



OBJECT: To foster an interest in nature

MEETING THURSDAY 7th April 7:30 pm Australian National University Meeting details back page

The Evolution of Australian Snakes

Speaker: Peri Bolton, Honours student at ANU, FNAC Prize winner 2010. Elapids are venomous snakes, of which Australia holds an enormous diversity of over 100 species. The Australian Elapids are also amongst the most ecologically and morphologically diverse family of snakes. So, why does this amazing diversity exist? Where did this diversity come from? My talk will discuss what we know about the evolutionary history of Australian elapids and what avenues this opens for future research.

OUTING 10am SUNDAY 10th April Canberra Reptile Centre



Meet: Canberra Reptile Centre, O'Hanlon Place, Gold Creek Village, Nicholls ACT 2913. Park in O'Hanlon Place or across the road. Entry: Adults \$9 Concession \$8 Children \$7. Share a table for coffee or lunch afterwards.

The Reptile Centre has changed hands since our last FNAC outing there in 2007 (when Bob met a Carpet Python!). More animals are on display, volunteers are welcome and it is possible to adopt a specific animal to ensure its care for a year. "Many of the species on exhibit are actively being researched by various institutions." "Instead of being a 'Post Stamp' collection of reptiles and amphibians, every animal on display has its own Research, Conservation, or Education story to tell. The stories aren't just about Australian Reptiles and

Amphibians, Exotic species and invasive species also form a part of the Sanctuary exhibits." [Canberra Reptile Centre pamphlet]

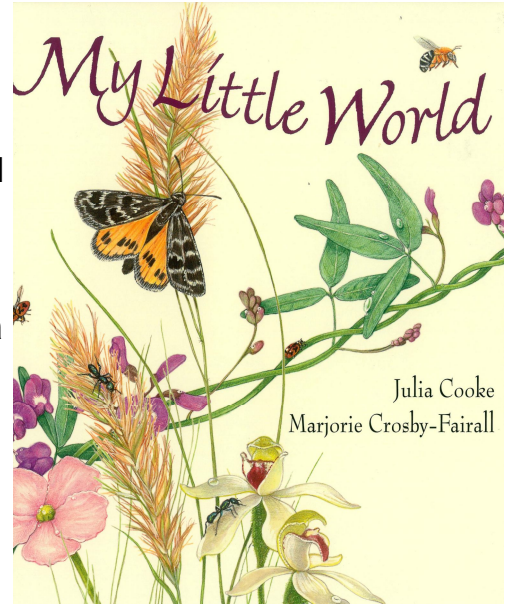
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Natural history for little people

Around fifty members and visitors enjoyed Ian Fraser's talk at the March meeting and most departed clutching a copy of *A Bush Capital Year*. During question time, Ian was asked whether he had considered writing a book aimed at young children. He explained that, although he doesn't write books specifically for children, he is about to launch a book, by Julia Cooke, which he is more than happy to recommend. I already knew something about this book but Ian's response prompted me to find out more.

Julia is a plant ecologist and writer who, whilst writing up her PhD thesis on the functional ecology of plant silicon, is publishing her first book. *My Little World*, a picture book for children, began life as a school English assignment based on a story from her own childhood. When Julia and her sister went on walks with their parents, they started pointing out all the insects and other tiny animals they found on the ground and in places adults often find it hard to see. In *My Little World*, a child's perspective uncovers a whole new world of little animals and plants when they can't see the bigger things the grown-ups see. This book is set on Black Mountain and includes species that could be found there. *My Little World*, written in verse and with vivid, accurate illustrations by Marjorie Crosby-Fairall will be on sale at The Botanical Bookshop at the ANBG and all good book stores in April.



Julia's book was inspired by the walks that she took as a child with her family. Julia's mother, Pam, continues to inspire through her role as a Volunteer Interpreter at Tidbinbilla. In addition to their regular duties, Pam and four other Volunteer Interpreters have written, and gained funding for, a children's book about Tidbinbilla, *Tidbinbilla A to Z*.



Tidbinbilla A to Z



The book aims to highlight all aspects of Tidbinbilla—geology, human history, mammals, birds, insects, plants, people and places. On any one day, a visitor should be able to see at least two thirds of items mentioned in the book. While small children will relate to the book on a simple ABC basis, there is some text providing the older reader with extra information about the featured subject. The book features photographs taken by volunteers and should also be a good souvenir for the one-off visitor. This book will be available for sale at the Tidbinbilla Visitor Centre for \$10 from April 3rd. In addition, free copies of the book will be distributed to primary schools, preschools, child care centres and community organisations across Canberra.

Ian reminded us how fortunate we are to have such a great diversity of life in our region. We are also very fortunate to have so many field naturalists who are keen to encourage an appreciation of nature. I look forward to reading both books with my toddler and hope that you will enjoy sharing them with the young friends and family in your lives.

Paula Banks

ANBG Lunchtime Talks

These excellent lunchtime talks are held in the Theatrette at the Botanic Gardens from 12:30 to 1:30pm every Thursday from February to November. Forthcoming talks are:

Thurs 31 March	Warwick Wright	Plants v. Animals & Plants v. Plants
Thurs 7 April	Trevor Evans	Recovery of the Mountain Pygmy Possum
Thurs 14 April	Peter Ollerenshaw	Developing Australian Plants for Australian Gardens
Thurs 21 April	Rusty Worsman	Whimsy, Wild Plants & Wollemi Pines
Thurs 28 April	Richard Arculus	Submarine Volcanoes of the South West Pacific
Thurs 5 May	Paul Scholtens	Landscape Architecture in Canberra
Thurs 12 May	Hazel Rath	Gudgenby Bush Regeneration
Thurs 19 May	Murray Fletcher	Bugs I Have Known and Loved
Thurs 26 May	David Taylor	Planting with a Purpose
Thurs 2 June	Brett Odgers	What were Walter & Marion Burley Griffin up to in 1911
Thurs 9 June	Pat Wright	Beautiful Flowers of New Zealand South Island

Photo by Bruce White (right)

The plant is a belladonna lily or naked lady. The moth is one of the Hawk moths with almost all in the family having the ultra-streamlined appearance found in Humming Bird Hawks. The identification is from Ted Edwards in CSIRO.

'A Bush Capital Year' index?

Whilst 'A Bush Capital Year' is not intended to be a reference book, Rosemary B. decided that an index of species would be useful to her. She has created one and is happy to share it with others—if you would like Rosemary to email you a copy, please email her on rosemary@blemings.org.



FLINDERS RANGES Extended Field Trip, 9-23 Oct 2011

Warwick Daniels will be attending the AGSAP Biennial Conference to be held in Adelaide. Following this there will be a Field Trip to the Flinders Ranges in conjunction with the Australian Native Plant Society. The Field Nats have been invited to join this trip.

On Sunday October 9 Warwick will leave Adelaide and drive to Port Augusta, visiting Mt Remarkable NP and Winninowie Conservation Park. This will allow those not attending the conference to join him on the way or in Port Augusta. He will then continue on, visiting the Australian Arid Lands Botanic Garden, the Dutchmans Stern C P, Aboriginal Heritage sites, Wilpena Pound, historic Blinman, Leigh Ck, Arkaroola Sanctuary, and Gammon Ranges NP.

Warwick plans to return to Canberra via Mildura (Australian Inland Botanic Gardens and Langs Nursery) by Sunday 23 October. The focus will be on flora, whilst exploring a very interesting geological area.

This trip allows you to either camp and/or stay in accommodation of your choice. You will need to arrange your own transport and camping equipment. Although some roads are unsealed, a 4wd is not required. Car pooling may be possible. A moderate level of fitness is required, i.e. ability to walk unaided on uneven ground.

Early expressions of interest would be appreciated. Contact Warwick Daniels at wda68126@bigpond.net.au or ph 6231 0852.

LEARNING FROM NATURE - ANOTHER EXAMPLE by Chris Bunn

Last month I visited the Hinkler museum in Bundaberg. Bert Hinkler, was a pioneer Australian aviator (dubbed "Australian Lone Eagle") and inventor. He designed and built early aircraft in addition to being the first person to fly solo from England to Australia, and the first person to fly solo across the Southern Atlantic Ocean. He died at the age of 40 after crashing into remote countryside near Florence, Italy during another record setting solo voyage.

As a boy he was fascinated by the ibises that lived around a lagoon near his school. He would spend hours watching them with their graceful flight in the air. He carefully watched their manoeuvres, taking off, banking, gliding, and sweeping landings. He compared with articles he was reading about flight in magazines. He wanted to

investigate the mechanics behind the birds' ability to fly. Bert stretched out a bird specimen on a board for examination. He took measurements such as wing span (the distance from tip to tip), wing area and body weight. He then used this information for his own glider designs. One of the first was the "aviette" which he described as "a pair of wings with arm sockets which I slipped on as one does a coat". His aviette was not a success. He remarked "My idea that the power generated by my two short legs running at their hardest, would give the lift and momentum was quickly falsified. My aviette went to the scrapheap". Bert overlooked also the need for substantial breast muscles. It is estimated that for a human to fly using attached wings you would need muscles almost two metres thick!

But look at birds flying and how the wing shapes vary substantially between species. The chief variables are wing area and wingspan; the outline and curvature of the wing; and the presence of slots (spaces between adjacent flight feathers).

A small wing area is necessary for fast flight because of the influence of drag; a broader wing is necessary for slower flying birds to give manoeuvrability for hunting and soaring. In these birds often wing slots assist in reducing drag by delaying the turbulent break-away of air-flow that causes a stall. Loading of the wings (how much mass must be carried by each unit area of the wing) varies considerably, especially as mass increases by the cube but wing area only by the square. Long narrow wings do provide more lift than shorter broader wings, as seen with gliding and open-country flying but they do reduce manoeuvrability. The aspect ratio is the square of the wingspan divided by wing area. Bigger aspect ratios indicate that a higher proportion of the wing is effective in flight as the wing tip is a smaller proportion of the total wing and drag is reduced. Higher ratios are found in birds that fly fast by flapping (swifts and swallows) or by gliding such as the albatross.

Much later in his career Hinkler and others designed an amphibious aircraft called *The Ibis*. Unfortunately due to the 1930 depression only one was built.



Imperial Hairstreak *Jalmenus evagoras*, mass hatching at the Sanctuary, Tidbinbilla NR, ACT, 13 Dec 2009 by David Rees

David is a Volunteer Interpreter at Tidbinbilla. He wrote this article for the volunteers' newsletter more than a year ago however the spectacle was repeated recently and the same species was found in the Botanic Gardens this February and March on *Acacia mearnsii*. (Paula Banks)

This butterfly occurs along the east coast of Australia from eastern Victoria to central Queensland. Larval food plant are species of *Acacia*. In Tidbinbilla this appears to be *A. rubida*. Eggs are laid in clusters on crevices on bark, larvae feed on young growth at tips of branches. Larvae pupate at tips of branches in communal webs. Males emerge a couple of days before females, they hang around waiting for the females to hatch. Mating occurs quickly after female emergence. A couple of generations are likely to occur over the warmer months. The adults keep close to their foodplant. Larvae are attended by ant species (in this case an *Iridomyrmex* spp.), these ants protect the larvae and the larvae may provide the ants with food. The ants could be seen swarming over the pupae leaving them unharmed, they were however quite prepared to attack me! The 'tails' on the hindwings of hairstreak butterflies look like antennae and the nearby markings resemble eyes, providing some protection from bird attacks. Birds will typically attack the head and body of a butterfly. If a bird attacks the 'tails' it is likely to escape with only damaged wings - a butterfly in the mating pair (below) looks like it has escaped such an attack. It's amazing what can be seen if you take care to look!

Left: Males hanging around waiting for females to emerge from unhatched pupae. Pupae attended by ants. Right: Mated pair - butterfly on right with characteristic bird attack damage. Photos: David Rees



May Field Nats Outing - 10.30am, 1st May–Native Truffle Hunt in Mulligans Flat

Please note, this is the weekend before the next meeting.

There are plans to re-introduce locally extinct species (or their near cousins) into the Mulligans Flat Sanctuary. But to be successful, amongst other things there needs to be food for them. One of the first species to be re-introduced will be the bettong (from Tasmania). Truffles are the major part of their diets. Professor Jim Trappe is a world authority on truffles and he has been coming regularly from the United States to Australia, which is regarded as one of the world's megadiverse truffle hotspots. He has also been checking out the availability of native truffles in the Sanctuary. This will be a joint activity with the Friends of Grasslands. We will be joining Jim and Jacqui Stol for the search. Meet at the Mulligans Flat Nature Reserve carpark (just off Amy Ackman St between Cleggett and Jessie Streets in Forde). Please come prepared for a walk of one kilometre or more into the Reserve to view some (hopefully) of the extraordinarily good truffles for which Mulligans Flat is known. This event should run for approx. 2 hours. Please contact Tony Lawson to register your interest or to seek more detail - email tony.lawson@fog.org.au or 6161 9430 - as there may be a limit on numbers.



Who are the Field Naturalists?

The Field Naturalists' Association of Canberra (FNAC) was formed in 1981. Our aim is to foster interest in natural history by means of meetings and regular field outings. Meetings are usually held on the first Thursday of each month. Outings range from weekend rambles to long weekends away. Activities are advertised in our monthly newsletter. We emphasise informality and the enjoyment of nature. New members are always welcome. If you wish to join FNAC, please fill in the member application below and send it in with your subscription to the FNAC Treasurer at the address below:

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Monthly meeting venue: Division of Botany and Zoology, Building 116, Daley Rd, Australian National University. Park (occasionally the adjacent building 44). Meetings start at 7:30 pm and are followed by refreshments.

MEMBERSHIP APPLICATION OR RENEWAL

Family name: First name:

If a family membership, please include the first names of other members of the family:

.....

Postal address:

Suburb: State: Postcode: Home phone:

Work phone: Email address:

Subscription enclosed: \$.....(Single/Family \$25) Donation: \$.....

How did you hear about FNAC? Please circle: FRIEND? OTHER? Please specify: