NEW ZEALAND ECOLOGICAL SOCIETY

Newsletter

No. 183, July 2023

Published by the New Zealand Ecological Society (Inc.),
P.O. Box 5008, Waikiwi, Invercargill 9843

Contents

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Deadline for submissions for the next issue of this newsletter is **Friday 8 September 2023**

From the Editor

Kia ora koutou,

Welcome to the second quarterly newsletter of 2023, our 183rd newsletter. Apologies for the tardiness in sending this out, but unfortunately end of financial year commitments are unforgiving! We begin with updates from the council, journal, and the upcoming NZES conference, before presenting some interesting PhD and science upskilling opportunities.

As always, keep your eyes peeled for the upcoming conferences – and please share these with anyone that would be interested. As always, you'll find highlights and breakdowns of the most recent ecological research and stories.

Recently I've been thinking a lot about the ecological implications of Cyclone Gabrielle, and other extreme weather events. Unfortunately, these are predicted to only become more frequent in the future, and so understanding their environmental impacts is crucial.

The extreme flooding of course had devastating effects downstream, displacing millions of tons of sediment and woody debris – damaging habitats and causing some industries to rethink their practises. Native species struggled greatly, with reports of ōrea and whio displaced far from their natural habitats and kororā struggling to find food.

Aside from the damage, the cyclone also presented some new opportunities for some researchers. The colossal surges of rainwater strew boulders as if they were pebbles, uncovering valuable fossils that will greatly contribute to our understanding of ancient Aotearoa. Truthfully, the full extent of Cyclone Gabrielle's effects and how long it will take habitats to recover is yet to be seen but if this is to be the new norm we should try to understand how to mitigate the negative effects in the future.

If you have any insights into or interesting case studies around the environmental impacts of extreme weather events in Aotearoa, please let me know!

Ngā mihi,
Tom

News from NZES Council

Mānawatia a Matariki

The NZES Council met in April to discuss required changes to the NZES Rules as a result of the new Societies Act, and again in May to discuss a range of other topics. Long-time member Dave Kelly kindly provided advice on rule changes, as he has already implemented these on behalf of another society. Proposed rule changes will be presented to the AGM once all the details have been finalised.

The NZES Mentoring scheme is underway for 2023, with 18 mentor/mentee pairs matched up. Applications for 2023 are now closed, but if you'd like to register your interest for next year, please email Kate McAlpine: secretary@newzealandecology.org.

Work has commenced on the new 5-year NZES Strategy, which will replace the current strategy in 2024. The council will circulate a draft of the strategy to members for comment later this year.

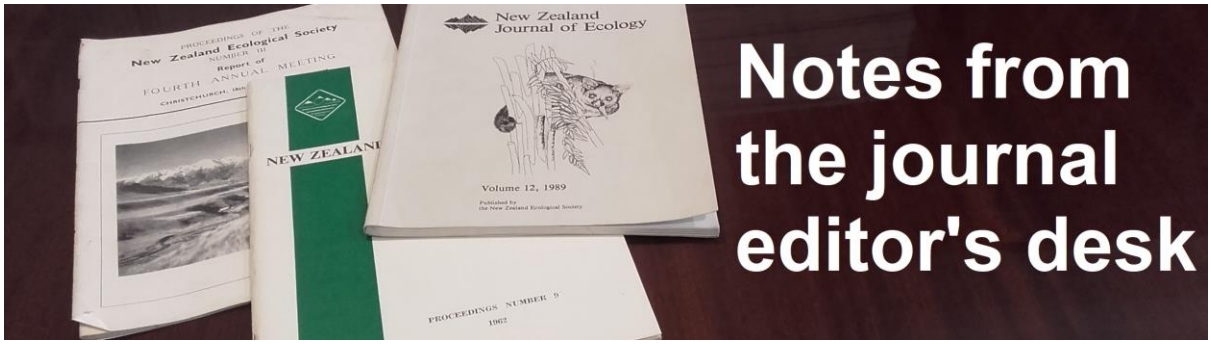
We now have a student hub in the members-only area of the NZES website where you can find information on all things student related. First up is the call for submissions from NZES student members to give a student plenary talk at this year's national event on 30 November 2023. This is a great opportunity and all eligible submissions will have an equal chance of being selected – submissions close on 20 August 2023. Thanks to our student representatives on Council Toby Elliot and Angela Knight for organising these initiatives.

Our Awards Convenor Nicola Day is working with Council on rewording some of the award stipulations to make it clearer for those applying or nominating people for awards. We aim to have this sorted for 2024. In the meantime, please submit nominations for our awards in the 2023 round – due 18 August 2023!

Tēnā koutou, tēnā koutou, tēnā tātou katoa.

Debra Wotton
President

Notes from the Journal Editor's Desk



Printed journals: archiving and reflections

The Society was recently contacted by the National Library of New Zealand as they had discovered they were missing copies of issue 42(2) from 2018 that was the very last issue to be printed. I discovered as part of dealing with that request that the Society is legally obliged to provide copies of anything it published to the National Library of New Zealand under the Legal Deposit legislation.

Fortunately, Tim Curran has been storing in his garage the Society's print overruns, so I was able to source copies of the missing 42(2) issue to submit to the National Library. Going through this process did give me pause to think about how we should be archiving the journal, and about the change from printed to electronic journals that happened in 2018.

Regarding archiving, I think it is unreasonable to expect council members to donate a large chuck of their house in perpetuity to store a back catalogue of journals (so thanks to Tim and his family for doing this for so long). Also, the flooding that's been occurring is a good example of how stuff in people's houses is not massively secure from loss or damage. So I've further liaised with the National Library to double-check they have physical copies of everything that we can provide – thanks to Dave Kelly for providing a copy from 1953! This is the best way to ensure the Society's publications are properly archived, protected, and made available for future generations, as this is the exact purpose of the National Library.

Shifting the carloads of boxes of 100s and 100s of spare copies around has also underlined to me the benefit of being an electronic journal. Regarding the carbon footprint of the journal, there was a lot of unnecessary printing and shipping – I even found a box of journals from the Polish Ecological Society who we used to swap journals with, so we used to print and ship international too! Financially the Society would have spent money over the years by paying for printing and shipping that ultimately wasn't needed.

I do feel nostalgia for printed journals, but much like how the printing press revolutionised publishing in the 15th century, the internet has done something similar in the 21st century. So this experience has emphasised to me that electronic journals make far more sense in a world where we can store and transmit online as it is far more ecological sustainable, financially viable, and provides immediate access for anyone in the world – so I'm very glad this decision was made by one of my predecessors!

Any compliments and complaints about the journal are always welcome at nzjecol.editor@gmail.com be it on this topic or any other.

Tom Etherington

Scientific Editor, New Zealand Journal of Ecology

NZES Virtual Conference Programme -30 November 2023

NZES is well underway with organising an exciting virtual conference on the 30th November, in conjunction with member only in-person events. The current programme is below:

12:40	NZES Annual General Meeting
14:00	Presentation of 2023 NZES Awards
14:20	Student Plenary*
14:35	Short Break
14:50	Dist. Prof. Phil Hulme Plenary – 2022 Te Tohu Taiao Awardee
15:35	Prof. Euan Ritchie Plenary – 2021 AERA Awardee
16:20	Assoc Prof. John Morgan Plenary – 2022 AERA Awardee
17:00	Closing Remarks

**Submissions for the student plenary talk close on 20 August. Topics relevant to the subject of NZ or Pacific ecology are eligible. All eligible submissions will go into a draw where the invited speaker will be selected at random. Submission instructions available at the NZES Student Hub.*

Individual members are welcome to join via zoom or attend in-person events at local hubs. In-person events have so far been organised for Auckland, Hamilton, Gisborne, Wellington, Nelson, Christchurch (including Lincoln), and Dunedin. Zoom meeting details will be released closer to the time, and in-person event details including contact details for local organisers can be found in the members-only area of the NZES website.

The aims of holding a virtual event this year are to reduce carbon emissions and conference registration costs, and enhance inclusivity, while still providing networking opportunities for members. Details of the NZES 2024 in-person conference will also be provided. Both online and physical attendees will still be able to contribute to the AGM by voting on motions and new council positions.

If you don't see your local area listed above, but would like to attend an in-person event, why not consider becoming a local organiser? If interested please contact Olivia Burge, NZES memberships officer (BurgeO@landcareresearch.co.nz) for details. Local coordinators will need to arrange a suitable venue to host local members that has AV facilities and the ability to connect to the national Zoom event.

NZES Awards – Nominations now open!

Nominations and applications for the NZES awards close **18 August**. Available awards are listed below, and see the individual awards pages for more details. Please submit all nominations to the awards convener by emailing: nicola.day@vuw.ac.nz

The NZES Council encourages nominations of people from diverse backgrounds and under-represented minorities in New Zealand ecology.

Te Tohu Taiao
Award for Ecological Excellence Recognises individuals who have made an outstanding contribution to the study and application of ecological science.

Ecology in Action
Recognises individuals who have made outstanding contributions to the application of ecological knowledge, including communication, education and transfer of ecological science at the grass roots in NZ or the Pacific.

Outstanding Publication on New Zealand Ecology
Recognises a publication from the last three years that has made an outstanding contribution to our understanding and/or management of ecosystems (terrestrial, aquatic or marine) in New Zealand or its dependencies.

Best Publication by a New Researcher
Best published paper of an ecological nature by a new researcher in the New Zealand Journal of Ecology.

Awards will be presented at the NZES virtual conference on 30 November.

NB: No student travel awards are available this year as the NZES 2023 conference is a virtual event

Connecting Science to Indigenous Knowledge

Tara McAllister[1], Daniel Hikuroa[2], and Cate Macinnis-Ng[2]
Original article published in The Conversation
1. Victoria University of Wellington; 2. University of Auckland

As global environmental challenges grow, people and societies are increasingly looking to Indigenous knowledge for solutions. Indigenous knowledge is particularly appealing for addressing climate change because it includes long histories and guidance on how to live with, and as part of, nature. It is also based on a holistic understanding of interactions between living and non-living aspects of the environment. However, without meaningful collaborations with Indigenous communities, the use of Indigenous knowledge can be tokenistic, extractive and harmful.

Our newly published work explores the concept of kaitiakitanga. This is often translated as guardianship, stewardship or the "principle and practices of inter-generational sustainability". We want to encourage Western-trained scientists to work in partnership with Māori and meaningfully acknowledge Māori values and knowledge in their work in conservation and resource management.

Kaitiakitanga is more than guardianship

Indigenous knowledge includes innovations, observations, and oral and written histories that have been developed by Indigenous peoples across the world for millennia. This knowledge is living, dynamic and evolving. In Aotearoa New Zealand, mātauranga Māori is the distinct knowledge developed by Māori. It includes culture, values and world view. The concept of kaitiakitanga is often (mis)used in the context of conservation and resource management in Aotearoa. In our work, we highlight how kaitiakitanga is inherently linked to other concepts. It is difficult to translate these concepts directly but they include tikanga (Māori customs), whakapapa (genealogy), rangatiratanga (sovereignty) and much more.

One of the key conceptual differences between kaitiakitanga and conservation is that for kaitiakitanga, we consider being part of te taiao (the environment) and manage our relationships accordingly. Conservation is characterised by humans managing the environment as if they were separate from it. The Honourable Justice Joe Williams describes kaitiakitanga as "the obligation to care for one's own", indicating the intrinsic link between people and the environment.

We caution against simplistic definitions of kaitiakitanga. They often divorce it from its cultural context. Simplistic definitions reduce the richness of the concept and also fail to recognise the differences in how

kaitiakitanga is conceptualised and practised. Instead, we encourage Western-trained researchers to gain a deeper understanding of concepts that underpin kaitiakitanga and work with mana whenua to further develop understanding.

Kaitiakitanga and conservation in practice

There is a growing number of examples of successful collaborations between mana whenua and researchers. Exploring these projects will allow researchers to gain insights into how to contribute in an effective and respectful way. For instance, a study of the traditional harvest and management of sooty shearwater in the Marlborough Sounds shows the importance of including cultural harvest in species conservation management. Similarly, putting Indigenous knowledge at the centre of the translocation of rare species improves conservation outcomes.

Rāhui in conservation

Rāhui is a customary process that can be used by mana whenua to restrict access to a certain resource or area of land to allow recovery. It includes an holistic understanding of the environmental problem, and social and political control. Rāhui has been used to reduce the spread of kauri dieback disease in the Waitakere Ranges. It has also been used to protect kaimoana (including scallops, mussels, crayfish and pāua) on Waiheke Island. Other examples include rāhui covering forests, lakes, beaches and marine areas for durations from days to decades. Rāhui are widely used but highly specific to local conditions. For iwi to be able to implement rāhui, they need to have rangatiratanga, as kaitiakitanga is both an affirmation and manifestation of rangatiratanga.

An effective way forward

Empowering Māori researchers and communities is central to worthwhile collaborations. We encourage non-Māori researchers to approach partnership with an awareness of the limits of their training and knowledge. Embracing a mindset of intellectual humility will more likely create conditions for meaningful co-created work. While establishing and maintaining collaborations can be time-consuming, our collective experience is that taking time to develop trust and understanding is essential for successful outcomes.

We hope our work will provide some inspiration and guidance for established practitioners and students alike. There are a number of other examples of how mātauranga and ecology can work together. The New Zealand Journal of Marine and Freshwater Research has dedicated a special issue to mātauranga Māori and how it is shaping marine conservation. Others have explored how respectful collaborations can support better teaching of science and better research outcomes.

Dun Mountain Trail: The biodiversity project

Duncan Cunningham
Adapted from the Nelson Botanical Society quarterly newsletter, Autumn 2023, pp13–15.

What is the Dun Mountain Trail?

The Dun Mountain Trail follows the original route of the historic Dun Mountain Railway, a horse-drawn tramway built to provide access to the mineral (ultramafic) deposits in the mountains behind Nelson. This "railway" operated from February 1862 to May 1901 with the purpose of transporting the mineral ore from the Coppermine Saddle at 890m a.s.l. to the port in Nelson. The incline section runs 17.5km through the hills from Brook Street to the Coppermine Saddle and was last used for mineral transport in January 1866. The history of the railway and mining activities are well documented in the Wikipedia article.

According to Jonathan Kennet in "The New Zealand Cycle Trails", 2014: "The disused railway line became a popular walkway, and in the 1980s, pioneer mountain bikers took to the tracks (sic)." Subsequent upgrading of the track and route, particularly on the descent side into the Maitai Valley, led to the official opening of the Dun Mountain Trail in November 2011, thus creating a continuation of the cycle and walkway from the Coppermine Saddle back to Nelson through varied vegetation and landscapes.

The Dun Mountain Trail Biodiversity project

The process of creating the project was, in itself, a purpose (learning, albeit clumsily) allowing other purposes to emerge such as:

- to build a biological inventory of the Dun Mountain Trail, section by section, thus creating a tool (a transect line) for long-term monitoring.
- to provide a moderately accessible outdoor "classroom" for ecological education and research.
- to showcase the trail as an easily available outdoor recreation resource on the ground and on-line, in addition to the world-class mountain bike ride through an outstanding scenic environment.

At its simplest level, The Dun Mountain Trail project is a record of what's there, with the exact location and the date of observing hosted by the worldwide biodiversity recording site iNaturalist for scientists and nature enthusiasts. There is now a gradual accumulation of, mostly casual, observations by people with an interest in the flora and fauna seen and

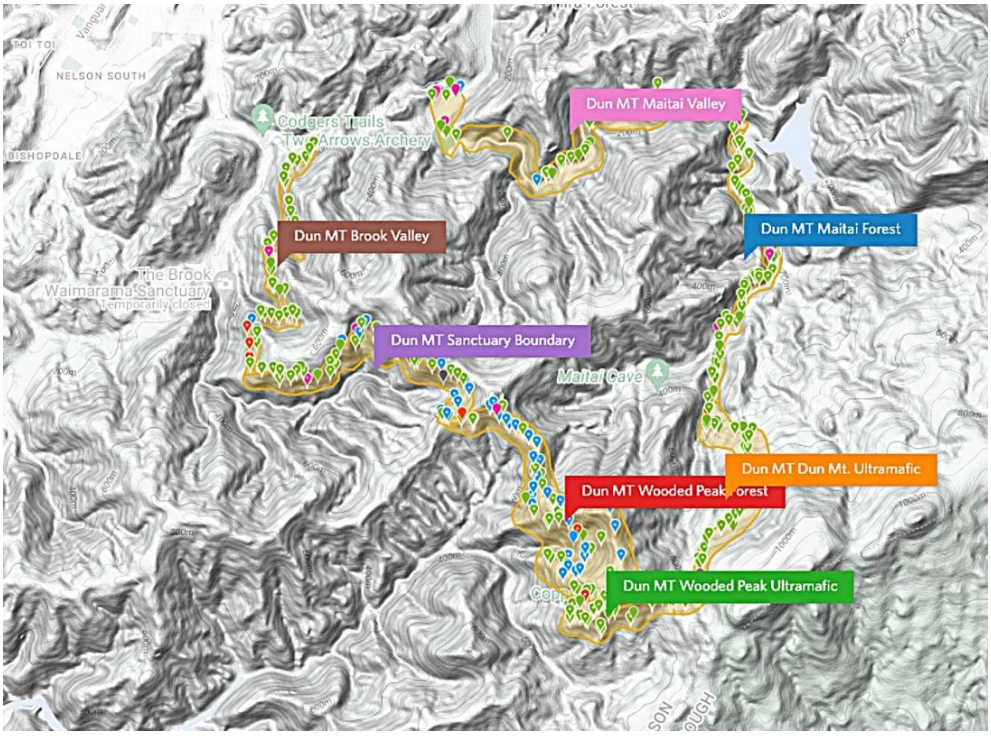
heard along the trail. The body of recorded observations has grown to nearly 1700 covering 434 species from 58 observers at the time of writing, sufficient to provide a reliable indication of vegetation types and species according to influences of land-use, aspect, geology and altitude, all of which support a variety of life. The growing body of data can provide insights into abundance of individual species, species communities, diversity and the presence of threats from invasive species.

The iNaturalist project

The Project evolved out of a growing realisation of the differences in vegetation types some of which are starkly obvious, for example, the sharp change from tall, beech-dominant forest to low, ultramafic, sub-alpine scrub. Some of the section boundaries have already named sites e.g. Four Corners and Third House, while others have the self-evident boundaries already noted above. By naming each section it became clear that a casual "place" had been created but not established as a formal "Place". This in turn led to formal "Projects" with prefix of MT e.g. Dun MT Wooded Peak Ultramafic which in turn is now one of seven Projects under an umbrella project named Dun Mountain Trail Biodiversity:

Sections:

- Brook Valley
- Sanctuary Boundary
- Wooded Peak Forest
- Wooded Peak Ultramafic
- Dun Mt Ultramafic
- Maitai Forest
- Maitai Valley



See a larger version of this map on iNaturalist.nz

Section 1: Brook Valley

Start to Four Corners. Length: 4.3km. Alt range: 180m-430m.
Highly modified vegetation. Mainly exotic species, patches of native flora.



Gorse

Climbing Asparagus

Section 2: Sanctuary Boundary

Four Corners to Third House. Length: 4.2km. Alt range: 430m-665m.
Remnant beech forest, bird-life influenced by sanctuary.



Bush Clematis

Bush Snowberry

Section 3: Wooded Peak Forest

Third House to ultramafic edge. Length: 3.9km. Alt range: 665m-840m.
Beech dominant forest with occasional limestone and Southern Rata.

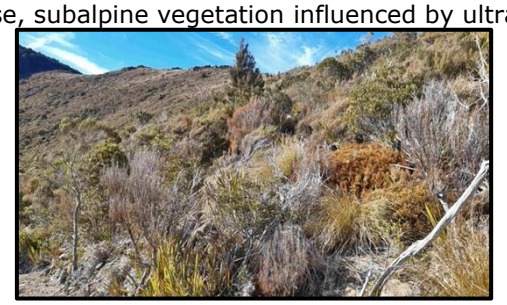


Bush Robin

Southern Rata

Section 4: Wooded Peak Ultramafic

Ultramafic edge to Coppermine Saddle. Length: 2.1km. Alt range: 840m-890m.
Diverse, subalpine vegetation influenced by ultramafic soil and human disturbance.



Exocarpus bidwillii

Monro's forget-me-not

Section 5: Dun Mountain Ultramafic

Coppermine Saddle to forest edge. Length: 5.3km. Alt range: 890m-315m.
Dun Mountain ultramafic with tussock and manuka scrub. Emergent Southern rata.



Southern Rata

Maitai River Sth Branch

Section 6: Maitai Forest

Forest edge to Maitai Dam. Length: 4.3km. Alt range: 315m-135m.
Mixed montane broadleaf forest, rata vines and lowland podocarps. Increasing weeds near dam.



Forest Cabbage Tree

Southern Rata

Section 7: Maitai Valley

Maitai Dam to end at Maitai Camp. Length: 7.0km. Alt range: 135m-50m.
Highly modified vegetation, mainly exotic species with patches of native flora.



Viper's-Bugloss

Rohutu

What now?

For the data to be meaningful and therefore useful the data sets for each section need to be continuously populated by more participants. The value of recorded observations cannot be overstated particularly when we have easy access to electronic data storage curated by a body of professionals and knowledgeable amateurs. Connecting observers to a virtual storehouse is one goal among many including enabling scientific researchers and conservation managers, or a learning resource for the curious and educators.

Who are the participants?

Those outdoors adventurers who have even a modest level of interest and a well-developed sense of curiosity in what's around them and want to learn what's there. It also helps for participants to have a modest ability with a camera, including smart phone, and some experience of filling in forms online. Filling in the iNaturalist "Add Observation" form can be initially daunting but the step-by-step, basic what/when/where along with a few photos, is enough to get started. Encouragement from the more experienced users is freely given with the aim of building a supportive community where making mistakes is an acceptable part of the journey.

What next?

Take the project to the public, both local and national by means of presentations to interest groups e.g. tramping clubs and schools, and publication in science and outdoor communications media, including Wikipedia. Please join the Project and add your observations: https://inaturalist.nz/projects/dun-mountain-trail-biodiversity

Across the Tasman

Improving rodent control in the Norfolk Island National Park

By Dr Allie Nance (Monash University, Norfolk Island National Park) & Melinda Wilson (Norfolk Island National Park)

Originally published in the Ecological Society of Australia Bulletin

Mel and Allie inspect a tree tunnel bait station. Image credits: Sara Freeland

In 2021, the team at Norfolk Island National Park (Parks Australia) and the Clarke Lab (Monash University) received the ESA Ecological Impact Award for their work in improving invasive rodent control. Mel Wilson (NINP) and Allie Nance (Monash) led the charge, exploring the extent of tree-dwelling (arboreal) behaviour in invasive rodents and how that might impact the effectiveness of the ground-based rodent baiting program implemented at the time. The study used multiple monitoring methods to determine the prevalence of black rats (Rattus rattus), Pacific rats (R. exulans) and house mice (Mus musculus) at the ground, mid-storey and canopy of multiple forest types across the National Park. The findings were clear: black rats spent more time in the mid-storey and canopy than on the ground, sparking concerns that baiting exclusively on the ground would reduce the likelihood of black rats encountering bait. This led to trials to determine how rodents interacted with tree-based baiting stations, and again, the conclusions were undeniable: rodents consumed 60% more bait from tree-based tunnels than they did from ground-based based tunnels.

This information led to an understanding of how to improve control efforts to better target tree-dwelling rodents, though the question remained: what is the best way to monitor them? To answer this question, the team also compared the detection performance of chew cards, camera traps and tracking tunnels across the three forest strata. Chew cards (pictured) are hollow cards filled with peanut butter that rodents are attracted to and chew on. Tracking tunnels (pictured) are peanut butter lured tunnels that attract rodents to walk through them and across an inked pad, leaving their footprints behind. Camera traps simply take an image any time they sense movement, like when a rodent wanders in front of the lens. Chew cards emerged as the winners, providing the highest number

of positive rodent detections overall (89% detection performance), and performing significantly better above-ground than other methods. Encouragingly, chew cards were also the most cost-effective method, meaning managers wouldn't have to blow their budgets to effectively monitor arboreal rodents. That being said, a mixed-method approach involving the use of both chew cards and camera traps was shown to provide the highest level of accuracy and would overcome issues associated with lure-based methods being less effective in times of abundant alternative food.

A chew card and tracking tunnel deployed aboveground to monitor for arboreal rodents. Image credits: Allie Nance

Armoured with this evidence, the management team gave the control and monitoring network across the National Park a full make-over. Hundreds of ground-based bait stations were replaced with tree-based bait tunnels throughout 2022, and lethal tree-mounted traps (Goodnature A24 and NZ AutoTraps) were brought into the management arsenal. Both baiting and trapping now occur as part of a cyclical and strategic program designed to maximise rodent knockdown. The monitoring network was also revised, and now consists of a network of 300 stations across the National Park where above-ground chew cards are deployed quarterly to monitor rodent activity levels over time. The team is also developing a protocol to track relative rodent density over time using ground-based thermal cameras.

While it is still early days, the results have exceeded the expectations of the team. The first round of monitoring was conducted in June 2022 whereby approximately half of the ground-based bait stations had been converted to tree-based tunnels. The baseline rodent activity level was 32% of the 300-strong monitoring network and assisted the team in identifying hotspots of activity to concentrate trapping efforts. In October 2022 after the control network was in full swing, a second round of monitoring showed rodent activity had halved, with recorded activity sitting at 16% of the monitoring network. A third round of monitoring conducted in February 2023 showed a further decrease in activity to 9%. Numerous factors are likely to be involved in this observed decrease, though models have demonstrated that the new baiting and trapping system is key to this success.

The coming years will be ones of responsive and adaptive management supported by regular monitoring and strong partnerships. As with anything in ecological management, the road ahead will likely be smattered with some bumps, surprise turns, and maybe the occasional dead-end. Galvanised by the successes already experienced however, the team is ready to tackle these obstacles head on.

Free Science Communication Course Available

Want to maximise the impact of your research? Learn a new skill? Engage with the public? Then why not consider joining the free online course "An Introduction to Science Communication in Aotearoa" offered by the Victoria University of Wellington?

This course was developed by some of Aotearoa's leading science communicators with funding from the Prime Minister's Science Communication Prize – and received a big thumbs up from our very own Communications Officer!

You will also learn about the current issues facing Aotearoa's dynamic science communication community, through videos on topics such as communicating with Māori audiences, the ethics of science communication, and the importance of engaging media and policymakers in science issues.

You can work at your own pace over a dozen videos and includes discussion questions for you to think about. It will take you between 6-10 hours to complete the course, depending on how much time you spend following links and working on the discussion prompts.

Whether you are a new student or an experienced practitioner, this course will give you plenty of inspiration as well as practical tips and tricks for improving your communication skills.

Why not give it a go? It's free and you can start anytime.

Calling all Early Career Researchers!

The Royal Society Te Apārangi Early Career Researcher (ECR) forum is dedicated to engaging New Zealand ECRs on the issues important to them and fostering a collaborative, communicative, and respected community.

Am I an Early Career Researcher?

Early career researchers are people who completed their highest qualification within the last 10 years, and demonstrate research independence (as specified by Royal Society Te Apārangi here).

What does the ECR forum do?

The ECR forum aims to foster a national early career researcher community in Aotearoa by:

- Providing opportunities for personal and professional development.
- Providing access to national and international, cross-disciplinary interaction and networking opportunities.
- Promoting diversity and equality in early career research.
- Provide a forum for the discussion of relevant issues and opportunities.
- Promote, engage, and celebrate the research contributions of New Zealand's ECRs.

Additionally, provide engagement between the Royal Society Te Apārangi and ECRs by:

- Acting as a national entity to represent and provide the knowledge, expertise, and opinions of ECRs to the Society and its stakeholders.
- Providing an identifiable avenue for ECRs to contribute advice that could inform public policy;
- Promoting the activities of the Society to the ECRs within Aotearoa New Zealand.

Where do I sign up?!

You can follow them on Facebook and Twitter, and sign up for their mailing list here. You can also consider becoming a professional member – with an offer of 50% off the full cost for ECRs!

PhD Opportunity: Safeguarding Indigenous Forests from Wildfire Risk

An exciting PhD opportunity to help mitigate wildfire risks in NZs native forests. Working with Tim Curran from Lincoln University, as well as Shana Gross and Veronica Clifford from Scion Research, this opportunity offers a stipend of NZ$36,000 per annum for 3 years and fully paid tuition fees. **Applications close 1 August**.

Depending on the individual the PhD could explore:

- Investigate how surface fuels burn in indigenous forests based on sampling litter/surface fuels (e.g. leaf litter, twigs and mixes of these) and then igniting in the laboratory under different conditions. There is the potential to tie this into trait-based fuel loading.
- Investigate existing forest plot data to evaluate the structure and composition of indigenous forests. This information could then qualitatively describe the potential for fire spread based on different structures.
- Evaluate existing NZ species flammability data and develop community weighted mean flammability based on forest structure and individual species flammability.
- Summarize surface fuel loading in indigenous forests based on sampling of fuels in existing forest plots.

To be successful in this position you will ideally have the following:

- An Honours (e.g. BSc Hons) or Masters degree in ecology, forestry, fire science, or other similar field.
- A research background in life sciences, ideally including fire science.
- A strong ability to work both independently and within a team.
- A good publication track record (relative to experience level) as well as experience with preparation and delivery of quality oral presentations to a wide range of audiences.
- Strong analytical/statistical skills using coding language preferred.
- Experience in conducting field or laboratory work, and your own driver’s licence

Best of luck to those applying!

PhD Opportunity: Social-Ecological Dimensions of Freshwater Fish Management

Another interesting PhD opportunity is available to explore the drivers of change and the dynamic relationships between people, freshwater fish and ecosystems. Working with Ed Challies from the University of Canterbury, this opportunity offers a stipend of NZ$30,000 per annum for 3 years and fully paid tuition fees. **Applications close 15 August**.

You will develop a PhD research project that supports the programme's objective to understand how freshwater fish are valued and managed. Adopting a broadly social-ecological or human-environment perspective, your PhD could examine the dynamic relationships between people and ecosystems, social-cultural dimensions of fish management, or social-ecological drivers of degradation and/or restoration in freshwater fish management. The research will afford opportunities for fieldwork, case studies, collaboration across project work-streams, and engagement with mana whenua and key stakeholders.

To be successful in this position you will ideally have the following:

- A relevant Bachelors degree with honours or research-based Master's degree (or equivalent) – e.g. in human geography, biogeography, environmental studies, ecology, social-ecological systems or a related field, and excellent coursework/thesis grades
- Excellent spoken and written English
- Be domiciled in New Zealand and be either a New Zealand citizen, permanent resident, or hold a valid visa to study in New Zealand.
- A motivation to investigate freshwater fish management from a social-ecological, political ecology, or policy perspective.
- Familiarity with (or an interest in learning about) Te Ao Māori and Māori interests in freshwater and biodiversity.
- Familiarity with environmental and conservation issues and policy in Aotearoa New Zealand or other settler-colonial settings, and ideally with water governance/management issues.
- Experience with interdisciplinary and/or cross-cultural research and familiarity with relevant social science research methods (e.g. key informant interviews, focus groups, hui, etc.).

Best of luck to those applying!

Australasian Network for Ecology and Transportation Conference 2023

The Australasian Network for Ecology and Transportation (ANET) and the EIANZ are thrilled to bring you ANET 2023 which will be held at the Te Pae Christchurch Convention Centre on 27 - 29 November 2023. ANET is the premier event for ecologists, transport planners, regulators, construction and operation professionals, and the local community to engage on the interactions between transportation and ecology. The conference will include two days of technical presentations, posters, panels, workshops and trade displays, and a one-day field trip to Kaikoura.

Linear infrastructure and transportation networks – roads, railways, transmission lines, and pipelines – are integral to local economies and community health and well-being. While their construction, maintenance and operation can impact biodiversity and ecosystems in numerous ways, linear infrastructure corridors can also provide important ecological functions.

Both linear infrastructure and biodiversity are vulnerable to natural disasters and extreme weather events, which are predicted to increase in frequency and intensity in the years ahead. Impacts on natural ecosystems can be further exacerbated by emergency works after disasters, such as earthworks, drainage and vegetation clearing. Importantly, many of these impacts can be avoided or mitigated by enhancing landscape connectivity, reducing wildlife-vehicle collisions, and minimising artificial light at night, among other measures.

Healthy and resilient ecosystems also play a vital role in disaster risk reduction and natural (or 'green') infrastructure can help provide communities and nature with resilience to these hazards. Conversely, poorly located and designed transport infrastructure can exacerbate ecological consequences and cost billions to repair or rebuild following natural disasters. The transport infrastructure we plan, design and build today must both support and promote resilient and functioning ecosystems, and ensure that it can withstand and recover from future shocks.

Important questions to be discussed at ANET 2023 include:

• How do linear infrastructure and transport networks affect the resilience of natural ecosystems to future shocks and stressors?
• How can existing and future infrastructure support and enhance ecosystem health and biodiversity conservation?
• How can transport planning, design, construction and operation assist in the recovery and restoration of endangered species, populations and ecosystems after natural disasters?
• What role does the community play in the planning and design of ecologically-sensitive linear infrastructure, as well as restoration and recovery after shocks and disasters?

More information and registration details here: ANET 2023 | Resilience, recover and restoration: transport ecology in a changing world - Environment Institute of Australia and New Zealand (eianz.org)

NEW ZEALAND ECOLOGICAL SOCIETY

Publications in the current issue of NZ Journal of Ecology (vol 47, issue 1)

Short Communications

Post-settlement extinction rates for the New Zealand avifauna

Jamie R. Wood

Radio collaring reveals long-distance movements of reinvading ship rats following landscape-scale control

Joanna K. Carpenter, Adrian Monks, John Innes, James Griffiths

Evaluating the effectiveness of a feral cat control operation using camera traps

Margaret Nichols, Alistair S. Glen, James Ross, Andrew M. Gormley, Patrick M. Garvey

Research Article

Invertebrate food supply and reproductive success of two native forest passerines along an elevational gradient

Ann-Kathrin V. Schlesselmann, John Innes, Neil Fitzgerald, Adrian Monks, Susan Walker

Recruitment, survival and breeding success in a declining rifleman population

Nyil Khwaja, Stephanie A. J. Preston, Ben J. Hatchwell, James V. Briskie

LiDAR reveals drainage risks to wetlands have been under-estimated

Olivia R. Burge, Robbie Price, Janet M. Wilmshurst, James M. Blyth, Hugh A. Robertson

Determinants of hatching and recruitment success for captively reared kakī (*Himantopus novaezelandiae*)

Scott D. Bourke, Liz Brown, Philip J. Seddon, Yolanda van Heezik

No evidence for sampling bias caused by capture method or time in *Apteryx mantelli*

Malin Undin, Isabel Castro, Richard Witehira

Growth rates and ages of some key tree species from subantarctic Auckland and Campbell Islands

Jonathan G. Palmer, Chris S. M. Turney, Zoë A. Thomas, Pavla Fenwick, Sarah J. Richardson, Janet M. Wilmshurst, Matt S. McGlone

Developing a new resetting tool for controlling rats

Elaine C. Murphy, Tom Agnew, Tim Sjoberg, Charles T. Eason, Duncan MacMorran, James G. Ross

Effects of altitude, seedfall and control operations on rat abundance in South Island Nothofagus forests 1998–2016

Kelly Whitau, Dave Kelly, Tim N. H. Galloway, Archie E. T. MacFarlane, Josh C. C. M. van Vianen, Laureline Rossignaud, Kim J. Doherty

Recovery of North Island kākā (*Nestor meridionalis septentrionalis*) within Pureora Forest Park, 2000–2020

Terry C. Greene, Tertia Thurley, Britta Basse

Trail cameras enhance understanding of lizard behaviour in a remote alpine environment

Aaron Bertoia, Alison Cree, Joanne Monks

Ranges of woody plant species and ferns on forested elevational gradients on Aotea-Great Barrier Island, New Zealand: the role of zones of permanent and temporary establishment

John Ogden, George L. W. Perry

Interspecific variation in predation patterns of stoats and weasels in an alpine conservation programme

Jamie McAulay, Joanne Monks

Trials with non-toxic baits for stoats and feral cats

Jenny Rickett, Penny Wallace, Elaine Murphy

Testing the effectiveness of a novel approach to measure a large roosting congregation in a wetland ecosystem

Nicolas Sandoval, Karen Denyer, Sasha Dowling, Dip Barot, Nathan Fan

Review Article

The rise and rise of predator control: a panacea, or a distraction from conservation goals?

John R. Leathwick, Andrea E. Byrom

International use of exotic plantations for native forest restoration and implications for Aotearoa New Zealand

Grace R. Marshall, Sarah V. Wyse, Bruce R. Manley, Adam S. Forbes

Microbiomes of native Aotearoa New Zealand animals

Natalie J. Ayriss, Michael W. Taylor

Robustness of field studies evaluating biodiversity responses to invasive species management in New Zealand

Robert B. Allen, David M. Forsyth, Darryl I. MacKenzie, Duane A. Peltzer

Forum Article

Knowing when native regeneration is for you, and what you should do about it. The Aotearoa New Zealand context

Adam S. Forbes, Sarah J. Richardson, Fiona E. Carswell, Norman W. H. Mason, Larry E. Burrows

Towards a framework for targeting national-scale, native revegetation in Aotearoa New Zealand's agroecosystems

Bradley S. Case, Adam S. Forbes, Margaret C. Stanley, Graham Hinchliffe, David A. Norton, Febyanna Suryaningrum, Rebecca Jarvis, David Hall, Hannah L. Buckley

Connecting Science to Indigenous Knowledge: kaitiakitanga, conservation, and resource management

Tara McAllister, Daniel Hikuroa, Cate Macinnis-Ng

Editorial

Initiating open access licensing in the New Zealand Journal of Ecology to further promote ecological science and better align copyright with the intent of Te Tiriti o Waitangi

Thomas R. Etherington, Phil O'B. Lyver, Leilani A. Walker

Noticeboard of Upcoming Conferences

The **71st Entomological Society of New Zealand Conference** will be held in Tāmaki Makaurau/Auckland at the Ellerslie Events Centre from Wed 30th August – Fri 1st September 2023. This meeting is open to anyone with an interest in insects, spiders and other invertebrates and we always have an excellent variety of presenters and presentation topics ranging from taxonomy and applied sciences to ecological, behavioural and social science studies. As a small, friendly conference we always have a strong contingent of student attendees. Travel awards are available to assist students and amateurs to attend if accepted to give a presentation. This year symposia topics are expected to include Taxonomy, Ecology, Biosecurity, Conservation, Physiology and Behaviour, Genes and Genomes, and Collection Care.

The **New Zealand Ecological Society virtual conference 2023** will take place on 30th November. Local in-person events have so far been confirmed for Auckland, Gisborne, Wellington, Nelson, Waikato, and Christchurch. More details are available further up in this newsletter, or check the members-only area of the NZES website for updates.

The Australasian Network for Ecology and Transportation (ANET) and the EIANZ are thrilled to bring you **ANET 2023** which will be held at the Te Pae Christchurch Convention Centre on 27 - 29 November 2023 (more details pages 21-22). ANET is the premier event for ecologists, transport planners, regulators, construction and operation professionals, and the local community to engage on the interactions between transportation and ecology. The conference will include two days of technical presentations, posters, panels, workshops, trade displays, and a one-day field trip to Kaikoura.

The **23rd International Conference on Aquatic Invasive Species** will take place in Halifax, Nova Scotia, Canada, from May 12 – 16, 2024. The International Conference on Aquatic Invasive Species (ICAIS) is the most comprehensive international forum to address new and emerging issues in freshwater, marine, and estuarine environments.

Early announcement: The first **NZ Symposium on Urban Forests** will be held in Christchurch in March 2024 (date TBD). This event will bring together interested parties to discuss the current state and future goals of urban forests and green spaces in Aotearoa. For questions, comments, or early expressions of interest to either attend or speak, please contact Tom.Carlin@scionresearch.com

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(Correct as of July 2023)

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