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ECA
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INSIDE THIS ISSUE!

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Gymea Lilies in Port Stephens

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ECA COUNCIL MEETINGS

The ECA Council meet every three months to discuss and deal with any current business of the association. 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

Message from the President

Dear Members,

Let's start a conversation about change.

Human resistance to change is a well-charted concept. It is a conundrum feeding countless theories and strategies. People can recognise that a change is desirable or even necessary, yet at the same time, they can be reticent about embracing it.

Change management strategies emphasise the importance of involving people in the process, with discussion about why change is needed, options for change, benefits, and the mechanisms and timing of change. Such strategies allow time for people to adjust, to understand what will be required of them, and to accept the change. Involving stakeholders in the change process also enables potential issues to be identified and managed ahead of time. A well-implemented change strategy will proceed on a smooth path towards the change and the desired benefits of the change.

Top-down application (or enforcement) of change is quicker to implement and often used when time is critical, but it is cited to increase resistance by those affected and increase the risk of a de-railed or failed change.

Reflecting on this, I wonder whether ecologists are a subset of people who are, in fact, rather durable under imposed change. The storm does not consult with us before arriving early; the blue-tongue does not pause to discuss the pros and cons of devouring a snail population we've been monitoring; and the orchid does not confirm whether it is convenient to our survey program if it makes an early start to the season.

Our survey targets are endearingly unpredictable and we seek them out under changeable and often just as unpredictable working conditions. But ecologists smile and shrug as we adjust our work schedules and practices to accommodate them, yet again, relying on patience, resilience, and ingenuity to complete our projects.

So, how are we managing the new layer of changes to our work environment? I am not referring to the inherent changes resulting from seasonal variation and quirky critter habits but changes to the bureaucratic framework and legislation governing our work.

The ecological consulting industry has been weathering frequent and ongoing change over the last five years across all facets of our core business, with bureaucratic changes being introduced at a rate not previously experienced.

The ECA of NSW is keen to understand how these changes affect individuals, businesses, and the broader industry. We invite all ecological consultants and consent authority assessors working or

who have worked in NSW over the last five years to share their experience in an anonymous 15-minute survey. The survey can be accessed online at the link below. No personal data is required to be entered or would be linked to your answers.

You can access the survey at this link: https://forms.office.com/r/jm3WXwsAiP

Rebecca Hogan

PHOTO COMPETITION

Thank you to everyone who entered our photo competition. Congratulations to Danny Wotherspoon, winner for this edition. All entries for this competition 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. Please ensure that your photo is clear with a high resolution.

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

ECOLOGICAL CONSULTANTS ASSOCIATION of NSW

EVENTS

ECA ANNUAL GENERAL MEETING 2024

Date: **5** August 2024

Location: Mercure, Hunter Valley Gardens

ECA ANNUAL CONFERENCE

Date: **5-6** August 2024

Conference Theme: Urban Ecology: Assessment, management and impact mitigation in urban ecosystems: What works and what can we do better?

Location: Mercure, Hunter Valley Gardens

Still need to renew your 2024 membership? Follow this link

https://www.ecansw.org.au/how-to-join/membership-renewal/

Current Membership

Membership Category	***Total***
Full Member	
Practising Ecological Consultant	129
Early Career Ecological Consultant	25
Retired Ecological Consultant	3
Associate	
Government Ecological / Environment Officer (Associate)	27
Non-practising (Associate)	6
Student	6
Subscriber (Associate)	2
Grand Total	**198**

Urban Ecology: Assessment, management and impact mitigation in urban ecosystems: What works and what can we do better?

Many members work on projects associated with urban development that regularly incorporate mitigation measures, including residential, commercial and industrial areas and the infrastructure associated with such development (eg. overhead powerlines, stormwater, roads, and railway). Both primary and secondary impacts need to be considered for short and long-term effects.

Urban habitats post-establishment may also pose additional challenges, such as managing peri-urban habitats and bushland reserves largely isolated and subject to edge effects; or creating habitat for native and exotic species that create unforeseen issues.

Mitigation is a key and mandated part of the process for development assessment both in the planning and post-establishment phase. Many novel ideas have been put forward, implemented, sometimes monitored with limited dissemination of success, failure and improvements. Alternatively, some highly effective measures may not be widely known and hence not deservingly adopted across the industry.

This conference will include presentations on urban bird and microbat habitat, nest-boxes and monitoring techniques, improving habitat for Forest Owls, Green and Golden Bell Frog conservation, managing cats and cane toads, habitat restoration and regeneration, green roofs, vegetation assessment apps, threatened plant translocation and use of cultural burns, as well biodiversity stewardship.

This year we also invite conference delegates to present a **POSTER** on a case study or relevant project to share with the ecological consulting community. If you are interested in presenting a poster, please email the ECA admin at **admin@ecansw.org.au** with your contact details, and title and brief overview of your topic by the **15th of July 2024.**

REGISTER NOW! https://www.ecansw.org.au/event/2024-eca-conference-5-6-august-hunter-valley/?event_date=2024-08-05

GOVERNMENT LIAISON AND ADVOCACY

The following letter was prepared by Ian Benson and Rebecca Hogan with input from ECA Members and submitted to BOS Branch in regards to the recently updated BAM requirements for Threatened Forest Owls.

Attention: Amy Dumbrell – Director BOS Branch

Via Email: BOS.helpdesk@environment.nsw.gov.au

The following correspondence has been prepared on behalf of the Ecological Consultants Association (ECA) of NSW in response to the recent changes to the Biodiversity Assessment Method (BAM) requirements and treatment of Forest Owls.

Several members of the ECA have reached out to the ECA Council expressing concerns that the changes to the requirements will fail to adequately protect Forest Owls and/or provide suitable offsets.

There are also concerns that there has been insufficient notification for significant changes such as these without suitable savings and transitional arrangements.

A core part of the NSW Biodiversity Offset Scheme (BOS) is to mitigate impacts of development on biodiversity by requiring developers to offset any unavoidable environmental harms caused by their projects; if actual nest hollows are not being identified, then impacts to these high biodiversity values cannot adequately be avoided, minimised and offset. Not protecting actual nesting sites would be a perverse outcome of the changes to the methodology.

Based on correspondence to the ECA it is understood that several of our members have independently requested an explanation from BOS Helpdesk of the impetus for the changes and at this point in time, answers have not been satisfactory other than suggesting that:

"The changes are to address survey issues raised by internal and external stakeholders, including industry." (BOS Helpdesk, pers. com)

It is understood that the changes are occurring to address practical issues associated with survey and assessment for forest owls, however it is not clearly understood what these "practical" issues currently are.

In regards to the changes in survey timing, it is apparent that the survey timeframe has been extended to allow more time to search for owl species. However, it is unclear why the survey period for the Barking Owl has been completely reversed, unlike the extensions for the other three species. As a result, past surveys for the Barking Owl have been invalidated without any clear literature or research to justify this change.

Within the correspondence to BOS Helpdesk many direct and straight forward questions have been avoided in the response. Furthermore, a lack of transparent consultation has led to cynicism from some ECA members. Such cynicism includes that these changes will only serve to collect more funds to the Credit Supply Taskforce (CST) in the form of Forest Owl credits; yet at the same time, owl nesting locations no longer need to be identified for their protection.

Development sites have historically incurred credits based on a 100m buffer a tree. However, the new changes plan to offset development by generating credits based on an 800m radius around a sighting (presumably around a tree). If there is a change in how credits are generated, it is essential to honour historical credits according to the historical guidelines to prevent manipulation of the scheme for financial and logistical benefits. Using different schemes for developing and offsetting credits to benefit the BCT represents a clear conflict of interest, especially when these changes have not been transparently referenced or involved stakeholder engagement.

Regarding a query regarding consultation for the changes, BOS support has suggested that "The changes are to address survey issues raised by internal and external stakeholders, including industry." On the basis of the following, it is not understood who has been consulted as an external stakeholder or industry:

- The ECA is the one of the peak bodies representing consultants undertaking ecological impact assessment in NSW and the association has not been consulted regarding these changes;
- Correspondence with The Environment Institute of Australia and New Zealand (EIANZ) confirms that that body was not consulted prior to the implementation of the guidelines;
- There are currently two recognised forest owl experts within the BAM, Dr Steve Debus and David Milledge. Contact with both experts confirms that neither were consulted regarding the changes to the methodology;
- Correspondence with Dr Brad Law (Principal Research Scientist Forest Science Unit, NSW DPI) confirms that he was not consulted regarding the changes. Dr Law is at the forefront of Bioacoustic Research with particular research focus on Koalas and Forest Owls in NSW. Dr Law presented research in 2023 at the annual Royal Zoological Society of NSW conference on detection probability, season and number of nights that should be surveyed for adequate survey of Forest Owls.

  Given that there is no research supporting the updated survey guidelines within the Threatened Biodiversity Data Collection (TBDC), collaboration with researchers such as Dr Law would have been prudent.

There is concern from the ECA Council that there are no new literature references within the TBDC that supports the updated survey methods. Likewise, there is no recognition of survey requirements for small sites.

The survey methods suggested are highly labour intensive, be it field surveys or data analysis but there is no requirement to locate actual nest hollows. The latter is of concern to us in terms of the Act achieving its objectives.

The examples given for possible acoustic monitoring programs appears grossly excessive. Ninety (90) days of acoustic monitoring would require in the order of 20 to 30 hours of analysis for an experienced consultant. If solely concerned with presence/absence as appears to be the main focus of the updated methodology, 90 days (nights) of recording would yield very similar results to that of database/literature records and habitat assessment.

The habitat constraint of a 20cm or larger hollow fails to recognise that many/most hollows are not suitable or used by forest owls for breeding simply due to external aperture diameter. Below are examples of hollows that have been inspected by a climbing ecologist on a recent project conducted by one of our members. From the ground they superficially appear to be high-value forest owl

hollows, however on inspection these hollows do not currently provide potential breeding habitat for forest owls, as they are not deep enough.

Large forest owls can use hollows for 2 to 3 years or more and then use another one for similar periods however then return to previously used tree hollows (Narawan Williams, pers. com). One pair of powerful owls used a tree in a school ground which was not identified as a potential nesting tree even though was known by the school management (Narawan Williams, pers. com). The pair still persisted in using the hollow even during construction works rather than trying to find another tree hollow. This demonstrates strong site fidelity.

A focus within the methodology should be placed on identifying and protecting actual nest hollows and potential nest hollows.

To resolve the inadequacies of the revised guidelines the following is recommended:

1. Forest Owls should be returned to dual credit species whilst the issues are resolved.

2. A committee should be formed which adequately represents all stakeholders including NSW DCCEEW (BCD/CST), species experts (Debus or Milledge), research scientists (Law) and practitioners ECA/EIANZ).

3. Similar to TfNSW offset policy, removal of large hollows could be a specific credit type;

https://www.transport.nsw.gov.au/system/files/media/documents/2024/EMF-BD-GD-0129-Tree-and-hollow-replacement-guidelines.pdf

a) Placing a monetary value on hollow bearing trees provides a disincentive to proponents for removing hollows and highlights where hollows are being impacted and the need to avoid impacting hollows.

4. Forest Owls (breeding) remains a species credits. This would ensure that actual nest sites are identified, avoided and protected as far as practical. If there is no requirement to identify actual nest sites, then breeding sites may be inadvertently lost removing biodiversity values. For example, a proponent may justify their development in that they have to avoid a proportion of the hollows within a site, however an actual nest hollow may be impacted and the avoided hollow may not currently be suitable breeding habitat.

a) The species polygon would remain at 100m from location of nest tree for development sites.

b) To provide incentives for BSA holders to identify breeding sites within their agreements, it would be supported to extend species polygon buffers to 141.5m to double the number of credits generated. (A buffer of 141.5m doubles the area of the species polygon, i.e. a 100m buffer provides 3.14ha and a 141.5m buffer provides an area of 6.29ha effectively doubling the credits generated).

c) Offset credit costs should reflect the importance and rarity of these actual breeding features within the landscape a disincentive to remove habitat/an incentive to avoid habitat, nominally $6,000 to $10,000 per credit (if not more).

5. Alternatively, to large hollows being a specific credit type (as per the TfNSW suggestion), Forest Owls could have a second type of species credit type being Forest Owls (potential breeding), similar to the method which has currently been rolled out.

Species polygon would be all vegetation zones with suitable hollows. Proponents would be able to physically inspect hollows and if it could be demonstrated that hollows that otherwise meet the guidelines, are not suitable for breeding, i.e. less than 60cm physical depth, then these species credits would not be incurred. Offset credit costs would broadly be in line other landscape scale species such as Koala or Squirrel Glider, nominally $500 to $1,000 per credit.

It is encouraged that the survey window for Forest Owls be reduced back to May to August during peak breeding activity and to maximise the likelihood of Forest Owls being recorded on site and to maximise the likelihood of identifying breeding habitat.

Song Meters should be compulsory for a 10-night per within the May to August survey period. If forest owl species are being recorded nightly, within 3-hours of dusk and dawn, the breeding site must be identified, if the Song Meter data suggests that the subject site is part of core territory (nightly calling near dusk and dawn) for a species of forest owl, then Forest Owl (breeding) credits must be assumed if the breeding site cannot be identified.

Thank you for your time in considering our correspondence and concerns. Members of the ECA would be available to meet with your team and a mutually convenient time to work through the items that the ECA has raised.

ECA RESEARCH GRANTS

Congratulations to the following 2024 Grant Recipients

Grant	Recipient	Project Title	Affiliation
Ray Williams Mammal Research Grant 2024 $3000	Lachlan McRae	The ecology and conservation of the threatened large-eared pied bat *(Chalinolobus dwyeri)* and eastern cave bat *(Vespadelus troughtoni)*	Macquarie University
ECA Conservation Grant 2024 $3000	Matt Smith	Trophic effects of kangaroos on thick-billed	UNSW

Vanessa Gorecki

ECA Terrestrial Ecology Research Grant Recipient- 2018

Roost selection, roost availability and gene flow among culvert roosts of large-footed myotis (*Myotis macropus*) in an urban environment and implications for disturbance of culverts

Vanessa Gorecki
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WSP Australia, 900 Ann St, Fortitude Valley QLD 4006.
Email vanessagorecki@gmail.com

This is a summary of my PhD research, which was partly funded by the Ecological Consultants Association of NSW (ECA). The large-footed myotis (*Myotis macropus*) is a specialist trawling bat that is found throughout urban environments along the east coast of Australia, and can be found roosting in concrete culverts under roads. However, little is known about the selection and use of these roost sites. I studied roost selection, landscape use and population genetics in a culvert-roosting population of *M. macropus* in Brisbane, Australia.

I undertook a multiscale analysis of culvert roost selection by using a stratified sampling design, surveying 308 culverts once in winter and once in summer, calibrating generalized additive models and generating a predictive presence-absence distribution model. Field surveys identified 20 culvert roosts. Bats preferred culverts >1.2 m in height, and while a preference for box culverts was detected, both design types (box and pipe) were occupied. Culvert variables are intrinsically linked to landscape variables, which are determined by landscape context. Stream orders determine the distribution of landscape variables such as channel dimensions (width and depth) and waterway density, which in turn determine the distribution of culverts required across an urban road network. The predicted distribution model identified that culverts meeting the probability of occurrence threshold were a limited resource in this urban landscape, with only 5.5% of culverts identified as suitable potential roosts.

I examined roost selection at the roost scale by comparing occupied culverts to locally available culverts. I revisited known occupied culverts and then surveyed the nearest four culverts >1.2 m in height. I surveyed 57 clusters of culverts and identified 21 roosts. Occupied culverts differed significantly from available culverts, and

the primary difference was the availability of microhabitat (lift holes and crevices). Occupied culverts had lift holes that had greater cavity dimensions than available culverts, and crevices were only found at occupied culverts. Culverts containing microhabitat were a limited resource in this urban landscape.

I used radiotelemetry to examine roost use and patterns of land use selection. I captured bats roosting in road culverts and radio-tracked 13 non-reproductive females over two seasons. I tracked bats to a total of three day-roost sites: two culverts and a bridge and did not detect any individuals roosting in trees despite the availability of hollows in surrounding parkland. Bats switched roosts every 4.8 ± 3.7 (1-11) days. Home ranges (95% Kernel Density Estimate) did not differ between seasons, but core use areas (50% Kernel Density Estimate) did differ between seasons with median winter areas (22 ha) significantly larger than median summer areas (1 ha). Activity for both seasons was concentrated on five elongate pools, confirming that elongate pools are vital core use areas for urban *M. macropus* although fixes were obtained along streets and over houses and football fields (while football training was on). Land use selection was investigated using compositional analysis and *M. macropus* showed a significant preference for the recreation land use type at the landscape and home range scale. Urban planning that includes recreation land use which comprises open green space is essential to provide a landscape mosaic for urban *M. macropus* to be able to persist in urban environments.

I used wing tissue biopsies from 72 individuals to investigate gene flow between culvert roosting colonies of *M. macropus*. I found genetic differentiation between all roosts sampled, even between adjacent culverts located 100 m apart on the same waterway and on the same road. Gene flow was moderate among peri-urban populations and restricted between urban populations. I found evidence of female philopatry and pairs of related females within roosts, indicating philopatry to natal colonies. Female dispersal distances were less than 30 km and female-biased gene flow is locally restricted. Urban roosts had more related individuals than peri-urban roosts. The limited shared paternal ancestry found within roosts sampled suggests *M. macropus* has a promiscuous mating system. Gene flow between populations and the maintenance of genetic diversity is dependent on males dispersing along riparian corridors. Maintaining urban riparian corridors is critical to the viability of urban *M. macropus* populations.

To summarise, roost selection by *M. macropus* in concrete culverts is limited at two spatial scales by the availability of suitable culverts, and not all culverts provide roosting habitat. Myotis captured roosting in culverts continued to display fidelity to roosting in culverts and bridges. Additionally, adjacent culverts did not share the same genotypes so it cannot be assumed that bats displaced from one culvert will relocate to an adjacent culvert. Disturbance to, or removal of, culvert roosts can cause a significant impact to an urban *M. macropus* population because an alternative roost may not exist in some urban areas. Roost disturbance during the breeding season impacts reproductive success and population dynamics in an already compromised urban bat specialist species.

If culvert roost disturbance is genuinely unavoidable, it cannot be assumed that other roosts are available or that a colony roosting in an artificial structure will switch to roosting in natural roosts. The presence of another colony in nearby culverts should not be interpreted as available habitat for a colony being impacted by culvert roost disturbance or loss. Temporary alternative roosts must be provided in the vicinity of the roost being disturbed to provide a chance for displaced *M. macropus* to relocate. The roost switching in this study ranged from 1- 11 days, so the provision of temporary roosts should be provided a minimum of two weeks prior to disturbance.

I just wanted to finish by thanking ECA for the grant that enabled me to buy radio transmitters to get some insight into how a tiny trawling bat uses an urban landscape. Thank you!

Figure 1: **Tagged *M. macropus* ready for release**

Figure 2: Maternity roost in a lift hole-related females and genetically different to colony in nearest available culvert

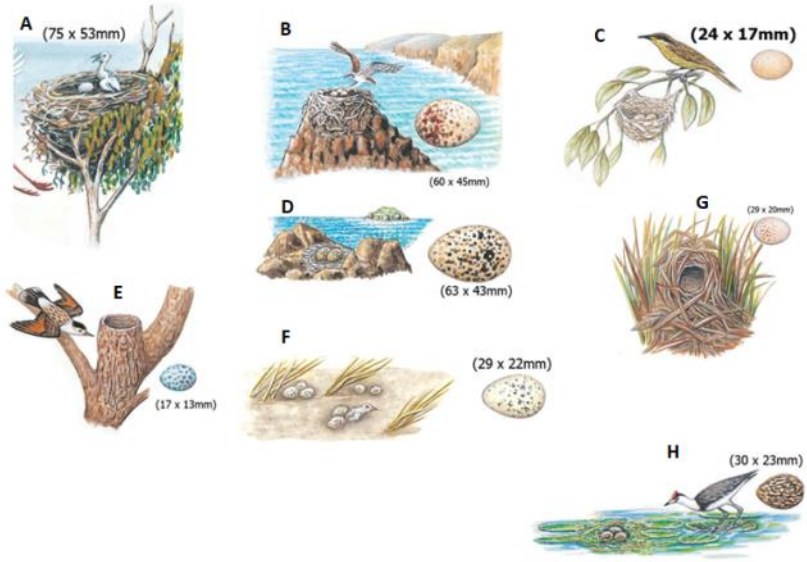
Figure 3: Location fixes from one location of radio-tracked *Myotis macropus* (all tagged bats combined)

ECA TRIVIA QUIZ 2023 - Questions

At the 2023 ECA conference we didn't get a chance to run through the answers for the trivia quiz. Here are the questions for session 2 and 3, with the answers on Page 18

Session 2

1)Who's nest is this? Which NSW threatened species does each nest belong to?



2) Which mammal was delisted from the EPBC Act Endangered Species schedule after their population increased from an estimated 1500 to 40000 individuals? (common + scientific name)

3) Which bird has the longest bill in the world? (common + scientific name)

4) Which bird (found in South America) has the longest bill in relation to body size? (common name)

5) In what year were camels introduced to Australia?

a) 1850

b) 1880

c) 1840

d) 1910

6) Match the collective noun with the group of animal.

A cackle of …	Hyenas
A wake of …	Vultures
A caravan of …	Camels
A memory of …	Elephants
A business of …	Crows
A wisdom of …	Wombats
A raft of…	Otters
An unkindness of …	Ravens
A pandemonium …	Parrots
A smack of …	Jellyfish
A murder of…	Ferrets

7) How many brains does an octopus have?

8) What does a female octopus and a Brown Antechinus (*A. stuartii)* have in common?

9) Which of the following celebrities has an Australian horse-fly named after them? And what is it called?

a) Natalie Portman

b) Sean Connery

c) Beyonce

d) Ed Sheeran

ECA TRIVIA QUIZ 2023 - Questions

Session 3

1) How many species of Leptospermum are there in NSW?

a. 20

b. b. 50

c. c. 100

d. d. 200

2) What is the botanical name for:

a. River red gum ?

b. Sydney rock orchid ?

c. Pink flannel flower ?

d. Common bracken fern ?

3) If you had some *Melaleuca nodosa* in your hand, what colour would the flowers be?

4) What is the tallest tree species in Australia?

5) What do the following plants have in common?

Phaius australis, *Banksia robur*, *Xerochrysum palustre* and *Eucalyptus robusta*

6) Which of the following plants would you not find in the game Minecraft?

a. Mangrove

b. Acacia

c. Lilypad

d. Palm

7) What is the name of the serious exotic fungal disease affecting Eucalyptus and their relatives by causing spotting and curling leaves?

8) Unscramble these native plant names:

a. AGNOHRPOA AATCTOS

b. LMANOADR LOBAQUI

c. AARNEEGBHIDR ILEAOVCA

d. MEADTEH NATIRRDA

9) Which of the following leaves would you least like to find in your hand?

a. *Ficus coronata*

b. *Opercularia diphylla*

c. *Gahnia aspera*

d. *Dendrocnide moroides*

10) What genus is the preferred food plant for Glossy Black Cockatoo?

INTERESTING OBSERVATIONS, TIPS AND FACTS

Share your interesting observations, tips and facts here by emailing admin@ecansw.org.au a paragraph or two, maybe a photo. If it is interesting to you, no doubt it is interesting to other ecologists.

Never Underestimate the size of a rock outcrop required to house cave roosting bats

Andrew Lothian

Principal Ecologist/Director Biodiversity Monitoring Services

Never underestimate the size of cave/boulder/cliff required to house cave roosting bats. This boulder (Figure 1) was only 4m x 4m x 4m, with a knee high 2m wide cave entrance, yet had a dark zone up and inside with a roosting Eastern Horseshoe Bat *Rhinolophus megaphyllus*. This boulder was located 20m downslope of the main cliff line.

Figure 1. *Rhinolophus megaphyllus* roost

I had to move 5m back from the cliff edge to be able to view the honeycombing that was likely to house the Large-eared Pied Bats *Chalinolobus dwyeri* found on this cliff line (Figure 2).

I have had released *C. dwyeri* go back to golf ball sized holes in the rock upon release. They obviously know those holes are there, but I doubt they would use them for breeding.

Figure 2. Honeycomb holes in rock face, suitable for *C. dwyeri* roost site.

Generally, *Vespadelus troughtoni* caves that I have found all seem to be in larger caves that go up and back about 5m to a dark zone. However, one morning I found the *V. troughtoni* in a bottle shaped bird mud nest near the mouth of the cave. When I walked up inside I figured out why. It was like a sauna up the back. Cool outside, but obviously the heat from the day before hadn't been blown out of the cave. It was a good 10 degrees hotter (and very humid) up in there.

I have also found scats in a shallow open salad bowl sized depression in a boulder on the edge of a paddock too and presume it may be a *Rhinolophus* feeding location.

It is important not to write off smaller rock outcrops and cliff lines. In the site I am working on, the cliff line is another 30-50m back up the hill from a line of boulders that contain good little caves. (Figure 3.) In this instance mapping the edge of the rocky habitat in accordance with the survey guideline would require the buffer to be set from the lower boulders, not the upper cliff line.

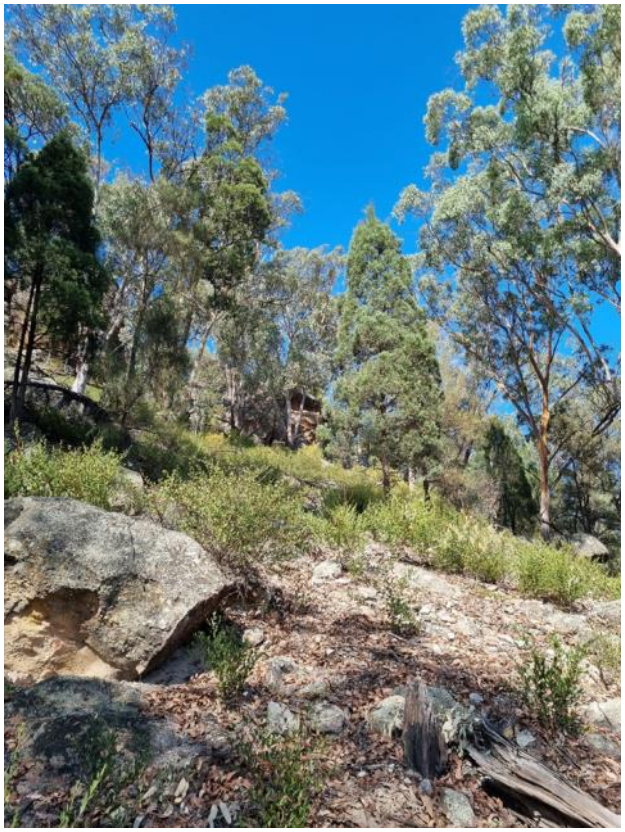


Figure 3. It is important to include all potential roost sites for 'cave roosting' bats when marking buffers, even small holes and crevices.

Caught in the Act: A feral cat playing with its prey

Michael Murray

Forest Fauna Surveys

LITERATURE

RECENT BOOK RELEASES

Information Taken from: CSIRO Publishing Website http://www.publish.csiro.au and collated by Amy Rowles.

Title: Plantabulous: More A to Z of Australian Plants

Author: Catherine Clowes, Illustrated by: Rachel Gyan

RRP: $29.99
Publisher: CSIRO Publishing
Date: June 2024

Discover just how fabulous Australia's iconic and unique native plants really are!

Did you know that there are plants that can survive fire? Plants with seed pods that explode, shooting seeds far and wide? Plants that can help clean up pollution? Or that Australia is home to the most 'venomous' plant in the world?

Plantabulous! More A to Z of Australian Plants presents 26 iconic and unique native plants for you to discover in your local park, bushland or even your own backyard! Filled with fabulous facts, activities and illustrations, Plantabulous! will prove just how fabulous Australia's native plants really are! Reading level varies from child to child, but we recommend this book for ages 6 to 12.

Title: Experimental Design and Analysis for Tree Improvement.

Author: E. Williams, C. Harwood and A Matheson.

RRP: $140.00
Publisher: CSIRO Publishing
Date: January 2024

Practical procedures for planning, designing and analysing tree improvement trials.

Experimental Design and Analysis for Tree Improvement provides a set of practical procedures to follow when planning, designing and analysing tree improvement trials. Using examples, it outlines how to:

- design field, glasshouse and laboratory trials
- efficiently collect and construct electronic data files
- pre-process data, screening for data quality and outliers
- analyse data from single and across-site trials
- interpret the results from statistical analyses.

The authors address the many practical issues often faced in forest tree improvement trials and describe techniques that will give meaningful results. The techniques provided are applicable to the improvement of not only trees, but to crops in general.

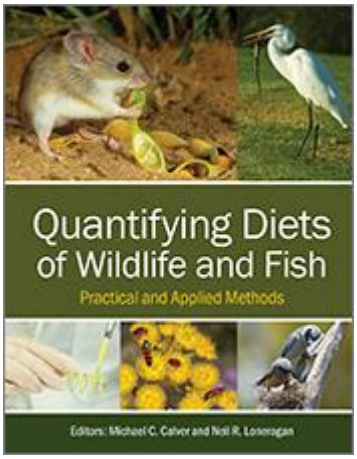
Title: Quantifying Diets of Wildlife and Fish: Practical and Applied Methods

Editors: Michael Calver and Neil Loneragan.

RRP: $140.00
Publisher: CSIRO Publishing
Date: May 2024

Explores methods for studying wildlife diets, and how they can be applied across different groups. Quantifying Diets of Wildlife and Fish presents different techniques available to study animal diets. Ecologists determine animal diets to build natural history knowledge, test hypotheses in ecological

theory and make informed management decisions for important ecosystems. Many researchers use techniques traditionally applied to the animals they study, rather than techniques with the greatest potential for the aims of each project. In an effort to encourage researchers to consider new approaches, this book focuses on the techniques, rather than on particular groups of organisms or specific environments.



RECENT JOURNAL ARTICLES

Yu, N. (2023). Predation of Eastern Yellow Robin nestlings from the same nest by an Eastern Ringtail Possum and a Pied Currawong. *Australian Field Ornithology 2023* **40**:166-169.

Abstract

This note describes the predation of nestling Eastern Yellow Robins *Eopsaltria australis* by an Eastern Ringtail Possum *Pseudocheirus peregrinus* and by a Pied Currawong *Strepera graculina* and likely attempted predation by a Red Wattlebird *Anthochaera carunculata*. Although Eastern Ringtail Possums have been inferred to be predators of birds' nests, the observations and video presented here appear to be the first unequivocal evidence of carnivory in that species and offer new insights to this possum species' ecology.

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Elliott-Tate, J and Rowley J. (2024) Unravelling male advertisement call variability in the brown tree frog (Litoria ewingii) complex by using citizen science

Australian Journal of Zoology 72, ZO23026 https://doi.org/10.1071/ZO23026

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Robinson K., Limpus D., Crosbie B., Limpus J. and Fabbro L. (2024) Depredation of eggs of threatened freshwater turtles by the short-beaked echidna (Tachyglossus aculeatus (Shaw, 1792))

Australian Journal of Zoology 71, ZO23029 https://doi.org/10.1071/ZO23029

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Orlando C., Montague-Drake R., Turbill J. and Crowther M. (2024). Megafires and koala occurrence: a comparative analysis of field data and satellite imagery

Australian Mammalogy 46, AM23054 https://doi.org/10.1071/AM23054

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Heise-Pavlov S., Prokop C. B and Goss L.(2024) A pilot study to encode calls from the northern yellow-bellied glider.

Australian Mammalogy 46, AM23026 https://doi.org/10.1071/AM23026

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Taylor M., Wayne A., Armstrong N., Calver M. and Bryant K. (2024). Spot the difference: optimising camera trap use to detect and identify individuals of a medium-sized carnivorous marsupial

Australian Mammalogy 46, AM23023 https://doi.org/10.1071/AM23023

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Henderson T. and Nest C. (2024). Scat contents of a spotted-tailed quoll (Dasyurus maculatus) reveal evidence of broad-toothed rat (Mastacomys fuscus) within a fragmented habitat in the Hunter Valley, New South Wales

Australian Mammalogy 46, AM23046 https://doi.org/10.1071/AM23046

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Goldingay R. (2024) The influence of bait and camera type on detection of a spectrum of medium-sized Australian mammals.

Australian Mammalogy 46, AM23020 https://doi.org/10.1071/AM23020

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Musser A., Grant T., Turak E. (2024). Movements of platypuses around and through instream structures and natural barriers in the Jenolan Karst Conservation Reserve, New South Wales

Australian Mammalogy 46, AM23031 https://doi.org/10.1071/AM23031

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Callas M., L. Lumsden, A. Rendall and K. Yokochi (2024). More trees and fewer roads: the importance of local and landscape features for insectivorous bats in open urban green spaces

Wildlife Research 51, WR23079 https://doi.org/10.1071/WR23079

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Brundrett M., Ladd P. and Keighery G. (2024). Pollination strategies are exceptionally complex in southwestern Australia – a globally significant ancient biodiversity hotspot.

Australian Journal of Botany 72, BT23007 https://doi.org/10.1071/BT23007

———

Wilson, P. and Heslewood, M. (2024). Revised taxonomy of the tribe Leptospermeae (Myrtaceae) based on morphological and DNA data.

Taxon, https://doing.org/10.1002/tax.12892

Q & A FROM BAM ASSESSORS FACEBOOK GROUP

On Facebook there is an online group for BAM assessors that aims to provide answers to frequently asked questions, or those tricky questions that are not covered or easily accessible. Some examples of interesting questions are given anonymously below, that may provide benefit to members. While in many cases the answers are provided by checking the BOS, please do your own research if you are not sure if it applies to your situation.

Q: Is it possible for a proponent to reduce the credit obligation (assumed presence) post approval by subsequent surveys? If so, does anyone know the pathway for this?

A1: Bos update number 3 mentions that credit obligations (including assumed presence) get conditioned and a mod is required.

A2: In general, offset obligations that are conditioned must be fulfilled before CC is issued, so a MOD is only useful if construction is not urgent and applicant willing to hold off, or if it's a new owner of land that has an existing approved DA and wants it modified or if it's a large project DA or SSDA that approval takes up to a year to get, and you can get all seasonal survey requirements in prior to approval (i.e., modify following Test of Adequacy or in Response to Submissions following exhibition).

Q: Hi where's the best place to get a definition of what falls into the category of derived grass land?

A: It is defined in 'Interim Grasslands and other Groundcover Assessment Method' NSW OEH 2017.

'Derived (or secondary) native grasslands can occur in areas where trees have been cleared from the original community (e.g. grassy woodlands).'

Derived native grassland is as its name suggests - an area of native grasses where the overstories have been removed . It was created to account for modified Grassy Woodlands and other communities that still have quality ground layers.

It is also used in the naming of communities such as Red Box, Yellow Box & Blakey's Redgum Woodlands and derived native grasslands. The profile describes derived grasslands as where trees have been removed.

Another listed community is Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia.

I have not seen it defined in legislation so it's a descriptor rather than a plant community type.

Q: Hello, I'm currently working on a streamlined small area BDAR with two PCTs on site that are quite different and isolated from each another (neither is associated with a TEC). I have determined the dominant PCT but can't figure out how to put it all into the calculator. If I assign the separate areas of vegetation a veg zone of the dominant PCT, what plot data do I enter for the veg zone of the non-dominant PCT? Plots have been done in both areas but wouldn't the plot data of the non-dominant PCT be compared against benchmark values from another PCT and skew its VI score? Do I only use plot data from the dominant PCT?

A1: Only use the dominant PCT data. I assume the area of the second veg zone is too small to consider?

A2: In one case I was told by council to use the most threatened. Not ecologically correct however given the site couldn't even fit a plot (had existing house) it's what I did.

Q: I'm starting to do more surveys for species credit fauna as part of stewardship projects. The survey requirements for some species are very onerous. I am presuming these are designed to demonstrate that a species is not present for a BDAR? If a species is found using less effort, is this sufficient for a BSSAR?

A: You would think that would be the case, however in some circumstances CST are needing more justification of a species using a site than just a single observation. E.g. you need to record Southern Myotis at each water body to justify a species polygon for that waterbody.

Q: I have a development that will impact proximity areas of coastal wetlands (ie within 100m of mapped coastal wetlands), but will not impact areas that are mapped as coastal wetlands. The biodiversity values map and threshold tool does not include proximity areas as mapped biodiversity values. The BVMT report indicates that a BDAR is not required, as we don't trigger the BOS as no impact on mapped BV areas, and nor will we exceed the clearing threshold.

Am I right to assume then that a BDAR is not required, even if we will impact proximity areas?

A1: I think you have it covered. Obviously still need to demonstrate no significant impact.

A2: That's the correct legal interpretation.

Q: Hi all. Silly question maybe, but is detached grass leaf included in the litter cover function score? Or does it have to be a forb, shrub or tree leaf litter? The BAM manual says "Litter is taken as plant material detached from a plant including leaves, seeds, twigs, branchlets and branches with diameter of <10 cm" I was taught detached grassy leaf matter was included in the litter count. Excessive amounts of grass thatch might add to your VI score but actually not be very good for the ecosystem. Can anyone advise please?

A: Short answer: yes. Just as if someone had just mowed the lawn or slashed a paddock, that counts. Got that in writing from BAM support.

A Reminder of the Opportunities in Consultation

Sophia Veitch
PhD Thesis Summary

Consultation is integral to planning as it is an opportunity to improve biodiversity offsetting in NSW, and continuing without it is detrimental to all involved.

This was a key feature pulled from my thesis regarding equity in the Biodiversity Offset Scheme (BOS) and worked towards producing a set of recommendations to improve the Scheme's outcomes based on literature and stakeholder opinions. As stakeholder experiences are key to a based outcome, my thesis worked to interview professionals from various fields that interacted with the BOS including, developers, ecologists, planners, local government workers, Department of Planning, Housing and Infrastructure employees and Biodiversity Conservation Trust employees. The variety of experts and their inputs into the work brought forward compelling and necessary topics as to how the BOS could be improved.

What was found?

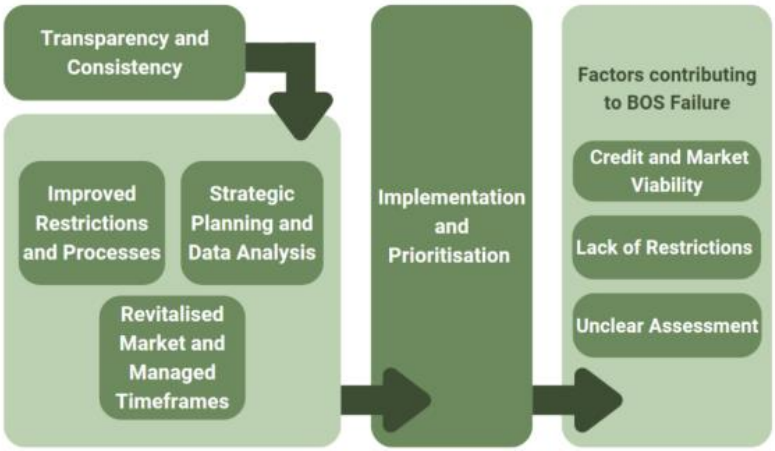
The interview outcomes fell under the general presumptions with each professional fairly representing their party and the associated expectations, necessities, and perspectives. Each issue identified with the scheme fell under one of the following features:

Of the 14 professionals interviewed, all agreed that change was necessary under these scopes to produce more equitable outcomes, however the differences arose in what should change, how that should be done, the degree of severity in change, and where equity could be found. The implications of this were clear; the BOS is no longer functioning as an object of the Act and must be altered to produce better environmental outcomes. 6 factors were brought forward which should be improved to generate an improved legislative outcome: objective failure, *clarity*, strategic planning, process and restrictions, time and money, and the responsibility for change.

Consultation needed to provide Clarity

Clarity, being the inclusion of coherency, consistency, and transparency, was identified across all stakeholders as necessary to improve the running and outcome of the BOS. It was defined as the catalyst for enhanced equitable outcomes as it underpins each factor above. In response to whether an improved sense of clarity would benefit the scheme, 'yes' was always the first word.

To incorporate this, clarity is formative to my arguments on how the BOS should be improved among other factors, it was the foundation to change, see below.



Though part of a larger argument, the notion of improving clarity was partially through revitalised processes, as seen above, and with that consultation. Ecologists, Council and State representatives alike noted how in any future changes, community and professional consultation must be reinstated in a comprehensive way as there has been very little consultation with the people who are actually the practitioners of this legislation.

The discourse between stakeholders highlighted how absent engagement processes have led to negative

relationships and interpretations which has resulted in poor outcomes on the BOS' functionality and ultimately on the environment. Four interviewees noted how the absence of engagement processes are causing variances in the BOS' interpretation as its consultation never allowed for clarification on terms, meanings and impacts. A developer noted how "everyone's interpreting the legislation differently and now you've got some poor decisions where everyone's basing their site planning off those court decisions". In response Government workers and Ecologists noted the need to focus more intently on two-way feedback going forward. Stakeholders from both government and private sides note the lack of consultation and constant changes which send out a vibe of 'smoke and mirrors' working with the scheme and how it applies. Consultation is necessary to change this.

Statutory Backing

Consultation in this way is valuable as it avoids working backwards to fix an issue which can impact the functions of the BOS, the people that work with it, and the environment. Rather it proactively avoids problems from occurring to begin with to save resources, ecology, and the sanity of all stakeholders. In this way, all interviewees agreed that this was a necessary action to take in the future.

Actions towards this assists in achieving the BC Act objective (n) "to support public consultation and participation in biodiversity conservation and decision-making about biodiversity conservation" (Biodiversity Conservation Act 2016). Such objectives for communication with stakeholders have the ability to recognise potential implications not otherwise identified. This can avoid inefficiencies, miscommunications and blatant failings in the varying processes from administration to assessment that lead to wide-spread and benefits for all stakeholders. Consultation can directly improve the clarity needed to allow for equitable use and interpretation of the scheme and better implement the BC Act objectives.

What makes worthwhile consultation in this context?

There are three features that define effective communication; Accessibility, Honesty, and Proactivity.

Accessibility is key in enabling a broad cross section of stakeholders to engage with the project to deliver maximum benefit by capitalising on diverse experiences with the scheme. Examples of this include hosting in person events or online events when new changes to the Biodiversity Offset Scheme have been drafted by the Department. This ensures that people with the know-how on the processes which will affect their day-to-day work, the wider profession or the environment, have a say. Though a limit should be taken as there is not enough time and resources to engage with everybody, as such experts in ecology and a small number from each of the subspecialties of this should be the main focus. Similarly, a previous member of the BCT, who now has a lesser role in the functioning of the BOS, detailed the difficulty of genuine consultation as there were issues with getting the right people. For example, ensuring the ecologists were well qualified, staying on track with the right issue, and recognising the need for a balanced outcome - for legality, functionality, and costing. Nonetheless, this should not stop consultative processes as recognising previous issues is the key for avoiding the same problems in the future.

Honesty is the best policy as undertaking a 'no surprises approach' allows information given to be accurate and complete. Whole and honest information leaves no room for mis-interpretation and a lack of trust between the developers of the scheme and the ones who implement it in action. From discussion, consultation is a key factor in delivering on transparency and avoiding antagonistic attitudes as a result of miscommunication and uncertainty. Part of this is fostering robust two-way feedback that can ensure correct interpretation and agency relations. That being said there is still a need for levels of transparency as official secrets, there is a line where things shouldn't be transparent. Despite this, understanding why 'goal posts' are in constant flux and offering options for how this could be altered is a substantial opportunity for BOS improvement.

Proactivity is a skill that provides information and seeks input from the right people at the right time. In this sense, the Department must be committed to re-engage with ecologists in meaningful ways as to truly utilise the value add of ecologist communities knowledge and experience in the field. When thinking about the right time, consultation is not always necessary to save on resources; technical problems or small policy changes may be saved up for a time where they can be addressed concurrently with a team of internal and external experts. While external experts should be consulted proactively on drafts of larger policy changes that have far reaching implications.

The foundation of being able to communicate with stakeholders isn't dictated just by what you are communicating but also the how. If the Department were to begin to re-engage with experts in the field, these ideas can be threaded into future operations to capitalise on experience and expertise that will guide a more successful outcome for the stakeholders and the environment.

What's Next?

What's more important than understanding worth-while consultation, is recognised that everyone is on the same page. Everyone, even those working at the Department, agreed that improvement of consultation processes would be beneficial to the functioning of the BOS. This should be of great interest to the Department as a whole as it would benefit both the administrative outcomes but also provide clarity in how the scheme is implemented through assessment processes and avoidance and minimisation actions. The interviewees agreed that each stakeholder would be more capable and willing to engage with the scheme if there was clarity in the processes and requirements of the BOS.

From this understanding and a deeper analysis of key issues, stakeholder experiences, a set of recommendations were produced that tackled the factors of the BOS which can be fixed. The recommendation for change relating to consultation was defined as the following:

Recommendation 7. Revitalise comprehensive consultation in the processes and future revisions of the BOS.

A. *Consultation must prioritise 'two-way' interactions between the agency implementing change and the stakeholders.*

B. *Any future consultation would need to specify interpretation and ensure the wording is clearly understood between all stakeholder groups.*

C. Proposed changes should consider varying stakeholder opinions, while focusing on those that come from experts in their respected fields.

This recommendation consolidated the opinions and literature which called for procedural change and an improvement of clarity. What should be taken from the whole is that all parties agreed consultation was necessary, that there is a current lack of consultative processes, and most importantly that it would positively influence the procedures and outcomes of the policy.

In addition to this, there was a communal understanding that the Department must undertake these changes as they are the ones who draft and execute the policy. Therefore, the Department must prioritise the changes required to support stakeholder equity including enhanced clarity and consistency, improved processes and restrictions, informed consultation, and financial consistency. This would define a concise line for equitable outcomes in the use of the scheme.

It is the government's responsibility to make these changes and be active in engaging with the people that have the operational know-how through the consistent use of the BOS. This not to say ecologists should define how the system works as there are competing influences and goals which must be recognised. Instead, it is an appeal for

proper consultation to be undertaken as it leads to positive outcomes; reducing miscommunications, inconsistent approaches, poor legislative outcomes. From the interviews undertaken, it is clear that not just ecologists are feeling the impacts of this, but everyone involved with the scheme as it is a fault with wide-reaching implications. Capitalising on the brains trust of experts and building trust between key stakeholders is one facet of change that can easily be introduced. Consultation is simply an opportunity for those in the small field of biodiversity offsetting to be part of the solution.

ECA TRIVIA QUIZ 2023—Answers

SECTION 1

1)

A—Black-necked Stork	**B—Eastern Osprey**
C—Mangrove Honeyeater	**D—Sooty Oystercatcher**
E—Varied Sitella	**F—Little Tern**
G—Rufous Scrub-bird	**H—Comb-crested Jacana**

2) Humpback Whale - *Megaptera novaeangliae*

3) Australian Pelican -*Pelicanus conspicillatus*

4) Sword-billed Hummingbird

5) c-1840

6) Crows, Ravens, Otters, Wombats, Elephants, Hyenas, Jellyfish, Vultures, Camels, Parrots, Ferrets

7) 9 - *including a doughnut shaped brain in the head wrapped around the oesophegus and 8 smaller 'brains' containing 2/3rds of the octopus' neurons in packages call ganglia located within the arms. The arms can taste, touch and even act on their own accord without input from the brain.*

8) They are both semelparous, meaning they reproduce only once in a lifetime.

9) c - Beyonce - Name: *Scaptia Beyonceae - Australian entomologist, Dr. Bryan lissard (Bry the Fly Guy) named the species after Beyoncé because he thought the distinctive golden hairs on the fly's lower abdomen made the fly "bootylicious" – a term made famous by a song of the same name in 2001 by Beyoncé's former group Destiny's Child*

SECTION 2

1) b -50

2) a -*Eucalyptus camaldulensis*

b -*Dendrobium speciosum*

c -*Actinotus forsythii*

d - *Pteridium esculentum*

3) White

4) *Eucalyptus regnans* / Mountain Ash

5) Swamp in common name/ grows in swamp

6) d– palm

7) Myrtle Rust /*Puccinia psidii*

8) a -*Angophora costata*

b- *Lomandra obliqua*

c- *Hardenbergia violacea*

d- *Themeda triandra*

9) d -*Dendrocnide moroides*

10) *Allocasuarina*

Consultants in Plant Conservation

Shelomi Doyle

This year the International Association for Vegetation Science held their annual symposium in Australia, and the ECA was invited to present the views of ecological consultants regarding how we see our role in plant conservation.

The overarching common thread of the conference was collaboration and data sharing, and it was encouraging to see researchers and government representatives interested in how best to utilise the skills of consultants. There was a session themed specifically around consultants' contributions to plant conservation, including presentations of collaborative case studies, discussion of confidentiality, examples of 3D mapping, and the importance of publishing our work and collecting herbarium specimens.

For our presentation, an anonymous digital survey was sent to ECA members and shared on our social media channels, to gather the different views and experiences of consultants. We received 22 responses, including some very experienced operators and thoughtful answers. Shelomi Doyle collated the responses and presented at the conference, and there were some key points that we can take away from the survey.

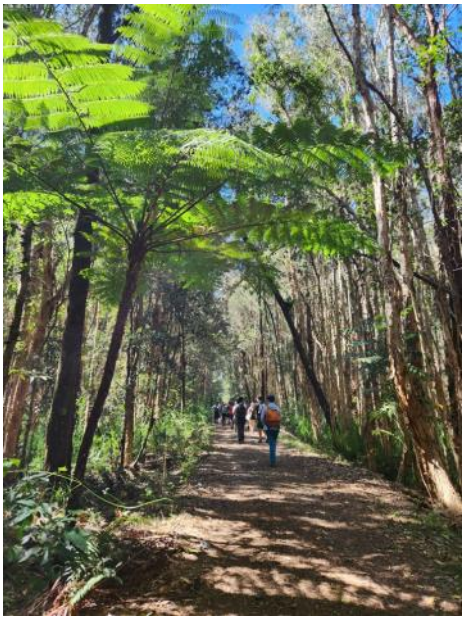
The most popular reason for choosing this career was a love of working outside, followed by constant learning and the intellectual challenge provided by the work. Most people surveyed felt that their work contributes to plant conservation, and listed the following ways:

- Sharing of species occurrence data;
- Recommending management actions;
- Mapping or validating vegetation types;
- Recommending protection of areas;
- Exploring remote areas;
- Working with government or NGOs on their conservation projects;
- Conducting monitoring and research programs; and
- Developing expertise in restoration projects.

83% of responses said that they would like to make more of a contribution to plant conservation, and listed the following as ways they would like to contribute further:

- Contributing to improving legislation and policy;
- Educating clients and the public;
- Contributing to development of assessment methods;
- Improving understanding of adverse indirect impacts;
- Identifying strategic areas for development and restoration;
- Establishing private conservation agreements;
- Increasing threatened species surveys, monitoring and mapping;
- Conducting research into genetics and relationships between species;
- Publishing our work so that findings are publicly available;

- Publishing our work so that findings are publicly available;
- Reducing agricultural land clearing and forestry; and
- Increasing weed and pest control efforts.



The standout factor holding back consultants from improved plant conservation outcomes was a lack of time and other client priorities, followed by a lack of funds for this purpose. Most respondents also said that they did not feel that they had the time and resources to stay current with the latest research in their field.

However, even with time constraints, most consultants are embracing technology and learning new skills to improve our work, including (in order of popularity): drones, lidar and 3D mapping, GIS programs, apps for data collection and analysis, use of DNA and eDNA, science communication, improved botany skills, and GPS apps.

When compared to researchers, government officers and NGO staff, the key strength of consultants is seen to be extensive field experience, leading to a detailed on-ground knowledge of an area, especially on private lands (or broad knowledge of large areas). We also have a variety of skills and specialties, 'real world' experience and commercial skills in time and budget management, the availability of resources in some cases to complete work in a short amount of time, the ability to act as a bridge when there is conflict between conservation and development (or government and private sector), and the privilege of writing or contributing to final plans that have influence on impacts to vegetation.

To increase the contribution of consultants to plant conservation, the following recommendations and requests were made of researchers, government departments and NGOs:

- Engage consultants more often for on ground collection and survey work;
- Provide a clear scope of works to simplify the quote process;
- Engage in more regular and real communication through partnerships and collaboration;
- Understanding that for consultants, additional work attracts a fee;
- Provision of any important background information, like GIS files;
- Researchers: please share your outcomes in an easily accessible way for those of us who are time-poor;
- Experts: please share workshops and webinars to improve our technical skills;
- Government departments:
    - ◊ Provide the digital tools required to fulfil legislation (data collection apps, mapping and imagery, automated survey guidelines);
    - ◊ Develop standardised training to ensure consistent quality;
    - ◊ Improve and enforce environmental protection laws;
    - ◊ Streamline data provision and align with our workflows; and
    - ◊ Simplify process for private land conservation and stewardship sites.

We believe that ecological consultants make a valuable contribution to plant conservation, and there are many ways that consultants already doing this. There are also opportunities to increase participation and collaboration to improve the outcomes we achieve. In an industry where time is literally money and there is constant pressure to keep up with the competition, consultants are still managing not just to assess development impacts, but also finding new ways to conserve the environments we love.

Thankyou to those who used their precious time to complete the survey, as it was a great opportunity to share our work and perspective with an international audience. Thankyou also to Rebecca Hogan and Daniel Clarke for their review and feedback for the survey and presentation.

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.

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.

"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 53

Contributions to the next newsletter should be forwarded to the administration assistant Amy Rowles admin@ecansw.org.au by the **30th of September 2024.**

- Articles may be emailed in WORD, with photos included or referenced in an attached file as a jpg. Please save any figures as a jpg, so they can be easily transferred to the newsletter format.
- 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

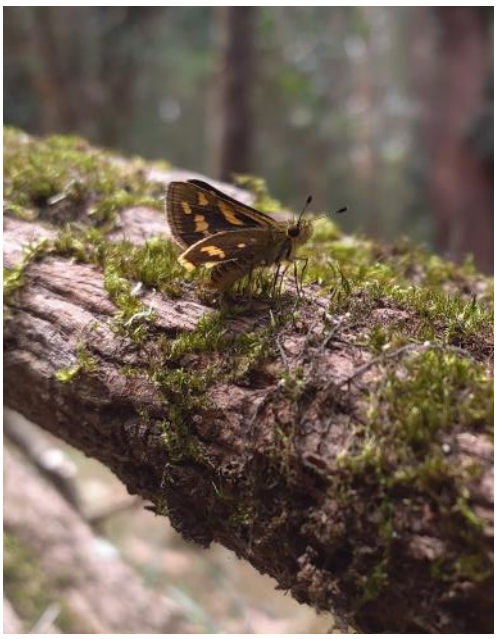
ECA PHOTO COMPETITION ENTRIES

RIGHT: Blue Spotted Ray. *Elaway Dalby-Ball*

LEFT: Rainbow Pitta, Howard Springs Nature Reserve, NT. *Steve Sass*

ABOVE: Barrier Range dragon male, near Broken Hill. *Steve Sass*

LEFT : *Crimson Chat.* *Steve Sass*



ABOVE: Male Black Grass-dart Butterfly *Ocybadistes knightorum* on a lovely mossy log proximate to a patch of Floyd's Grass *Alexfloydia repens*, the species only known larval food resource. South of Coffs Harbour, NSW. *Gemma Quick*

LEFT: Gold 1cm long moth distracting me from my bat processing. *Amy Rowles*

BELOW: Wrap around spider *Dolophones* sp. *Amy Rowles*

LEFT: Long-tailed finches- East Kimberley WA. *Steve Sass*

BELOW: Bristle-nosed Bat *Setirostris eleryi.* *Amy Rowles*