotzinger et al, 2000—dated to 550-543 mya.

In summary, the origin of protective skeletons was around 550 mya. The origin of animals was from 606-800 mya. The origin of eukaryotic cells was before 2100 mya. Life itself was likely present from before 3800 mya.

Ursula then discussed some key events in geological history, including the great oxidation event, where about 2100 mya, oxygen levels were in the order of 20% causing a lot of the iron in solution in the oceans to oxidise and form iron ore, creating great deposits of the mineral.

Significant geological regions within Australia were presented, beginning with The Ediacaran Biota (named after the Ediacara Hills in South Australia). The multicellular organisms found here, such as *Dickensonia*, *Cyclomedusa*, *Mawsonites*, *Tribrachidium*, *Parvancorina* in one theory are proposed to be different from metazoa and that they did not survive beyond the Cambrian boundary. This raises questions about whether multicellular organisms could have arisen independently twice, and these questions have implications for the likelihood of evolution on earth and for the likelihood of life elsewhere in the universe.

The Cambrian explosion itself marked a sudden appearance of diversification of almost all phyla in the early part of this era, about 550 mya, and lasted no more

than 20-30 million years. Unusual organisms shown included *Wiwaxia* (an ancestral mollusc?), *Hallucigenia*, *Opabinia* (affinities unknown—it bore 5 years on its head); and *Anomalocaris* (an arthropod).

Next, Sepboski's Family Compendium (1982) was discussed. This is a graph that plots the number of families of organisms versus geologic time. There is a rapid rise in the number of families in the Cambro-Ordovician radiations which then plateaus in the Paleozoic to show a stable diversity, before a sudden drop-off followed by the Mesozoic-Cenozoic radiations. The appearance of the graph does not change when redrawn at the generic level. Although possibly influenced by sampling biases (older rocks are much less available to sample), if accepted it suggests the presence of three evolutionary faunas—the Cambrian fauna consisting of unusual forms that are not present today, the Palaeozoic fauna such as corals, nautiloids, echinoderms and trilobites, and the Modern fauna of subsequent times (such as gastropods, etc).

The talk concluded with a broad discussion of what scientists do with fossils. Their presence or absence in environments (albeit with potential preservation biases) is informative. They provide intrinsic biological information such as taxonomic identity, clues to ecology, size, age, mass and growth patterns; they provide secondary biological records such as syn-vivo records and post-mortem records; they also provide information on extrinsic variables (when they themselves are treated as mere particles) such as taphonomic grades, geochronological estimates, and geochemical data. They provide insights into origins of current organisms and their evolution.

Environmental reconstruction also throws light on how we interpret fossils: taxonomic uniformitarianism makes assumptions on past life based on current forms (eg. all echinoderms are marine); morphological uniformitarianism, makes assumptions of past life based on direct comparison to current forms.

We thank Ursula greatly for her fascinating talk. (I also apologise in advance for any potential errors in these notes).

P. Vafiadis

Biodiversity Symposium Saturday 17th & Sunday 18th November, 2012

This years FNCV Annual Biodiversity Symposium is titled
"Working together for Ecological Outcomes in the International Year of Cooperatives".

REGISTRATION FORM (can be downloaded from the website—www.fncv.org.au)

Name(s) _____

Organisation _____

Address _____ P'code _____

Phone _____ Email _____

COST (includes light lunch, tea/coffee):

Saturday or Sunday

\$35 (FNCV members/Students/concession)

\$45 (non FNCV members)

Both Days

\$60 (FNCV members/Students/concession)

\$80 (non FNCV members)

Early Bird special (both days) available until 16th October, 2012

\$55 (FNCV members/Students/concession)

\$75 (non FNCV members)



PAYMENT:

Cheque* VISA Mastercard

EXPIRY DATE: /

CARDHOLDER'S NAME: _____

*Please make cheques payable to *Field Naturalists Club of Victoria Inc* or please provide credit card details.

Return registration form by **9th November, 2012** to:

Biodiversity Symposium, F.N.C.V., Locked Bag 3, Blackburn, 3130.

Fax: 03 9877 9860 email: admin@fncv.org.au

Field Nats News 224



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