Volume 40 February 2018

CONSULTING ECOLOGY

www.ecansw.org.au

ISSN 1836 – 6813

Journal of the Ecological Consultants Association of NSW

ECA
ECOLOGICAL
CONSULTANTS
ASSOCIATION
of NSW Inc

VOLUME 40 **February 2018**

INSIDE THIS ISSUE!

Editor: ***Brian Wilson***

Design and Layout: ***Amy Rowles***

Front Cover Photo: A male Superb Parrot, listed as Vulnerable TSC and EPBC Acts.

Courtesy of Steve Sass

ECA Office Bearers 2017-2018

President:
Belinda Pellow
president@ecansw.org.au

1st Vice-President:
Martin Denny

2nd Vice-President:
Danny Wotherspoon

Secretary:
Adam Greenhalgh
secretary@ecansw.org.au

Treasurer:
Andrew Lothian
treasurer@ecansw.org.au

Councillors:
Mia Dalby-Ball
John Travers
Isaac Mamott
Alison Hunt
Brian Wilson
Veronica Silver
Chantelle Doyle
Elizabeth Ashby
Daniel McDonald

Administration Assistant:
Membership Officer:
Amy Rowles
admin@ecansw.org.au
415 Parishs Road,
Hilldale NSW 2420

The ECA postal address has changed to

415 Parishs Road

Hilldale

NSW, 2420

Message from the President

Dear Members,

ECA has recently formalised an arrangement with a number of NSW universities to facilitate student placement with Ecological Consultants.

Many of us will have been approached by postgraduate and graduate students asking for the opportunity to work for us to gain experience. In the past students at Universities were able to get some exposure to the practical side of our industry through field trips and hours spent in labs identifying plants or invertebrates. Fewer and fewer hours are devoted to these practical skills at Universities and our industry is suffering from a lack of persons who are ready to step into the ecological consulting industry. This is evident currently in the lack of botanists with the skills to take on, in particular, senior roles in our companies.

Over the years ECA has been proactive in trying to encourage students to participate in areas of study that will benefit the industry. In 2013 ECA wrote to all universities in NSW seeking input into their course programming, we had only one response. Council members have also prepared information documents for the webpage that provided information for young people wanting to become ecologists. In 2013 the ECA offered sponsorship to interested NSW university students to attend the annual conference. Following on from this initiative the ECA has now established a student grant program to sponsor students studying in areas relevant to our industry. The scheme began in 2015 and each year three students are granted $2000 towards their project. Recipients are expected to provide an article for the ECA Newsletter and may also present at our annual conference. At last years conference student talks were one of the highlights.

Last year ECA approached Universities that are now offering industry placement as a unit within their degrees to establish memorandums of understanding facilitating the placement of students with industry members. Universities are responsible for workplace insurances, ensuring that students are informed, prior to placement, about the work they would be required to undertake and that consultants are fully aware of the course requirements before the students arrive.

Recently members were contacted to place expressions of interest in this initiative to provide training to potential ecological consultants. If you would like to participate in the student placement program please contact the ECA Administration Officer for further details.

Belinda Pellow

PHOTO COMPETITION

Congratulations! to ***Steve Sass*** for winning the last photo competition with his photograph featured on the front cover of a male Superb Parrot.

Thank you to everyone who entered our photo competition. All entries have been included in the ECA Photo Gallery on the back cover

Email your favourite flora or fauna photo to admin@ecansw.org.au to enter a competition and have your photo on the cover of the next ECA newsletter. Win your choice of one year free membership or free entry into the next ECA annual conference. The winner will be selected by the ECA council. Runners up will be printed in the photo gallery

Photos entered in the competition may also be used on the ECA website

Interesting observation: A Western Grey Kangaroo feeding on a fish carcass at Cape le Grande National Park, Esperance in WA. Photo courtesy of Tom Grant.

ECA COUNCIL MEETINGS

The ECA Council meet every three months to discuss and deal with any current business of the association. Meetings this year will take place on the 5 March, 4 June, 3 September and 3 December. Any member who wishes to view the minutes from any of the ECA council meetings may do so by contacting the Administration Assistant Amy Rowles admin@ecansw.org.au

ECA RESEARCH GRANT WINNERS 2018

Terrestrial Ecology Grant:

Vanessa Gorecki—Roosting ecology of bats in road structures in Brisbane ($2000).

Ray Williams Mammal Research Grant:

Alexandra Ross—Assessing the success of the Nailtail Nursery: a novel conservation strategy ($2000).

ECA Conservation Grant:

Corey Callaghan—A citizen science environmental tool to assess avian biodiversity in urban greenspaces ($2000).

FOR SALE / WANTED

If you have 2nd hand ecological equipment that you would like to sell or would like to purchase you can place an ad in this newsletter. Free for members or $40 for non -members. Contact admin@ecansw.org.au.

EUROKY

Euroky: **ability of an organism to adapt to changes in the environment**

If you have any interesting observations or useful hints and information that you would like to share in the euroky column, please forward them to the newsletter editor or administration assistant to be included in the next edition.

NSW ECA ANNUAL CONFERENCE SHOAL BAY 2018: EARLY VEGETATION REPORT AND ESTABLISHMENT OF TOMAREE NATIONAL PARK

John Benson
Plant ecologist and ECA member

Since the NSW Ecological Consultants Association is holding its Annual Conference at Shoal Bay, Port Stephens on 27 July 2018, members may be interested in this vignette on a 1981 vegetation survey and establishment of the surrounding Tomaree National Park.

From the late 1970s to 1991 I spent memorable years working in the NSW NPWS Land Conservation Branch, a time coinciding with a rapidly expanding NSW reserve system and the onset of science-based approaches to conservation planning. One of the hundreds of new area proposals handed to me was what later became Tomaree National Park at Port Stephens, vaguely recalled as file M700. The paperwork burgeoned coinciding with increasing complexity of reserve establishment negotiations made difficult due to competing pressures from urban subdivision developers, a recalcitrant Lands Department and negotiations with the Hunter Water Board about reserving a national park over Crown land it managed containing drinking-water aquifers.

To support the case for a National Park, in 1981, I compiled a lengthy investigation report on the area. The report contained sections on Aboriginal and European history including early accounts of European visitation, geology, geomorphology, soils, vegetation and land use. The report is not digitised and few copies remain.

Part of the exercise was a botanical survey from Anna Beach to Shoal Bay that recorded, and listed from other sources, 350 plant species. The distinguished rainforest botanist Alex Floyd with NPWS naturalist Mike Dodkin had previously documented littoral rainforest stands at Yaccaba Headland (also reserved) on the northern side of Port Stephens and at other locations in the region (a number of us accompanied Floyd on his rainforest surveys from 1976-late 1980s and the resultant data and reports significantly influenced rainforest protection across NSW, including SEPP 26 covering Littoral Rainforest).

The Tomaree survey report's flora site data appears lost but six plant communities were defined and described by structure and dominant plant species – with notes on phytogeography and a rare plant species (see vegetation section PDF attached). As noted in the report, the heath plant community could possibly be split with richer data. The plant communities were mapped through aerial photographic interpretation of wet-film aerial photographs and ground traverse. Attached are images of the report's vegetation map overlaid on a 1:50000 topographic map complemented by a vegetation transect schema! This was before personal computers or GIS mapping technology. Few of the 1970s-90s internal NSW NPWS new area investigation reports or maps are digitised, yet some contain useful information.

The oceanic volcanic outcrops on the Port Stephens peaks are composed on the pyroclastic rock rhyodacite ignimbrite formed from an ancient volcanic arc eruption producing shard-lie fragments welded into rock on cooling: the only location on the NSW coast containing such geology. The rare shrub *Melaleuca groveana* grows on one of these volcanic peaks, a southern outlier of scattered populations on the NSW North Coast. I recall picking botanical specimens from the NPWS helicopter piloted by the redoubtable Richard Byrne! A novel exercise in aerial botanising!

A story that few would be aware of, is that the final catalyst for establishing Tomaree National Park was advocacy by nude bathers at Anna Beach. They lobbied then Premier Neville Wran who subsequently instructed the NSW NPWS to establish a national park

to protect their amenity. NPWS responded and wisely extended the reserve to cover other areas on the peninsula. Urban subdivision since 1981 has quadrupled the human population in Port Stephens placing large pressure on the national park and wildlife, including an endangered koala population at nearby Lemon Tree Passage. In retrospect, it is a great pity the NPWS was unable to gazette a conservation reserve over lands at Lemon Tree Passage containing significant stands of red gum *Eucalyptus parramattensis* woodland that provide habitat for these endangered koalas.

FROGS AND THE COMMONWEALTH GAMES

Deryk Engel

One of the cutaways between the recent Commonwealth Games events and associated commercial breaks sees a frog walking out on a leaf. It is part of a series of Australian summer images that includes beach balls and towels on a beach, a house veranda looking out over a beach and a lifesaver watch tower. The frog on the leaf is, presumably, supposed to represent the endemic Red-eyed Tree Frog (*Litoria chloris*) which is distributed from mid-eastern Queensland to Sydney. The problem is, *L. chloris* doesn't have blue banding on its flanks or yellow feet. The image better reflects *Agalychnis callidryas* (also known as a Red-eyed Tree Frog) which is native to the rainforests where it ranges from Mexico, through Central America, to Colombia. The brief to the agency probably went: we need a cut away that features a tropical image'. The agency thought rainforests and frogs go well together, and one of the team remembers seeing a Red-eyed Tree Frog when in northern Queensland on holiday once. A quick Google search throws up an image of Red-eyed Tree Frog, *A. callidryas* being the first one listed. Its green and golden, which is in character with the Aussie Oi Oi Oi theme, but also matches the logo with orange, yellow and red being present …and the rest is history. Obviously no ecologists were consulted on this matter, and thus we have a Mexican frog promoting the Australian Commonwealth Games.

MICROBAT ACTIVITY IN UNFAVOURABLE CONDITIONS

Deryk Engel

Whilst driving west along Bundeena Drive within the Royal National Park on the morning of 14 March 2018 I observed at least two microbats hawking above the road pavement. The time was 6.40 am and the weather conditions were mild temperatures (~18oC), overcast skies (100% cloud cover) with slight drizzle (to the point where visibility was reduced and the vehicle's wipers needed to be activated every 30 seconds or so). If employed, a detector could have identified the species of hawking bat(s) (assuming they were not a *Nyctophilus*). The conditions experienced are unlikely to be considered ideal for conducting microchiropteran surveys and do not conform with the Australian Government's 2010 publication 'Survey guidelines for Australia's threatened bats publication'. Whilst this is the case, microchiropterans were active, were actively hawking and could have been identified if targeted.

The observation made suggests that some species of microchiropteran are tolerant of a degree of rain and are still active during these conditions.

Top: Photo taken off the television of an ad for the 2018 Commonwealth Games. Photo courtesy of Deryk Engel. Centre: Red-eyed Tree Frog *Agalychnis callidryas*. Photo taken from http://www.scientificlib.com/en/Biology/Animalia/Chordata/Amphibia/AgalychnisCallidryas01.html. Bottom: Red-eyed Green Tree Frog *Litoria chloris*. Photo courtesy of Andrew Carty.

ARE YOU GETTING THE MOST OUT OF YOUR CAMERA TRAPPING?

Emma Rawling

We have all gotten used to relying on camera traps/trail cams for species and site monitoring very quickly - they have revolutionised ecological research, consultancy and conservation in a few short years. However, they are not magic - they can only find results and help answer questions if used well - not just as a lazy or cheap alternative to fieldwork to save time.

So how do you get the best out of your camera traps? Well, after using them for nearly 10 years , and deploying up to 200 cameras a year, I have come up with some top tips:.

- **Choose the right camera for the job:** Nothing is worse than equipment failure. There is a bewildering array of models and features around now but simplicity and reliability are key, especially if being used by novices, volunteers or community groups. One feature that really is desirable is a 'preview' screen or 'test screen' which allows you to check what the camera is seeing before you walk away to ensure your placement is right, which can make all the difference.

- **Proving presence or absence of a target species:** Typical territory size and behaviour of your species is key information you need so you can decide on the camera time vs camera number balance. The larger the territory size, the more cameras you need OR the longer you need to deploy your equipment for, to ensure the likelihood of an encounter. The basic rule is: if you have limited time, deploy more cameras. For example, a large carnivore with a 10km range would generally need several cameras left out for a minimum of a month.

- **Camera trapping for speculative surveys:** Too often camera traps are stuck out for a few days and the species list is taken as definitive results for a site. Any camera trapping for less than a week is unlikely to cover enough variables to be accurate. These types of surveys should only ever be taken as a spot sample, as they cannot cover variables such as weather, seasonality, breeding season fluctuations etc. To be truly representative these spot surveys would need regular repetition.

- **Location Location Location:** Whatever your aim, getting your camera placement right is key - good old fashioned field craft is essential for good results. Bear in mind key principles such as the edge effect, using landscape pinch points (waterholes, fence crossings, woodland corridors), oblique angles along tracks or paths, and try to 'set a stage' for your camera for good views.

- **Ethics:** If you bait your cameras, do so with appropriate and safe food or scent lures, and avoid creating dependency or a target for predators. Sound lures can be problematic as they can change behaviour, especially if used over a long time. If camera trapping at a breeding site, be aware of the impact of your setup and visits. Sensitive species will need a different 'hands off' approach.

Good luck with your camera trapping and remember: you need to leave enough time to process the data flood that can result as well!

ECA Student Placement Program

Would you accept university work placement students if;

- All insurances were covered by the university?
- Students were informed, prior to placement, about the work they would be required to undertake?
- You knew of all course specific activities required by the university before the student arrived?

The ECA is currently working with partner universities in NSW to develop and streamline a student placement program, making work placement easier for host consultancies and students.

One university, with an existing placement program the Macquarie University PACE (Professional and Community Engagement) program, which is discussed below by the Faculty of Science and Engineering PACE Manager Catherine Ennis.

Macquarie's unique PACE program *gives students in all degree programs across 5 faculties valuable practical experience. From 2016, PACE is a requirement of all undergraduate degree programs for newly enrolling students including those students transferring into a degree program for the first time. Through PACE, students and partner organisations focus on mutually beneficial outcomes and this can lead to students developing vital life and work skills which can help them move beyond university toward future endeavours and pathways.*

In the Faculty of Science and Engineering we have 22 PACE units across 9 departments which span from environmental sciences, statistics to engineering. Students can do activities in a variety of ways for industry and community partners in small groups on campus and/or your traditional placement situated with the partner organisation.

We work with all types of partners, corporate, not for profit and governmental. PACE units that may be of interest to ECA members are ENVS304 Integrated Climate Science and ENVS363 Environmental Management Project. Some previous student projects in these units include:

- *working with a commercial weather information provider working on weather chart production, weather warnings and basic forecasting.*
- *conduct research into the possible environmental impacts of large-scale events held in bushland settings in NSW National Parks.*
- *assess the lead hazard posed in an identified location, develop a risk-based matrix to prioritise these areas for remediation, and recommend options for remediation.*

We are seeking **expressions of interest** from member consultants to join a list of organisations willing to accept students, provided the above guidelines are met.

Please contact Amy Rowles (admin@ecansw.org.au) to **register your interest** or for more information.

UPCOMING ECA EVENTS

ECA ANNUAL CONFERENCE

Date: July 2019

Thursday conference: TBA

Friday workshop : Nest-boxes

Location: TBA

PROPOSED FUTURE ECA WORKSHOPS

- **Orchid Workshop**

Date: August 2019
Location: TBA
Register your interest: admin@ecansw.org.au

- **Camera Trapping Workshop**

Date: 2019
Location: TBA
Register your interest: admin@ecansw.org.au

- **eDNA Workshop**

Date: 2019
Location: TBA
Register your interest: admin@ecansw.org.au

- **Vegetation Community Workshop—allocating PCT's**

Date: 2019
Location: TBA
Register your interest: admin@ecansw.org.au

NON ECA EVENTS

- **12th Australasian Plant Conservation Conference (APCC12)**

Date: 11-15 November 2018
Location: CSIRO Canberra
Details: Special theme to include consultants experience 'Effective partnerships – who, why and how? What works and what doesn't ?' with session plenary **ECA President Belinda Pellow**.
http://anpc.asn.au/conferences/2018

ECA Membership Report

Amy Rowles
ECA administrative assistant

In total we have 189 members, comprised of 139 Practising Ecological Consultants, 10 Associate (Consultants), 23 Associate (Government Ecological/ Environment Officer), 6 Associate (Non-practising), 1 Associate (Subscriber) and 3 Students. We currently have 7 applicants and have had 22 new members and they are introduced below:

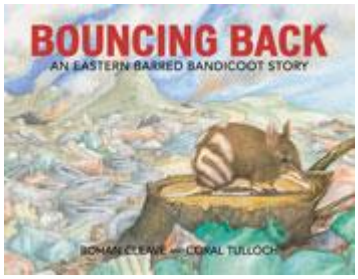
- Julia Wyllie (Practising Ecological Consultant)
- Ben Ellis (Practising Ecological Consultant)
- Jesse Carpenter (Associate Ecological Consultant)
- Kris Le Mottee (Associate Ecological Consultant)
- Tobias Scheid (Associate Ecological Consultant)
- Craig Anderson (Practising Ecological Consultant)
- Cassandra Kottaras (Associate Ecological Consultant)
- Brian Towle (Practising Ecological Consultant)
- Grant Mclean (Practising Ecological Consultant)
- Carlie McClung (Associate Government Environment Officer)
- Alex Pursche (Practising Ecological Consultant)
- Emily Mowat (Practising Ecological Consultant)
- Sophie Powrie (Practising Ecological Consultant)
- Sarah Jones (Practising Ecological Consultant)
- Tom Schmidt (Practising Ecological Consultant)
- Steve Williams (Practising Ecological Consultant)
- Stephen Bloomfield (Practising Ecological Consultant)
- Lily Gorrel (Practising Ecological Consultant)
- James Schlunke (Practising Ecological Consultant)
- Ryan Herbert (Associate Ecological Consultant)
- Sharyn Ryan-Hancock (Associate Non-practising)
- Angela Bibby (Associate Ecological Consultant)

Recent Literature and New Publications

Recent Book Releases

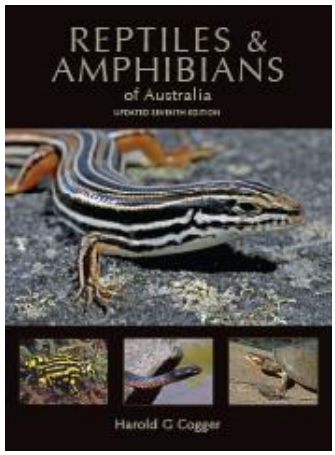
Information Source: CSIRO Publishing
Website http://www.publish.csiro.au

Title: Bouncing Back
Author: Rohan Cleave, Coral Tulloch
RRP: $24.95
No. Pages: 32
Publisher: CSIRO Publishing
Date: April 2018



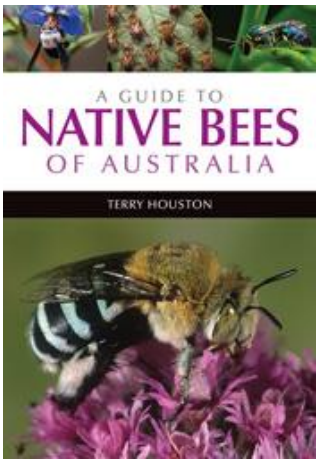
A beautifully illustrated story of this marsupial's plight and how it was saved from extinction.
The Eastern Barred Bandicoot is one of Australia's most threatened species. When their existence came under extreme threat from habitat loss, predators and human development, Eastern Barred Bandicoots found refuge in the most unlikely of places – a rubbish tip. This captivating true story details the plight these small, nocturnal marsupials faced, and the outstanding efforts that ensured their protection. Written by Rohan Cleave and illustrated by Coral Tulloch, Bouncing Back shows that even on the brink of extinction, there is hope for the survival of our most vulnerable species. Bouncing Back is perfect for primary aged readers.

Title: Reptiles and Amphibians of Australia. 7th edition.
Author: Harold Cogger
RRP: $160.00
No. Pages: 1096
Publisher: CSIRO Publishing
Date: October 2018



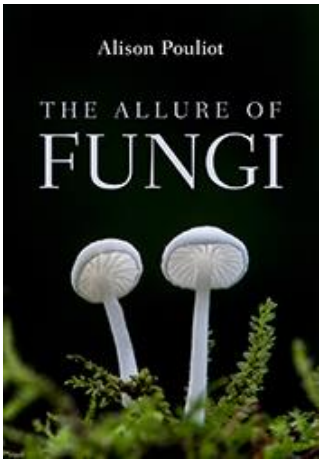
Reptiles and Amphibians of Australia is a complete guide to Australia's rich and varied herpetofauna, including frogs, crocodiles, turtles, tortoises, lizards and snakes. For each of the 1218 species there is a description of its appearance, distribution and habits. These descriptions are also accompanied by distribution maps and, in many cases, one of the book's more than 1000 colour photographs of living animals.

Title: A Guide to Native Bees of Australia
Author: Terry Houston
RRP: $49.99
No. Pages: 280
Publisher: CSIRO Publishing
Date: August 2018



Bees are often thought of as yellow and black striped insects that live in hives and produce honey. However, Australia's abundant native bees are incredibly diverse in their appearance and habits. Some are yellow and black but others have blue stripes, are iridescent green or wasp-like. Some are social but most are solitary. Some do build nests with wax but others use silk or plant material, burrow in soil or use holes in wood and even gumnuts! A Guide to Native Bees of Australia provides a detailed introduction to the estimated 2000 species of Australian bees. Illustrated with stunning photographs, it describes the form and function of bees, their life-cycle stages, nest architecture, sociality and relationships with plants. It also contains systematic accounts of the five families and 58 genera of Australian bees. Photomicrographs of morphological characters and identification keys allow identification of bees to genus level. Natural history enthusiasts, professional and amateur entomologists and beekeepers will find this an essential guide.

Title: The Allure of Fungi
Author: Alison Pouliot
RRP: $49.99
No. Pages: 280
Publisher: CSIRO Publishing
Date: September 2018



An interdisciplinary exploration of fungi, showcasing stunning photographs.

Title: Night Parrot: Australias most allusive bird

Author: Penny Olsen

RRP: $49.99

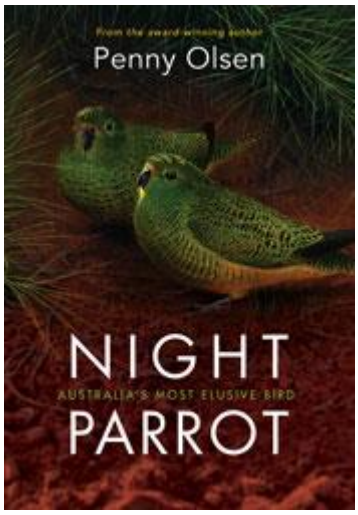
No. Pages: 368

Publisher: CSIRO Publishing

Date: September 2018

The competitiveness and secrecy, the triumphs and adventures of the history of the Night Parrot and its followers.

For well over a century, the Night Parrot lured its seekers into Australia's vast, arid outback. From the beginning it was a mysterious bird. Fewer than 30 specimens were collected before it all but disappeared, offering only fleeting glimpses and the occasional mummified body as proof of its continued existence. Protected by spinifex and darkness, the parrot attained almost mythical status: a challenge to birdwatchers and an inspiration to poets, novelists and artists



Title: Secret Lives of Carnivorous Marsupials

Author: Andrew Baker, and Chris Dickman

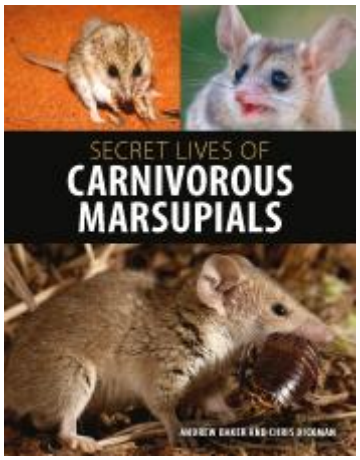
RRP: $140.00

No. Pages: 328

Publisher: CSIRO Publishing

Date: August 2018

Most living carnivorous marsupials lead a secretive and solitary existence. From tiny insect eaters to the formidable Tasmanian Devil, *Secret Lives of Carnivorous Marsupials* offers rare insight into the history and habits of these creatures – from their discovery by intrepid explorers and scientists to their unique life cycles and incredible ways of hunting prey. *Secret Lives of Carnivorous Marsupials* provides a guide to the world's 136 living species of carnivorous marsupials and is packed with never-before-seen photos. Biogeography, relationships and conservation are also covered in detail. Readers are taken on a journey through remote Australia, the Americas and dark, mysterious New Guinea – some of the last truly wild places on Earth. The book describes frenzied mating sessions, minuscule mammals that catch prey far larger than themselves, and extinct predators including marsupial lions, wolves and even sabre-toothed kangaroos.



Title: The Christmas Island Pipistrelle and Extinction in Australia

Author: John Woinarski

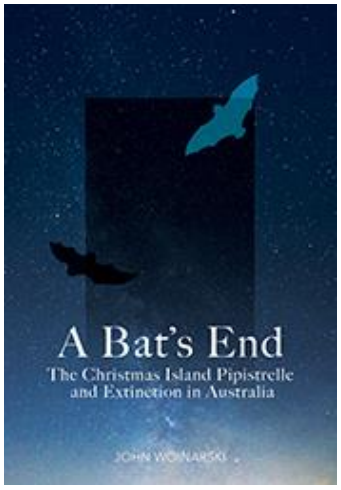
RRP: $59.99

No. Pages: 280

Publisher: CSIRO Publishing

Date: September 2018

On the evening of 26 August 2009, the last known pipistrelle emerges from its day-time shelter on Christmas Island. Scientists, desperate about its conservation, set up a maze of netting to try to catch it. It is a forlorn and futile exercise – even if captured, there is little future in just one bat. But the bat evades the trap easily, and continues foraging. It is not recorded again that night, and not at all the next night. The bat is never again recorded. The scientists search all nearby areas over the following nights. It has gone. There are no more bats. Its corpse is not, will never be, found. It is the silent, unobtrusive death of the last individual. It is extinction .



ECOLOGICAL CONSULTANTS ASSOCIATION OF VICTORIA IS NOW ESTABLISHED

Martin Denny

On the 25th October 2017, I travelled down to Melbourne to assist in the launching of the Ecological Consultants Association of Victoria at the Pumphouse Hotel, Fitzroy. The creation of the ECAVic has been three years in development (although one was suggested in 2007) but is now an incorporated entity with appropriate rules and its own Code of Professional Conduct.

The launch brought together 30+ ecological consultants in order to create a viable organisation that, like ours, will represent and support practising Ecological Consultants in Victoria through:

- enhancing knowledge and professionalism to promote positive environmental outcomes and stewardship;
- liaison with regulatory authorities and other bodies on relevant matters;
- preparation and review of professional guidelines and standards;
- facilitation of training programs, seminars, field days and similar initiatives; and
- other activities to promote the interests of ecological consultants in Victoria and elsewhere.

Over a relaxing dinner and drink at a pub, plus a raffle (what better way to launch this group) there were a number of presentations on the history of the ECAVic, previous events, results from a survey, perspectives on the industry plus audience feedback and the official launch. Your Vice-President was able to present a potted history of ECANSW (see a copy in this issue) as well as some of our achievements, and to wish them a long and prosperous future.

We have corresponded with ECAVic over the past year, including a teleconference, to encourage their development and to provide information and advice. They are now a viable organisation that will add to our voice when ecological consulting issues need airing. The general feeling is that both organisations will run independent of each other, but will keep in close communication. Information about our workshops and conferences will be passed, as well as any important outcomes from our Council and Annual meetings. You can join them on their most informative Facebook page at https://www.facebook.com/Ecological-Consultants-Association-of-Victoria-Inc-323827944717661/

Here is a great opportunity for the two associations to share information and ideas and to strengthen our role in the consulting industry and government. We hope we can hold a joint meeting in the future. At present let us give all the support we can to ECAVic!

IMPACT ASSESSMENTS UNDERVALUING HABITAT FOR THREATENED NOMADIC NECTIVORES

Kurtis Lindsay, Principal Ecologist, Narla Environmental Pty Ltd

Many consultants fall into the trap of undervaluing seemingly 'isolated' habitat items located in 'disturbed' urban contexts."

A commonly undervalued habitat item is the nectar-bearing tree.

Even historically planted, exotic or non-indigenous native nectar-bearing trees can provide important food sources for threatened fauna species.

Here I provide an example of an island of habitat located in an urban industrial centre at Tepko Road in the suburb of Terrey Hills on Sydney's Northern Beaches, that was used daily by threatened nomadic nectivores over a couple of months in autumn 2018.

A small cluster of mature Spotted Gum (*Corymbia maculata*) (estimated to be 20-30 years old) that had been historically planted between the road, carparks and factories, stands tall over the concrete landscape at Tepko Road, Terrey Hills. Up to 6 trees all of the same age class exist over a small area of approximately 200m^2. The trees were planted into soils that were historically disturbed during the construction of the Industrial Precinct. The soils are laterite soils of the 'Somersby Soil Landscape' (the type that usually supports Duffy's Forest Endangered Ecological Community).

While the Duffy's Forest EEC have long been removed from this site, the soils now support a 'new biodiversity assemblage' of (arguably) equal importance, despite being surrounded by factories, roads and carparks.

Most of these Spotted Gum trees are devoid of vertebrate diversity throughout the year, with a constant family of Noisy Miners along with scattered numbers of the usual urban suspects (Pied Currawong, Grey Butcherbird, occasional Rainbow Lorikeets etc.) and the occasional Elegant Snake-eyed Skink (*Cryptoblepharus pulcher*). Until recently a more exciting observation at this site was a pair of Spotted Pardalote (*Pardalotus punctatus*) that were feeding on lerps in the canopy. Nice to see, but not overly spectacular.

Between April and June 2018 the Spotted Gums flowered intensely. This provided a daily foraging source for:

- Flocks of up to 6 Swift Parrot (*Lathamus discolor*) - Critically Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Endangered under the Biodiversity Conservation Act 2016 (BC Act)
- Flocks of up to 40 Little Lorikeet (*Glossopsitta pusilla*) - Vulnerable under the BC Act
- Flocks of up to 30 Grey-headed Flying-fox (*Pteropus poliocephalus*) - Vulnerable under the BC Act and EPBC act
- Hunting by Powerful Owl (*Ninox strenua*) - Vulnerable under the BC Act (numerous dismembered flying-foxes, and possums along with pellets were found under the trees)
- Hunting by a Square-tailed Kite (*Lophoictinia isura*) observed chasing lorikeets that were feeding at the site.

The nearest 'indigenous' Spotted Gums to this site exist on the Pittwater Escarpment approximately 2 kilometres from the site (the famous 'Pittwater Spotted Gum Forest EEC). Interestingly, none of the indigenous, remnant Spotted Gums in the Pittwater region were flowering at the time of these sightings. This suggested that our trees had come from a different provenance (anywhere between Victoria and Queensland).

At the time of our sightings there was a noticeable influence of Little Lorikeet on the coast, as evidence by many sightings on BirdLine NSW (http://www.eremaea.com/BirdlineRecentSightings.aspx?Birdline=2&Path=8). There was anecdotal reports that there was an absence of flower in the box-gum woodlands of central-western NSW

and this had driven the nectivores eastward. The only local 'natural' flowering that was taking place during the time of our sightings was a small irruption of flowering Red Bloodwood (*Corymbia gummifera*) in Ku-ring-gai Chase National Park.

The combination of factors including lack of flowering elsewhere (including nearby remnant Spotted Gums) contributed to the large numbers of nectivores using this site for this three month period. These 6 trees formed important habitat for these nomadic nectivores for that time as they were visited every day.

Most consultants would not have had the 'luxury' of being able to watch these trees for as long as we did (since they were growing outside of our office!). However, our observations of the diverse suite of threatened species using these trees reminds us that even small clusters of historically planted trees set in a completely artificial landscape can provide important local habitat resources to threatened species.

The assessment of significance" (DECC 2004) requires you to assess impacts of the proposed activity upon all threatened species that could utilise habitat to sustain part of their lifecycle, even if it is 'on occasion'.

"A species does not have to be considered as part of the assessment of significance if adequate surveys or studies have been carried out that clearly show that the species:
- *does not occur in the study area, or*
- *will not use on-site habitats on occasion, or*
- *will not be influenced by off-site impacts of the proposal.*

Otherwise all species likely to occur in the study area (based on general species distribution information), and known to use that type of habitat, should be considered in the rationale that determines the list of threatened species, populations and ecological communities for the assessment of significance." (DECC 2004)

If we were to be undertaking an impact assessment for removal of any of these 6 planted Spotted Gum trees, we would be required to assess impacts upon all of these threatened, nomadic, nectivorous species.
Had we not known about their presence (e.g. there were no historical records in the NSW Wildlife Atlas / Bionet), we still should have assumed that the habitat could be potentially used by any of these threatened nectarivores during part of their lifecycles, because:

- Swift Parrot, Little Lorikeet and Grey-headed flying-fox are nomadic
- The trees occur within the natural distribution of all of these species
- The trees in question are known feed trees of all of those species
- The food will support them for part of their lifecycle (The trees may have been planted by humans at some stage in the past, but the fauna do not know that. All they know is the food is available and will help keep them alive for as long as the food remains).

Our observations remind us all that we should think twice before we 'undersell' removal of local habitat refugia (even planted street trees) in our impact assessments. Even if the impact of removal of one or more historically planted trees is not considered to constitute a 'significant impact/effect upon a viable local population' proponents (and their consultants) should still exercise due diligence and explore development footprint design change for avoidance of impacts, and if this is not possible, all parties involved should explore adequate compensatory plantings or offsets.

There may have only been Noisy Miners using the 'subject trees' on your client's, urban development site at the time of your rapid site assessment, but this does not rule out the potential presence for any number of threatened species to utilise habitat in your subject site at some point in their lifecycle. Particularly when those boring old street trees come into flower and take on a whole new 'ecosystem persona'.
In the course of our work as field ecologists, we often encounter cryptic or poorly described threatened species. Due to the nature of consulting work anecdotal information about species habitat or life histories often goes undocumented and is often only shared with our immediate network on an as needs basis.

THESIUM AUSTRALE; HARDLY THERE OR SIMPLY HARD TO FIND?

Chantelle Doyle and Belinda Pellow (AMBS Ecology and Heritage)

The following species profile has been provided to the Australian Network for Plants Conservation (ANPC) Journal (APC Bulletin) as part of an upcoming special edition focusing on consultant field experience with threatened species (call for papers June 2018 closing August 2018 http://www.anpc.asn.au/apc). Part of the ANPC's goal is to conserve and promote floristic diversity, and we hope the following profile contributes to both public and industry knowledge about the elusive species *Thesium australe* R.Br. (Australe toadflax). We encourage all members of the ECA to share knowledge and experiences where possible.

Thesium australe, is listed as Vulnerable under both NSW and Commonwealth legislation. It belongs to the family Santalaceae and is described as a straggling herb to 40cm tall, with pale green to yellow-green foliage and a succulent appearance (OEH 2017) (PLATE 1). It is described as growing in grassland or woodland, often in damp sites; widespread but rare (PlantNET 2017). Members of the Santalaceae family are semi parasitic usually on the roots of other plants (PlantNet 2017). *Thesium australe*, is believed to have a parasitic association with the native tussock grass, *Themeda triandra* (OEH 2017). Little other habitat information is available.

Threated species searches were conducted in cleared to semi cleared Woodland dominated by *Eucalyptus albens* (White Box) in the vicinity of Mt Kaputar National Park in October and December 2016. Climatic conditions preceding the surveys were wet with higher than average Spring rainfall (319.6 ml in September, 130.6 ml in

Plate 1 *Thesium australe* a semi- succulent straggling herb with pale green to yellow green foliage. Photos courtesy of C. Doyle

October, compared with an average of 82.1 ml and 79.4 ml respectively.) recorded at the Mt Kaputar National Park monitoring station (BOM 2017). *Thesium australe* was expected to occur in the area, based on BioNET Atlas Records (BioNET 2017). A specimen was initially collected incidentally on the 22nd of October and subsequently its identification was confirmed by the NSW Herbarium. Further surveys between 10th and 11th December identified two additional populations. The populations were separated by a distance of at least 10 kilometres.

At all locations *Thesium australe* was growing in tussock grassland, associated with dense tussocks of *Sorghum leiocladum*, *Poa labillardieri* subsp. *labillardieri* and in some locations *Themeda triandra* was also present. Other grass species in the *Thesium australe* habitat were *Cymbopogon refractus, Elymus scaber, Rytidosperma racemosum* var. *racemosum, Dichelachne sieberiana* and *Dichanthium sericeum*. Associated shrubs and forbs included *Swainsona*

galegifolia, Dodonaea viscosa subsp. *angustifolia, Hypericum gramineum, Hydrocotyle laxiflora., Polygala japonica, Chrysocephalum apiculatum, Scutellaria humilis* and *Leptorhynchos squamatus.* Canopy cover in all locations was sparse due to a rocky surface or clearing.

All populations were located in areas of shallow surface soil and exposed basalt rocks on sloping sites with evidence of water seepage (Plate 2). Elevation varied between 900m and 1020m and sites were facing north-east or south-west.

Plate 2: Three examples of *Thesium australe* habitat. All three populations have a rocky surface, which may have slow seepage and will retain moisture following large rainfall events. *Photo courtesy of C. Doyle*

Populations were limited in extent, the sizes of each population being approximately 0.90 ha (41 ha potential habitat), 0.5 ha (0.90 ha potential habitat) and 0.2 ha (1.7ha potential habitat) respectively. The number of discrete individuals within each area was difficult to determine but population sizes varied between approximately 10 plants in the 0.2ha population and >50 in the 0.9 ha population. Plants were flowering and fruiting at the time of collection (Plate 3). The age of individuals was not known but plants were all less than 0.5 m tall.

All populations were located in rocky, sloping areas where water seepage appeared to occur and where sites did not receive full sunlight all day long. *Thesium australe* is described as being commonly associated with *Themeda triandra* (OEH 2017), however our observation indicates that a range of native tussock grasses may be suitable as where *Themeda triandra* did occur it was sparsely distributed and often not in close association with a *Thesium* plant. The native tussock grasses *Sorghum leiocladum* and *Poa labillardieri* subsp. *labillardieri* were however, very common and dominated the habitat in which *Thesium* was located (Plate 4). The habitat description for *Thesium australe* should include the possibility that these other native tussock grasses can be suitable host plants, so that these grasslands are also targeted for *Thesium australe* searches.

Further research is required be to identify species/host associations, reproductive strategies (asexual and/or sexual) and germination/growth triggers for *Thesium australe*.

Plate 3. Fruiting *Thesium australe* . *Photo courtesy of C. Doyle.*

References

BioNET (2017) Atlas of NSW Wildlife NSW Office of Environment and Heritage Accessed October 2016 from www.bionet.nsw.gov.au

BOM (2017) Monthly rainfall Narrabri (Mt Kaputar National Park) Department of Meteorology Australian Government Accessed November 2017 from http://www.bom.gov.au

OEH (2017) Threatened Species Profile- Australe toadflax NSW Office of Environment and Heritage Accessed November 2017 from www.environment.nsw.gov.au/treatenedspeciesapp

PlantNET (2017) The NSW Plant Information Network System). Royal Botanic Gardens and Domain Trust, Sydney. Accessed October 2016 from http://plantnet.rbgsyd.nsw.gov.au

Plate 4. *Thesium australe* growing among *Poa labillardieri subsp. labillardieri* tussocks. *Photo courtesy of C. Doyle.*

Advertising Opportunities with the ECA

Website:

- **$200 for a banner**
- **$300 for company name with some detail and a link**
- **$500 for company name within box, logo, details and web link**

All website packages run for one financial year and include a small ad in any newsletter produced during the financial year.

Newsletter:

- **$100 for a third of a page**
- **$250 for a half page**
- **$500 for a full page**
- **$1 / insert / pamphlet**

Advertising is available to service providers of the Ecological Consulting industry. The ECA will not advertise a consultant or their consulting business.

If you wish to advertise, please contact the ECA administrative assistant on admin@ecansw.org.au.

"Non-ECA promotional material presented in the ECA Newsletter does not necessarily represent the views of the ECA or its members."

Contributions to the Newsletter, Volume 41

Contributions to the next newsletter should be forwarded to the administration assistant Amy Rowles admin@ecansw.org.au by the **15th of January 2019.**

- Articles may be emailed in WORD, with photos included or referenced in an attached file as a jpg.
- Please keep file size to a minimum, however there is no limit on article size (within reason)
- Ensure all photos are owned by you, or you have permission from the owner
- Ensure that any data presented is yours and you have permission from your client to refer to a specific site (if not please generalise the location).
- All articles will be reviewed by the editorial committee, and we reserve the right to request amendments to submitted articles or not to publish.
- Please avoid inflammatory comments about specific persons or entity

The following contributions are welcome and encouraged:

- ◊ Relevant articles
- ◊ Anecdotal ecological observations
- ◊ Hints and information
- ◊ Upcoming events
- ◊ Recent literature
- ◊ New publications (including reviews)
- ◊ Photographs

ECA Photo Gallery

Above: Male Scarlet-chested Parrot, listed as Vulnerable, TSC Act. Photo courtesy of Steve Sass. **Top Centre**: Cape Barren Goose, Flinders Island. Photo courtesy of Phil Cameron.

Above Right, Right Centre and Right: Photos courtesy of Brian Wilson.

Below: Bar-shouldered Dove. Photo courtesy of Steve Sass. **Below Right**: Raven with a dead rat. Photo courtesy of Mia Dalby-Ball.

ECA Photo Gallery

Above: Green-winged Pigeon. **Top Right:** Red-browed Finch. Photos courtesy of Steve Sass.

Below: Platypus seen off a footbridge in Mandagery Creek in Manildra. Photos courtesy of Phil Cameron and Addy Watson.