



Understanding
Our Natural World

Field Nats News No.284

Newsletter of the Field Naturalists Club of Victoria Inc.

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Governor of Victoria

Office Hours: Monday and Tuesday 9.30 am - 4 pm.

April 2018

From the President

Photos: M. Campbell

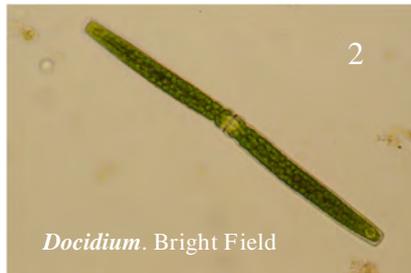
This is a busy time of year for the FNCV with two major events imminent; the SEANA get-together on 27th—29th April and the Annual General Meeting on May 6th. Make sure they are marked in your diaries. Please ensure that your SIG has a nominated representative for election to Council and that you have completed a nomination form if you wish to be on Council yourself. These need to be submitted to the Office as soon as possible. *See p12.*

I have collected numerous pond water and moss samples in the past month and have spent a great deal of time examining them microscopically. There are always new things to see and many surprises.

A sample of sediment from a dam in Scarsdale contained numerous desmids and ciliates. One particular organism, *Frontonia* (photo 1) is an ostensibly algivorous ciliate related to *Paramecium*. It actively hunts desmids such as *Docidium* (Photo 2) and ingests them even when they are as big as themselves. *Frontonia* is often seen with numerous diatoms digesting within it (Photo 3). They also attack and eat rotifers (Photo 4) so they clearly like



Frontonia swimming off after engulfing *Docidium*
Phase contrast



Docidium. Bright Field

a little meat with their vegetables. (Photo 4). *Frontonia* circles its intended prey rather like a shark and nudges it to perhaps identify it before finally lunging and forcing it into its small "mouth" by arching and contracting its single cell. The speed of the attack is impressive. It is easy to forget that this is a single-celled animal which is behaving like a multi-cellular organism without the presence of a complex, multi-celled nervous system and specialised tissues. However there is nothing simple about these minute organisms.

Photo 4. *Frontonia* extracting an unfortunate rotifer from a large colony. The front of the rotifer is entering the mouth and the ciliate gave a number of strong tugs to get its prey to release its grip on the substrate. Bright Field



Frontonia replete with a load of diatoms
Dark Field



The cell division of *Rhabdostyla*.
Phase contrast

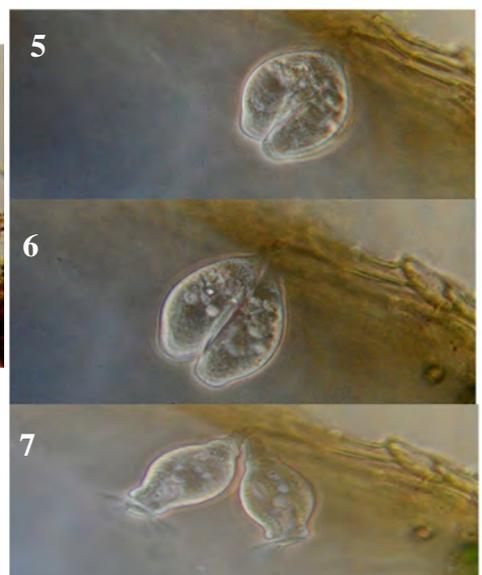
A sample of moss from around Wendy Gare's pond yielded an interesting specimen of what I believe is a species of *Rhabdostyla*, a peritrich ciliate. This one was in the act of dividing into two. (Photos 5 to 7). I was able to record the event on video for circa 90 minutes. Stopping to collect pond samples can make for a slow journey but the rewards are impressive. Hours can drift by unnoticed and the viewer is completely entertained without the imposition of commercial advertisements.

Maxwell Campbell

The deadline for FNN 285 will be
10 am on Tuesday 3rd April. FNN
will go to the printers on the 10th April
with collation on Tuesday 17th.

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Photos 5-7. The cell division of *Rhabdostyla*
Phase Contrast





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.

APRIL 2018

Friday 30th to Monday 2nd April – Juniors' Group Easter Camp at Perry Bridge East Gippsland (SE of Stratford).
Contact: Patricia Amaya 9560 9854; fncv.junior@gmail.com. An email flyer has been sent out, or please contact the office.

Friday 30th to Tuesday 3rd April - Fauna Survey Group Survey: Survey for Plains Wanderers, Bael Bael Nature Conservation Reserve (near Kerang). Prior registration essential. Contact: Ray Gibson 0417 861 651; rgibson@melbpc.org.au

Monday 2nd – Fungi Group. No Meeting: Easter Monday

Thursday 5th - Sunday 8th - Fungi Group Foray: East Gippsland – based in Cann River. Visiting a few warm temperate rainforest sites for fungi. Trip is dependent on sufficient rainfall in late March. Contact: Reiner Richter fncv@rnr.id.au

Monday 9th – Marine Research Group Meeting: Experiences night diving. Speaker: Michael Lyons.
Contact: Leon Altoff 9530 4180 AH; 0428 669 773

Tuesday 10th - Fauna Survey Group Meeting: The key findings on research into the endangered Guthega Skink (*Liopholis guthega*) Speaker: Zak Atkins, PhD candidate, Latrobe University.
Contact: Robin Drury 0417 195 148; robindrury6@gmail.com

Tuesday 17th - Collate FNN 285: Starting about 10 am. All welcome. Contact Joan Broadberry 9846 1218

Wednesday 18th - Microscopy Group Meeting: For details contact: Philippa Burgess 0409 866 389

Thursday 19th – Botany Group Meeting: Threatened plants and animals of the Central Highlands
Speaker: Jordan Crook . Contact: Sue Bendel 0427 055 071

Friday 20th to Monday 23rd – Marine Research Group Field Work: Phillip Island area. Exact locations will be decided while on site . For further details contact Leon Altoff 9530 4180 AH; 0428 669 773

Sunday 22nd – Fungi Group Foray: The Ada Tree, Yarra State Forest. If travelling east from Yarra Junction, the turnoff to The Ada Tree is Big Creek Road, unsealed, 6 km on the left after the Powelltown General Store. Travel 11 km to a divergence with Smyth Creek Road at Starling Gap - veer right and stay on Big Creek Road. The Ada Tree car park is a further 12.3 km and signed. Meet there at 10.30 am. Allow plenty of time if it is your first visit. (Mel Ed 37, Map X912 U3 or Vic Roads Ed 8, Page 80 F6)
Contact: Virgil or Jurrrie Hubregtse 9560 7775

Monday 23rd FNCV Council meeting: 7.30 pm sharp. Apologies, agenda items etc. to
Wendy Gare, admin@fncv.org.au or 9877 9860.

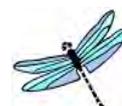
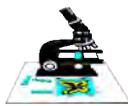
Tuesday 24th – Day Group Excursion: A morning walk through Morang Wetlands (Plenty Gorge Park)
Meet at 10.00 am in car park at Hawkstowe picnic area. (Mel Map 183 J7) Toilets available. Easy walk of about 3.5km. Bring water, sun protection, snack, wear suitable shoes. BYO lunch for those who can stay after the walk.
Leader: Gary French. Contact: Joan Broadberry 9846 1218

Wednesday 25th – Geology Group. No Meeting: Anzac Day

Friday 27th – Juniors' Group Meeting: 7.30 pm. For details contact: Patricia Amaya 9560 9854; fncv.junior@gmail.com

Fri day 27th to Sunday 29th – SEANA Autumn Get-together: Hosted by FNCV. Based at Badger Creek near Healesville.

(Continued on page 3)



The policy of the FNCV is that non-members pay \$5 per excursion and \$3 per meeting, to contribute towards Club overheads. Junior non-member families, \$4 for excursions and \$2 per meeting.

(Continued from page 2) *March Calendar*

Speakers and excursions. Contact: FNCV Office admin@fncv.org.au or 9877 9860.

Sunday 29th – Fungi Group Foray Dom Dom Saddle. This foray will be included in the SEANA program. If travelling from Melbourne on the day, meet at 10.30 am in the Dom Dom Saddle car park on the Maroondah Highway. Vic roads Edition 8 map 80 C3. Melway edition 45, map X912 S1. The Saddle itself is not marked on the map but it is approx. 6 km before Narbethong. Contact: Carol Page 9857 6388; cpage356@gmail.com; use on day of foray ONLY 0438 446 973

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 the following new members who were welcomed at our last Council meeting.

Muvi Livanapathirana, Chelsy Maloney, Candice Sexton, Lynn Shelton, Freya Fogliani and Michael Smith.

Working bee, Saturday 17th February

Barbara Burns, co-ordinator
Judith Sise
Neil McLachlan
Max Campbell
Ray Gibson
June Anton
Deb Zinn
Philippa Burgess

The main work done was cutting back the bushes and small trees in the garden to keep the footpaths and roadways clear and generally make the surrounds look tidy, then cleaning up the prunings and sweeping.

Max and Ray worked indoors on dismantling the large microscope that has been occupying the far corner of the hall for many years with a view to disposing of it. **Barbara Burns**

VALE Elaine Meehan 1934—2018

From Elaine's brother:
"Sadly I have to advise you that Elaine Dorothy Meehan passed away suddenly on Tuesday 6th February 2018 aged 83 years. I know she was an enthusiastic member of the FNCV and that she would want the club members to be notified."

Elaine joined the FNCV in 1963. Her mother Kathleen was a member of the Club until August 1989.

Our deepest condolences go to her family.



Many thanks to those who helped collate and label FNN 283

Hazel Brentnall
Edward Brentnall
Andy Brentnall
Cecily Falkingham
Keith Marshall
Neil McLachlan
Sheina Nicholls
Ray Gibson
Barbara Burns
Anne Warren

FNCV Facebook report: 8568 followers.
Thanks to Ian, Claire, and John

Thanks to the editorial and layout team who put together FNN 284

Joan Broadberry
Wendy Gare
Sally Bewsher



This wonderful photo of a Tree Hopper was taken by Carol Page on the recent TIG excursion to Sherbrooke Forest. **Full report in the next FNN.**

This newsletter is printed on recycled paper.



Terrestrial Invertebrates Group

Bunyip State Park - 4th February

Bunyip State Park is a fairly pristine, large reserve at the southern foothills of the Great Dividing Range east of Melbourne. The primary focus for this trip in mid summer was to look for insects, particularly dragonflies, along part of the Buttongrass Nature Trail, concentrating in the area around the dams. Around 30 species of odonata (the Order that comprises damselflies and dragonflies) have been recorded at the large dam over several seasons, making it the most diverse spot known in Victoria for this group of insects. This is possibly because there don't appear to be any fish in the dam and its varying habitat of open, deep water at one end narrowing to boggy trickle at the rear with significant aquatic vegetation around.

While standing on the road, which also forms the dam wall, we saw a few odonata flying around and I thought I saw a small damselfly land on floating vegetation. I told the nearby people that there was something perched there somewhere and took some photos from the distance (with my macro lens) but looking at them on the camera at the time I was unable to locate the insect, so assumed it had flown away without me noticing. It was only once reviewing my images on a big screen at home that I saw the damselfly in the pictures but off-centre – so not quite where I thought it was and why those with binoculars couldn't find it at the time. It was actually a Splendid Longlegs, *Austrocnemis splendida* – a rare species and this is only one of two sites in the state where I know they can regularly be encountered. John Eichler remained at the dam a little longer and managed to get some photographs of these small insects that are only around 25mm long.



Splendid Longlegs

Photo: John Eichler

On a dirt bank near the dam someone spotted a wasp crawling around. It was a Zebra Spider Wasp (*Turneromyia* or *Ctenostegus* species) but behaving a little unusually in that it was reversing down a hole. I don't know why it was doing this, but perhaps to sting a spider that may have been in that hole.

For lunch we moved off to Mortimer Picnic Ground, a short distance away. Here in the clearing we saw several species of "brown" butterflies (Nymphalidae). I find many in this family difficult to identify and usually have to compare my photos

with references. Thanks to Andrew McCutcheon for compiling the list of butterfly species we saw on the day.

Reiner Richter

Bunyip State Park Butterflies Family Nymphalidae – Subfamily Satyrinae

Common Brown *Heteronympha*- Spotted Brown, Andrew McCutcheon
pha merope

Shouldered Brown *Heteronympha Penelope*

Spotted Brown *Heteronympha paradelpha*

Marbled Xenica *Geitoneura klugii*

Varied Sword-grass Brown *Tisiphone Abeona*

Family Pieridae – Subfamily Pierinae

Cabbage White *Pieris rapae*

Family Lycaenidae – Subfamily Polyommatinae

Common Grass-blue *Zizina labradus*

List of Odonata roughly in order of appearance:

Common Flatwing	<i>Austroargiolestes ictromelas</i>
Australian Emerald	<i>Hemicordulia australiae</i>
Splendid Longlegs	<i>Austrocnemis splendida</i>
Yellow-Striped Hunter	<i>Austrogomphus guerini</i>
Blue Skimmer	<i>Orthetrum caledonicum</i>
Wandering Percher	<i>Diplacodes bipunctata</i>
Slender Ringtail	<i>Austrolestes analis</i>
Black-Faced Percher	<i>Diplacodes melanopsis</i>
Eastern Billabongfly	<i>Austroagrion watsoni</i>
Common Bluetail	<i>Ischnura heterosticta</i>
Eastern Pygmyfly	<i>Nannophya dalei</i>
Blue-Spotted Hawker	<i>Adversaeschna brevistyla</i>
Australian Emperor	<i>Anax papuensis</i>
Multi-Spotted Darner	<i>Austroaeschna multipunctata</i>
Southern Tigertail	<i>Eusynthemis guttata</i>
Bronze Needle	<i>Synlestes weyersii</i>



Eastern Pygmyfly (male) Gembrook Photo: John Eichler





Robber Fly Photo: John Eichler



Anthrax proconcisus Carol Page



Katydid

Photo: Carol Page



Fauna Survey Group

Just a few photos from the FSG survey which took place over the Labour Day Weekend at Jallukar Nature Conservation Reserve at the foot of the Grampians. One of the main eucalypts in the reserve is the beautiful Yellow Gum. Many of these trees were hundreds of years old and full of hollows.

We were putting out cameras, surveying birds, spotlighting and checking nest-boxes, led by Robin Drury. **Full report to come. JB**



Above: Checking nestboxes
Consulting GPS in preparation for putting out cameras.
Youngish Yellow Gum *Eucalyptus leucoxylon*

Photos: J. Broadberry



Library

Members may not be aware that, in addition to our holdings of monographs and periodicals, the Library has a small collection of digital resources, such as CDs and DVDs. This contains a variety of items, such as government reports, identification guides, and natural history programmes that have been commercially produced. In this latter category we have, for example, *Rhythms of the Tarkine* and *The curious Mister Catesby*.

The digital holdings of the Library were increased considerably in the past week, when Andrew Brentnall donated his entire collection of David Attenborough natural history programmes for the use of the Club. This collection comprises 24 separate televised shows; many are single DVD sets, but a number contain multiple DVDs. In all, there are about 60 individual discs holding many more hours of beautifully-crafted enjoyment and education.

All of these boxed sets are available to borrow now from the Library. Please fill out the relevant details in the 'CD and VC borrowing book' which is on the shelf next to David Attenborough.

It is my very great pleasure to thank Andy for this generous gesture

**Gary Presland
Honorary Librarian**

"All fauna captured in accordance with the FNCV's DELWP Wildlife Research Permit and National Parks Act Permit and animal ethics approved Standard Operating Procedures".

From the office



Dear Members,

After my request for donations of biscuits in the last newsletter, member Geoff Paterson arrived at the office last week with a very large shopping bag full of all sorts of delicious biscuits. Thank you Geoff! Tea and coffee as well as biscuits are always welcome.

You will have seen that the air conditioners are now up and running and should serve us well. Remember that we're happy to hire the hall out for meetings, so if you know of any groups or clubs who are looking for a new home, tell them to contact me. Our rates are very competitive. We don't hire out the hall for parties or activities of a physical nature, as we have to be very careful of the items on display.

Finally a note about lost property. A ladies navy blue cardigan was left in the hall after the February Day Group meeting. There are also a couple of children's jackets which have been here for several months. They're all on the rack in the conference room. Please take them if they're yours!

Regards, Wendy Gare, Administration Officer



FNCV Reg. No. A0033611X

The FNCV Environment Fund Call for Donations



The Environment Fund of the FNCV has been set up for the purpose of supporting the objectives of the Club in relation to the environment. **Donations to the fund are tax deductible.**

Between 2003 to 2017 the Environment Fund has been able to support **sixty-eight** applications for grants from \$200 to \$1000 from both the FNCV Special Interest Groups and other organisations. Donations are needed in order to enable further grants to be made in the future. Please use the form below to donate to this worthy Fund. A receipt will be provided.

Yes I would like to support the FNCV Environment Fund. Please find enclosed my tax deductible donation of:

\$25 \$50 \$100 \$200 Other_____

Direct EFT payment option: Bendigo Bank BSB 633-000 Acc No: 123098725
Name: The Field Naturalists Club of Victoria Inc.
• Please use **"Enviro"** followed by your name as your reference and
• send an email to admin@fncv.org.au to let us know that you have paid directly.

OR

Name:.....

Address:

Cheque Visa Mastercard

CARDHOLDER'S NAME: _____ EXPIRY DATE: /

**Please return to : Environment Fund, FNCV, PO Box 13, Blackburn 3130.
Enquiries can be made to Wendy Gare, FNCV Administrative Officer, 03 9877 9860, Email:
admin@fncv.org.au**

Extracts from SIG reports given at the last FNCV Council Meeting

Botany Group: Dr Graeme Lorimer presented on "Demystifying the Grassy Plant Families". Graeme began with a diagram of the phylogeny of the plant family tree, which was depicted as a pictorial tree. This way we could see how the grass families fit into the evolutionary tree of plants. Grasses are flowering plants and belong to the monocot class and the super order of Lillianaes. They have strappy leaves with parallel veins. Grasses have a sheath (petiole in dicots) and a blade (lamina in dicots). Monocots grow from the base. Grasses have a collar on the lower side of the blade where it meets the sheath, and a ligule on the upper side where the blade meets the sheath. Grasses have two meristems, one in the sheath and one in the ligule.



Graeme focused on the order Poales which includes grasses, pineapple and other bromeliads. All plants in Poales have a common ancestor from around 100 million years ago. Grasses have a representative on every continent including Antarctica. Graeme then described the main diagnostics of the members of Poales that are found in Victoria.

Grasses (Poaceae) have a seed which comprises a grain enclosed within husks that protect it and aid in dispersal. The most distinctive feature of grass is ripe seed. The leaves are never tubular, pithy or very tough, but are a flat piece of tissue.

Centrolepis (Centrolepidaceae) are tiny annuals like grass, rarely over a few centimetres tall, and grow on wet infertile ground.

Typha are aquatic with very upright shoots, 1-3 metres tall. Male flowers are a spike. Female flowers are a spike with fluffy seeds (typical. Bull rush). The leaf blade is pithy.

Juncus leaves are extremely variable but always hairless. Flowers have three petals and three sepals surrounding an ovary. Each capsule produces scores of microscopic seeds which can be spread across oceans by wind. Leaves may be flat and grassy or tubular with or without pith.

Thanks to Graeme for an interesting and informative presentation that was enjoyed by an audience of twenty botany enthusiasts.

Sue Bendel

Fauna Survey Group: Surveys: Our scheduled survey to Warramate Hills NCR on 26-29th Jan. was cancelled because of hot weather forecast and possible total fire bans. It was indeed hot and uncomfortably humid rather than dry. Some cameras were deployed prior to the heat wave and collected four weeks later. The survey has been deferred to the June Queens Birthday weekend.



Since July 2017 the group has conducted a series of surveys for Swamp Skinks on the Morning Peninsula. So far Swamp Skinks have been found at 5 of 9 Parks Victoria sites. Other interesting wildlife includes Weasel Skink, Eastern Three-lined Skink and Delicate Skink, Copperhead and Tiger Snakes, Swamp Rat and Agile Antechinus.

Meeting: The meeting on 6th February featured a talk by Mark Antos on 'Wildlife and conservation of the rainforests, wetlands and volcanoes of the African Rift Valley'. Mark showed many wonderful photos of animals and the environment, and also included some cultural aspects of the Democratic Republic of Congo, Uganda and Rwanda, and even included pictures of the bubbling cauldron of Mt. Nyiragongo volcano.

R. Gibson

Juniors' Group: Excursion: In February we had a marine excursion to Ricketts Point with John Eichler and Carol Page both great excursion leaders. The excursion was a very exciting and enjoyable one for the children and adults present. We had a total of 20 people attending, 15 members and 5 non-members.

We were lucky to have the presence of one of the councillors with her family. The highlight for me was to see a baby eel in the rock pool and a blue bubble jellyfish amongst others. We had a perfect weather and good timing coinciding with the low tide.



Friday meeting: On 23rd February we had our first meeting of the year. Alison Fysh took us back to 20 years ago when she was part of the field trip in Indonesia studying Komodo dragons. This has been one of the best talks we had in our club. She provided us with lots of information and great detail about the project she participated in and gave us good insight into the job that the leading scientist did (a well known world expert at that time). We learned a lot about Komodo dragons and I was amazed to find out that these creatures can reproduce without male participation if needed. The attendance was a highlight, we had not had so many people for a while, so I was delighted. At the meeting we had 29 people attending: 20 members present (8 of them from the Junior council) and nine non-members.

Dr Patricia Amaya

Marine Research Group: A meeting was held on 12 February. Our speaker for the evening was Ricky-Lee Erickson. He spoke on "How are sessile invertebrate communities affected by multiple disturbances and do invasive species affect community resilience?"



A group discussion was also held on the Marine Research Group Facebook page and keeping the focus on Victorian marine life and ensuring members are vetted and postings are moderated.

Leon Altoff

NEWS FROM THE BOOKSHOP (April 2018)

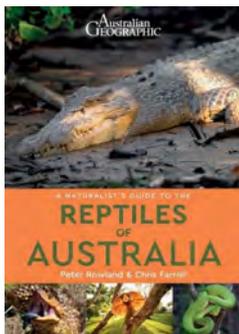
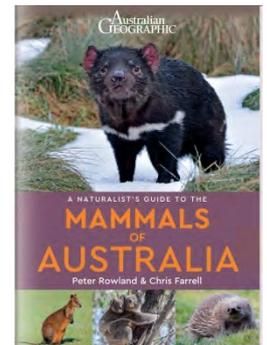
This month, learn more about Victoria's moths, or flick through stunning photographs of two recently published books and learn more about some of Australia's more common mammals and reptiles taken by leading nature photographers, including our own John Harris, Angus McNab & Scott Eipper. Two new publications from CSIRO are available to order, looking at the important habitat that rocky outcrops provide, the diversity and endemism on our beautiful islands and the careful management and restoration decisions needed in order to conserve them. Come into the clubrooms and have a look at the full range of books available on the shelf, or to order or inquire about a book, please send an email to me, at bookshop@fncv.org.au and I will reply as soon as I can.

Happy reading, Kathy



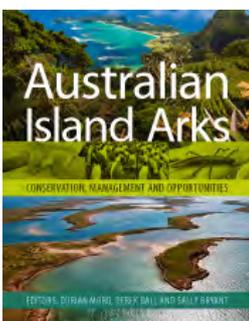
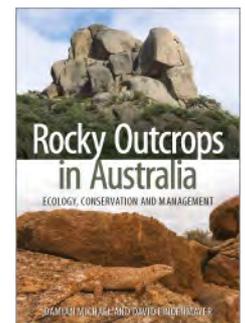
Moths of Victoria- Part 8 (P. Marriott) is the second book for the superfamily Noctuoidea covering Aganainidae and parts of Erebidae and Noctuidae. With almost 160 species and over 700 images, this book presents every known Victorian moth in these chosen groups for the first time. From the common and well known to the rare and secretive; bizarre and beautiful moths. The accompanying disc provides over 300 additional pages of information, biology and distribution for each species. **(PB, 36 pp. & CD, Dec 2017). Price \$10**

A Naturalist's Guide to the Mammals of Australia (Rowland & Farrell) is an easy-to-use identification guide to the 300 mammal species most commonly seen in Australia. The book includes over 200 stunning, high quality photographs from Australia's top nature photographers and are accompanied by detailed species descriptions, size, distribution, habits and habitat. The user-friendly introduction covers the geography and climate, types of habitat, and details of orders and families. Included is a checklist for each animal encompassing, for each species, its common and scientific name and its global IUCN status. **(PB, 176 pp., Nov 2017) RRP \$24.99, Members \$20**



A Naturalist's Guide to the Reptiles of Australia (Rowland & Farrell) is an easy-to-use identification guide to the 280 reptile species most commonly seen in Australia. High quality photographs from Australia's top nature photographers are accompanied by detailed species descriptions, which include nomenclature, size, distribution, habits and habitat. The user-friendly introduction covers the threats to reptiles, types of habitat, anatomy of reptiles and details of orders and families. Also included is a checklist of all the reptiles of Australia encompassing, for each species, its common and scientific name, and its global IUCN status. **(PB, 176 pp., Aug 2017) RRP \$24.99, Member \$20**

Rocky Outcrops in Australia (Michael & Lindenmayer) focuses on their ecology, conservation and management. Discover the incredible biodiversity on rocky outcrops and the importance of conserving these crucial landscape features. Rocky outcrops are landscape features with disproportionately high biodiversity values relative to their size. This book contains chapters on why this habitat is important, the animals that live and depend on these formations, key threatening processes and how rocky outcrops can be managed to improve biodiversity conservation in agricultural landscapes, state forests and protected areas. **(PB, 184 pp., Feb 2018) .RRP \$49.95, Member \$40**



Australian Island Arks: Conservation, Management and Opportunities (Moro, Ball & Bryant) presents a compelling case for restoring and managing islands to conserve our natural heritage. Australia is the custodian of a diverse range of continental and oceanic islands. From Heard and Macquarie in the sub-Antarctic, to temperate Lord Howe and Norfolk, to the tropical Cocos (Keeling) Islands and the islands of the Great Barrier Reef, Australia's islands contain some of the nation's most iconic fauna, flora and ecosystems. Case studies show how island restoration and conservation approaches are working in Australia and what the emerging themes are for the future. **(PB, 272pp., Feb 2018) RRP \$79.95, Members \$64**

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



Day Group

Biodiversity in Bhutan

Living and working in Bhutan

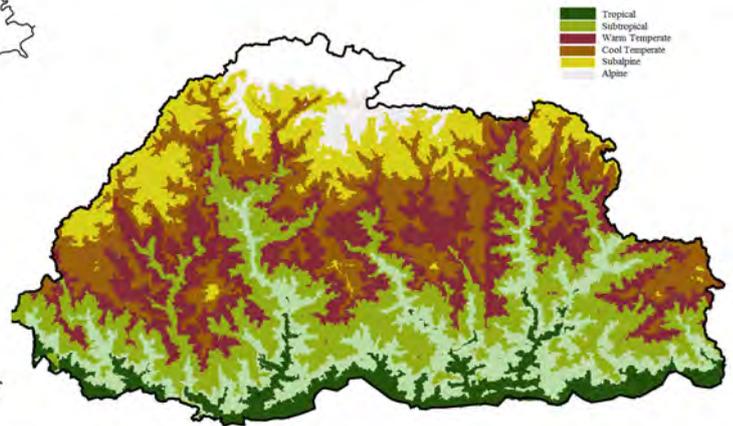
Speaker: Penny Richards

Bhutan is a small, deeply religious, Buddhist country with a population of 750,000. On its northern border with Tibet, its peaks rise to over 7,500 metres. In the south, along its border with India, the elevation falls to 600 metres.

Bhutan's rivers run north to south in steep valleys. However, the roads run east to west, meaning they continually dip and climb making travel very slow. Bhutan has a co-dependent economic relationship with India. The hydroelectricity it sells to India is its main source of foreign currency.

The country was ruled by a hereditary monarchy. The fourth king, His Majesty King Jigme Singye Wangchuk married four sisters and fathered ten children. The sisters regard themselves as equal mothers to all the children. These marriages were said to be necessary to rid the monarchy of a curse which caused the first three kings to die young. The fourth king abdicated in 2016 in favour of his eldest son who is a popular ruler. Bhutan is a rapidly evolving democracy. Each valley has a religious and administrative centre known as a Dzong.

Over 72% of Bhutan's forests remain. There are over 620 bird species including Rufous-necked Hornbills and Black-necked Cranes (photo right), more than 100 species of animals including Snow Leopards, Tigers, Blue Sheep, Red Pandas and Golden Langurs and 5,446 species of plants with 500 species of orchids. 750 plant species are endemic to the eastern Himalayas and 50 or more are endemic to Bhutan. The national emblem of Bhutan is the Takin, a mammal classified in its own genus, *Budorcas*. Photo above.



Cool Temperate Zone lies between 2,600 and 3,600m with vegetation ranging from stunted Juniper and Rhododendron scrub above the tree line, to forests of Hemlock and Birches lower down. Bhutan's Warm Temperate Zone is found between 2,000 and 4,000m and contains its major conifer and broadleaf forests. Maple and *Castanopsis* dominate at lower altitudes while Oak dominates higher up. The Sub-tropical Zone lies between 150 to 2,000m, being classified into Dry Sub-tropical, Humid Sub-tropical and Wet Sub-tropical Zones.

Strategic conservation planning is given a high priority in Bhutan, with many projects being funded externally. Sustainable living is encouraged in the villages. Only high value, low volume tourism is allowed.

Bhutan is sometimes known as, 'the kingdom of happiness'. Its fourth king pioneered the measurement of his people's well-being, rather than just goods and services produced. Education is free with instruction being in English. Tertiary studies are usually undertaken abroad in India or elsewhere. Bhutan fiercely guards its culture including its national dress. The country only opened up to the outside world in the 1970's.

Penny lived and worked in Bhutan in 2003 and has returned, leading small group tours, many times. She brought with her a selection of exquisite Bhutanese traditional clothing and fabrics. The large Day Group audience were eager to learn as much as they could about this little known, fascinating country and asked many questions.



On behalf of everyone I would once again like to thank Penny for so generously giving us her time. Limited space has allowed this to be only a brief summary of her excellent presentation, illustrated with powerful images revealing Bhutan's dramatic landscapes, architecture, people and wildlife.

Penny is willing to give advice on tours to Bhutan. Her email address is penny.bhutantours@gmail.com

Joan Broadberry

WILDLIFE EXPERIENCES

“2018 KWONGAN DISCOVERY”

Join John Harris from Wildlife Experiences and local botanical experts as you discover the beauty and diversity of the Western Australian kwongan heathland. Kwongan is part of a globally significant biodiversity hotspot, rich in species of flora and fauna endemic to the area.

Dates:

9 —15 September 2018 from Perth
16 — 22 September 2018 from Perth

Cost: \$2,000 pp twin share (includes most meals, accommodation & transport excluding flights)

Highlights:

- Extended stay at 'Hi Vallee' Farm,
- Fauna survey,
- Spectacular wildflowers,
- Mt Lesueur National Park,
- Nambung National Park (Pinnacles),
- Sealion experience
- Stromatolites,
- Stockyard Gully Caves, and more!



Contact: Email John at admin@wildlifeexperiences.com.au or call 0409 090 955

Payment: 25% deposit is required on booking, with remaining balance due by 8 June 2018

Facebook: Check out our "Kwongan Discovery 2018" photo album for flora and fauna images of the Kwongan at www.facebook.com/pg/wildlifeexperiences/photos/



JOIN US ON AN EXPERIENCE YOU WILL
NEVER FORGET!



FNCV AGM

Sunday 6th May 2018 at 2 pm

*You are invited to attend
The Field Naturalists Club of Victoria Inc
Annual General Meeting*

to be held at the FNCV Hall, 1 Gardenia Street, Blackburn.

Agenda: *Minutes of previous AGM; Annual Report; Financial Statements;
Election of Council; Environment Fund; Other Business*

Guest Speaker: To be announced

Afternoon tea will be served. All welcome

*Nominations for Council must reach the registered office of the Club no later than 48 hours
before the AGM i.e. Friday 4th May 2018, by 2 pm*



**The Field
Naturalists
Club of
Victoria Inc.**

Postal Address: PO Box 13, Blackburn, Vic. 3130

Club Address: 1 Gardenia Street, Blackburn.

Email: admin@fncv.org.au

Website: www.fncv.org.au

Phone: (03) 9877 9860

Reg. No A0033611X

ABN 55 791 612829



Patron: The Honourable Linda Dessau, AC, Governor of Victoria

Proxy Voting Form

I, _____

current member of The Field Naturalists Club of Victoria Inc.

appoint (full name) _____

of (address) _____

or in their absence, the AGM Chair, to be my proxy at the 2018 Annual General Meeting to be convened on Sunday 6th May 2018 at 1 Gardenia Street, Blackburn and authorise them to vote on my behalf.

This form must be given to the FNCV Secretary before the start of the AGM.

Signed: _____

Date: ___ April/May 2018

Understanding Our Natural World



NOMINATION FORM FOR FNCV COUNCIL 2018/19

The FNCV AGM will be held on Sunday 6th May, 2 pm
at the FNCV Hall, 1 Gardenia Street, Blackburn

Name of Member Nominated

Position Nominated *

Signature of Member Nominated

TWO MEMBERS SUPPORTING NOMINATION

Name Signature Date.....

Name Signature Date.....

*Elected members of the FNCV Council are: President, Vice-President, Secretary, Treasurer, a council member representing each of the Special Interest Groups, and up to six additional council members. Council Members must be FNCV members.

All nominations, including SIG representatives, must reach the FNCV office
no later than 48 hours before the AGM,
i.e. Friday 4th April at 2 pm

PO Box 13, Blackburn, VIC 3130
Phone 9877 9860
E-mail: admin@fncv.org.au

Field Nats News 284



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