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GPO BOX 249
CANBERRA ACT 2601

FIELD NATURALISTS' ASSOCIATION OF CANBERRA INC.

FIELD NATURALISTS

MEETING—THURSDAY 7 April
7:30 pm Australian National University
Gould Seminar Room, Building 116, Daley Road, ANU, ACT
details back page

Landscape connectivity in the Kosciuszko to coast region and great eastern ranges

Speaker: Lesley Peden

Lesley Peden, ecologist, and Facilitator of Kosciuszko to Coast (K2C) will be speaking about connectivity within the K2C region and the broader Great Eastern Ranges. As part of her role with K2C, Lesley works with private landholders to assist them in managing their land sustainably by balancing production with connectivity and conservation outcomes. Lesley also provides 'Land for Wildlife' assessments of properties, and connects landholders to information, incentives and support from the broad K2C Partnership. Currently working on six landscape scale connectivity projects, Lesley's role is to support landholders and assist them with project development and applications for funding.



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Eastern grey kangaroo mortalities — starvation

More than 300 unwell and dead juvenile eastern grey kangaroos (*Macropus giganteus*) were reported by rangers and wildlife carers in New South Wales and the Australian Capital Territory during July, August and early September 2015. Reports were received from across a large geographical area, including locations to the north (Mulligans Flat Woodland Reserve and Bywong), east (Wamboin, Queanbeyan and Bungendore) and south-west (Tidbinbilla Nature Reserve, Namadgi National Park and Gudgenby Homestead) of Canberra. The majority of affected kangaroos were sub-adult juveniles (up to 15 kg, 18–21 months of age). Clinically, kangaroos were thin and weak with poor coat condition and pale mucous membranes. Affected animals failed to move when approached. Individuals brought into rehabilitation died despite supportive care. Haematology and biochemistry results from seven affected animals in the Australian Capital Territory found all animals to be anaemic (some regenerative) with mild-to-marked elevations in creatine kinase (a measure of muscle breakdown), and many with low levels of protein in the blood.

Post mortems revealed a range of findings including reduced or no subcutaneous, abdominal or thoracic adipose tissue to severe chronic emaciation, anaemia, hypoproteinaemia and loss of muscle mass. Gastrointestinal parasite burdens — some known to be associated with clinical signs of anaemia and hypoproteinaemia — were also noted.

The cause of the mortalities is considered multifactorial; influences include over-population, under nutrition, cold stress and parasitic burden, with starvation related to restricted food availability the key driving factor. In areas where mortalities were recorded, there had been a shortage of feed due to low temperatures and low rainfall over winter. The detrimental health effects of common gastrointestinal parasites normally found in kangaroos are exacerbated when food is limited. Seasonal mortalities of subadult eastern grey kangaroos have been previously observed during July, August and early September over the past 20 years in the Australian Capital Territory. The mortalities impose a natural population regulatory effect and serve to protect the population when food resources are restricted. A number of agencies and organisations were involved in the response and investigation into the 2015 events, including ACT Parks and Conservation, Austral-

ian Registry of Wildlife Health, CSIRO, NSW Department of Primary Industries, NSW Office of Environment and Heritage, NSW Wildlife Information, Rescue and Education Service Inc (WIRES), Tidbinbilla Nature Reserve and Wildlife Health Australia.

Animal Health Surveillance Quarterly |
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I have summarised the above article from government sources. While it will not be a surprise to anyone it is factual information on the animal suffering that is exacerbated if kangaroo culling in the ACT is compromised. I don't like the culling of kangaroos but it is better than allowing young animals to starve to death.

Of course those against culling just think that government should bring more food in. But then we would have overpopulation, stress and an even greater parasite burden.

Chris Bunn

Editor: Just a couple of days before receiving Chris' email I set out for a walk around Lake Ginninderra to photograph birds. Part way round the peninsula between the two bridges I saw a dead kangaroo in the bushes just off the side of the track. I can't say that it died of any of the conditions in Chris' report, but it is unusual to see a dead kangaroo well away from suburban roads.

Also, I am acquainted with someone who works for Parks and Gardens and who knows the ranger responsible for removing kangaroo road kill. This contact has reported that there is a greater number of kangaroos hit by cars and trucks when culling is disrupted, some still alive with horrific injuries needing to be euthanised on the spot. This has been traumatic for the ranger responsible.

I also hate the thought of culling kangaroos but it has to be understood that their natural predator is the dingo and there are no longer any dingoes in the ACT.

In reality, is it any more humane for kangaroos to be culled quickly and humanely, than to be allowed to be hunted and killed by dingoes? I've found that I can no longer watch 'nature shows' that show natural predatory behaviour of the animal kingdom: the panic of gazelles etc being hunted by lions; killer whales tossing live baby fur seals around like bean bags to break all their bones and 'soften' them for eating. Nature is cruel. Perhaps we are less so.

Tim the Yowie Man celebrates Canberra Day: Why the Bush Capital is a great place to live

It's that time of the year again when, as a city, we collectively puff out our chests and proudly beat them to celebrate Canberra Day.

There are many aspects that make our city such a great place to live, but often topping any poll is that, even after 103 years of development, we still remain the "Bush Capital".



Koala, phascolarctos cinereus. Photo: Julian Robinson

This Canberra Day, nature lovers have even more reason to rejoice with the opening of *Bush Capital: The Natural History of the ACT* an audio-visual extravaganza at the Canberra Museum and Gallery (CMAG), which skilfully shines the spotlight on the 'bush' part of our capital.

During the week I was lucky to get a sneak peek at the exhibition in which CMAG social history

curator Rowan Henderson has worked hand-in-glove with renowned Canberra naturalist Ian Fraser to impressively illustrate the diversity of our bush capital through revealing photographs, exquisite works of art and fascinating scientific specimens.



Mount Ainslie Lookout. Photo: Chris Holly

You'd be hard-pressed to find a better way to mark our city's birthday than by exploring our bush, both in the suburbs and further afield. So, earlier this week I coaxed the erudite Fraser to recommend a day-long itinerary for budding Canberra naturalists. Try it out for yourselves, or dip in and out of it as weather and other commitments permit. No matter how much you explore, I'm sure you will have a memorable day.

Reproduced from the Canberra Times 11 March 2016

Canberra Museum and Gallery Exhibition

From 12 March to 26 June an exhibition will be on display at the Canberra Museum and Gallery on Canberra as the Bush Capital, featuring art works and specimens from collections including the National Library, National Gallery, CSIRO National Wildlife and National Insect Collections, National Botanic Gardens, ANU and private collections. It includes works by local artists and photographers, as well as 19th century works by prominent natural history artists. It's organised into six major habitat types, with Lou providing soundscapes for each. I hope you can find time to pop along and see what you think; CMAG is a much under-appreciated Canberra treasure.

It's possible that, for many people, the thought of parking in Civic is a nightmare. I would suggest taking a 300-series bus and getting off at the Legislative Assembly stop. There are several places around town where you can park your car and then bus in. Or there's only a 150 m walk from the City bus station.

Rosemary Blemings

Conservation Support Fund update

The Conservation Support Fund (CSF) has made a steady start. During its 18 month existence close to \$1,500 has been donated by FNAC Members. In addition to that, some interest from investments has been placed into the CSF too.

Very recently, that has enabled FNAC to donate \$500 to the Conservation Council ACT Region and the Environmental Defender's Office respectively. Also, FNAC is now looking at other environmental activities/organisations to support: a list is now being developed in a priority order to enable it to methodically approach that task.

FNAC members' interests are our first priority. Funds available beyond that may be made available as donations in support of other organisations and groups in their good work for the environment.

The FNAC Committee wish to sincerely thank members for their donations to the CSF, and hope that strong support for the CSF will continue into the future.

Bob Lehman: FNAC Treasurer: March 2016

March nature report

March has been a busy month for me. There have been some brilliant sunrises, though I haven't always been in the best place to photograph them.

A trip to Cotter Bend was great for some nature photos, with quite a lively birdlife; red-browed finches, superb fairy wrens; ravens; and quite a few satin bowerbirds, with at least one female feeding a young chick. A freaky looking grasshopper was in no hurry to move while being photographed.



Closer to home, a few years ago I found a number of native geckoes living in the banksia rose growing on my back porch railing. I haven't seen them again for some time until this year when I saw one clinging to the fly screen wire on my back window. Good to see them back again.

Then I was one of the official photographer volunteers to take photos in the Australian National Botanic Gardens *Illuminous Botanicus*. It was very dark so photographs were very challenging.



Next was a talk at the botanic gardens on photographing birdlife. I had already been trying this but armed with more advice I set off the next weekend to walk around Lake Ginninderra in pursuit of bird photos.

At first I stopped at the island at John Knight Park where numerous ducks and swamp hens etc congregate. Visiting this site over the years I've noticed an increase in the number of non-native ducks with some obvious interbreeding. There are now two completely white ducks and at least four other interbreedings of non-native ducks.

On this particular day there were also a few swans and a Great Australian Ibis.



Get off my rock

couple of good photos of them landing or about to take flight.

A great photo of a swallow in full flight still alludes me as they are so swift. In fact the exact words of the speaker on bird photography were “and if you want to masochistic, try these guys (swallows in flight)”. He is so right.

On this trip I also got some good photos of ducks, Australian ibis in flight and the superb fairy wren. Encouraged, I went back again on Good Friday.

But it was not only at the lake that had ample bird life. On Easter Sunday, I returned from shopping to find a mass of bird life in the Chinese elm tree next to my driveway. The birds included at least four superb fairy wrens, two grey fantails, an eastern spinebill (that had just caught an insect) and dozens of silver eyes. I think I also heard a satin bowerbird; there have been a few around in recent months, and the following morning I heard and saw four or five kookaburras.

Of course, this is besides the obligatory magpies, sulphur crested cockatoos (one of which sat in my elm tree as I walked back and forth up my driveway quite close, without it feeling obliged to fly away); wattle birds, currawongs etc.

Alison Milton



About to head off further around the lake I suddenly noticed a young male superb fairy wren. Well, I’m not completely sure if it was a young male. I have heard several synopsis. Non-breeding males have a blue tail but no blue colouring around their necks. Breeding males only display the blue colouring around their necks during the breeding season; and then the advice that the latter only applies until the males reach five years of age and then permanently display the blue colouring. I haven’t fully researched the truth of these statements. So was my specimen a young male just getting his colour or a young breeding male just losing his colour?

Proceeding around the lake I reached a small jetty on the peninsula between the two bridges (if you are familiar with

the lake) where there is a lot of birdlife.

The evidence of a lot of bird poo pointed to an obvious popular landing spot for the welcome swallow and I was able to get a



Maybe there's an end in sight for Clean Up Day?

Plastic-eating worms

Rob Jordan

An ongoing study by Stanford engineers, in collaboration with researchers in China, shows that common meal worms can safely biodegrade various types of plastic.

Consider the plastic foam cup. Every year, Americans throw away 2.5 billion of them. And yet, that waste is just a fraction of the 33 million tons of plastic that Americans discard every year. Less than 10 per cent of that total gets recycled, and the remainder presents challenges ranging from water contamination to animal poisoning.

Enter the mighty mealworm. The tiny worm, which is the larval form of the darkling beetle, can subsist on a diet of styrofoam and other forms of polystyrene, according to two companion studies co-authored by Wei-Min Wu, a senior research engineer in the Department of Civil and Environmental Engineering at Stanford. Microorganisms in the worm's gut biodegrade the plastic in the process – a surprising and hopeful finding.

'Our findings have opened a new door to solving the global plastic pollution problem,' Wu said.

The papers, published in *Environmental Science and Technology*, are the first to provide detailed evidence of bacterial degradation of plastic in an animal's gut. Understanding how bacteria within mealworms carry out this feat could potentially enable new options for safe management of plastic waste.

'There's a possibility of really important research coming out of bizarre places,' said Craig Criddle, a professor of civil and environmental engineering who supervises plastics research by Wu and others at Stanford. 'Sometimes, science surprises us. This is a shock.'

Plastic for dinner

In the lab, 100 mealworms ate between 34 and 39 milligrams of Styrofoam – about the weight of a small pill – per day. The worms converted about half of the Styrofoam into carbon dioxide, as they would with any food source. Within 24 hours, they excreted the bulk of the remaining plastic as biodegraded fragments that look similar to tiny rabbit droppings. Mealworms fed a steady diet of styrofoam were as healthy as those eating



Mealworms munch on Styrofoam (Photo: Yu Yang)

a normal diet, Wu said, and their waste appeared to be safe to use as soil for crops.

Researchers, including Wu, have shown in earlier research that waxworms, the larvae of Indian mealmoths, have microorganisms in their guts that can biodegrade polyethylene, a plastic used in filmy products such as trash bags. The new research on mealworms is significant, however, because styrofoam was thought to have been non-biodegradable and more problematic for the environment.

Researchers led by Criddle, a senior fellow at the Stanford Woods Institute for the Environment, are collaborating on ongoing studies with the project leader and papers' lead author, Jun Yang of Beihang University in China, and other Chinese researchers. Together, they plan to study whether microorganisms within mealworms and other insects can biodegrade plastics such as polypropylene (used in products ranging from textiles to automotive components), microbeads (tiny bits used as exfoliants) and bioplastics (derived from renewable biomass sources such as corn or biogas methane).

As part of a 'cradle-to-cradle' approach, the researchers will explore the fate of these materials when consumed by small animals, which are, in turn, consumed by other animals.

Activities

Marine diners sought

Another area of research could involve searching for a marine equivalent of the mealworm, Criddle said. Plastic waste is a particular concern in the ocean, where it fouls habitat and kills countless seabirds, fish, turtles and other marine life.

More research is needed, however, to understand conditions favorable to plastic degradation and the enzymes that break down polymers. This, in turn, could help scientists engineer more powerful enzymes for plastic degradation, and guide manufacturers in the design of polymers that do not accumulate in the environment or in food chains.

Criddle's plastics research was originally inspired by a 2004 project to evaluate the feasibility of biodegradable building materials. That investiga-

tion was funded by the Stanford Woods Institute's Environmental Venture Projects seed grant program. It led to the launch of a company that is developing economically competitive, nontoxic bioplastics.

Co-authors of the papers 'Biodegradation and Mineralization of Polystyrene by Plastic-Eating Mealworms. 1. Chemical and Physical Characterization and Isotopic Tests' and 'Biodegradation and Mineralization of Polystyrene by Plastic-Eating Mealworms. 2. Role of Gut Microorganisms,' include Yu Yang, Jun Yang, Lei Jian, Yiling Song and Longcheng Gao of Beihang University, and Jiao Zhao and Ruifu Yang of BGI-Shenzhen.

ACS Publications (pubs.acs.org), 21 September 2015

Activities

Bee school Sunday 17 April, 2:00–4:00, 76 Mueller Street, Yarralumla

Meet at Mueller Street in Yarralumla at 13.50 hours. The house is at the bottom of a group driveway. People should park up on Mueller Street. We will jointly proceed at 14.00 hours sharp. For info go to the website Adrian-Horridge.org and look at recent PDFs of papers published in last year. However, please note that Professor Horridge has had a recent fall and hip replacement operation. Therefore I would appreciate advice from members hoping to attend, particularly so that, if we do need to cancel, I can contact them.

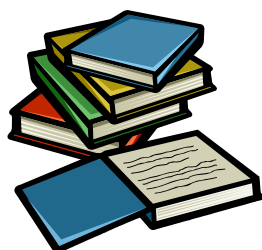
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Month	Speaker	Topic
7 April	Lesley Peden	Landscape connectivity in the Kosciuszko to coast region and great eastern ranges

Raffle prizes

As you will know the Field Naturalist's monthly raffle prizes depend on contributions by members. Here is a great opportunity to recycle all those unwanted/unused items hanging about in your cupboard space; regifting unwanted presents that you fear may make their way back to the original giver, or your over supply of fresh produce etc.

So here's your chance. Please bring along to the next meeting, any items that you think may make a great prize in the next Field Nats raffle draw.





Field Naturalists' Association of Canberra Inc.

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.

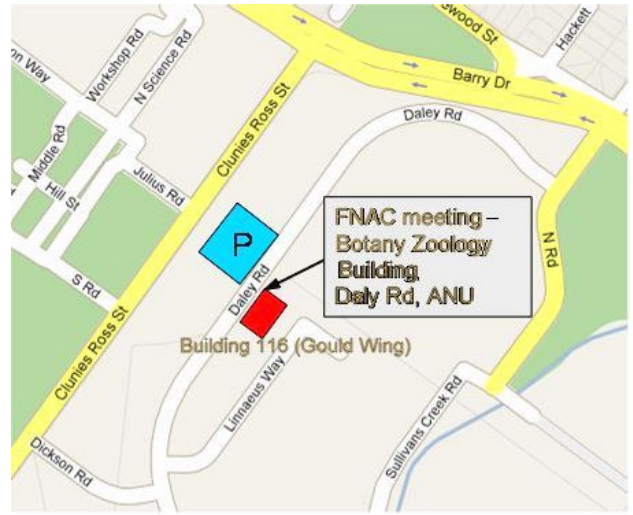
President: Rosemary Blemings **Phone:** 6258 4724

Email: fieldnaturalist@yahoo.com.au

Website: under construction

All newsletter contributions welcome.

Email Editor: alison.milton@health.gov.au



Monthly meeting venue: Building 116, Daley Road, Australian National University.
(The Xmas meeting is at the adjacent building 44 and will start at the earlier time of 6:30 pm.)

Field Naturalists' Association of Canberra
GPO Box 249
Canberra ACT 2601



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: