NEW ZEALAND ECOLOGICAL SOCIETY

Newsletter

No. 162, December 2017

Published by the New Zealand Ecological Society (Inc.),
P.O. Box 5075, Papanui, Christchurch 8542

Inside

From the Editor

Kia ora koutou,
Welcome to the December 2017 newsletter. All reports are that the EcoTAS conference in Hunter Valley was a very engaging and fun event.

In this issue of the newsletter, we welcome the new council and wish them well for the coming year. Thanks for all the contributions to this newsletter. Hope you enjoy the read.

Ngā mihi
Angela Simpson

Ecotones – New ecological research

Bruce Burns

A selection of recently published research on or relevant to New Zealand ecology (except that published in the New Zealand Journal of Ecology or 'in press'). The list of other publications on New Zealand ecology can be found towards the end of the newsletter.

1. Gene drive systems for removing pests hold great promise but also high risk.

In the drive towards a Predator Free future in New Zealand, the potential use of "gene drive" systems is being enthusiastically explored. These systems promote the inheritance of a particular genetic variant to increase in frequency in a target population. As an example of how this could be used to control pest populations, genetically modified rats carrying a self-propagating CRISPR-based gene drive targeting a number of conserved sequences within recessive fertility genes, would be released into an existing population. This genetic code would spread through the population eventually causing offspring to be infertile or biasing the sex ratio of the population to males only. These changes would eventually cause the population to crash, although the population would still be present for some time after introduction of the gene drive, as the spread of the introduced genes into the population and its impact played out.

It is the extended residence time of the gene drive-modified rats that has alarmed several commentators. Esvelt and Gemmell (2017) argue that releasing a self-propagating drive system capable of spreading beyond the target local population puts at risk that species internationally even in situations in which it provides positive ecosystem services. They suggest that these risks need to be considered before development and release of such gene drives, and that other possibilities exist to contain any effects to local areas. First, the gene drive could target mutations that only occur in local populations as a result of founder effects, though enough such mutations may be hard to find. Second, the gene drive could be built as a series; a so-called 'daisy drive' system. Here the CRISPR components are separated and arranged so that each daisy element drives the next in the chain. Such a drive system is inherently localised, and has a lower risk of spread. Gene drives are exciting developments but must be applied responsibly so that they don't become 'invasive' in their own right.

Esvelt KM, Gemmell NJ 2017. Conservation demands safe gene drive. PLoS Biology 15 (11): art. no. e2003850.

2. Crusts on the lawn: who benefits?

Throwing bread and other food out on the lawn or placing in feeders for birds to eat is a traditional practice amongst New Zealanders and other societies who assume that bird populations and communities benefit from this practice. However, this huge supplementary feeding injection into urban bird food resources is hypothesised to influence bird community structure by artificially supporting introduced bird populations more attuned to this resource over natives. Galbraith *et al.* (2017) have recently studied differences in species and individual bird use of bird feeders in Auckland to explore inequalities in use. They installed camera traps at feeders and recorded use and species interactions, and also PIT tagged a subset of individual birds. They found that feeding was overwhelmingly dominated by two introduced species: house sparrow and spotted dove, and this largely reflected the grain-based feed available at the feeders (representative of typical feed availability) which is

unsuitable for most native species. They also observed a high level of competitive interactions at the feeders, with some species excluding others. Finally, they found individual variation in feeder use within a species, with some birds highly consistent in their use compared to others. So, feeding birds in cities advantages the few over the many, and those that are advantaged are the introduced birds rather than the natives. Maybe it's time to reconsider our common practices and stop throwing our crusts out on the lawn. Let's plant some native bird friendly trees and shrubs instead and redress the resource balance in our cities.

Galbraith JA, Jones DN, Beggs JR, Parry K, Stanley MC 2017. Urban bird feeders dominated by a few species and individuals. Frontiers in Ecology and Evolution 5: article 81.

3. The 'King Kong' effect for plants: why are they big on islands?

A few years ago, I was fortunate to spend a few days on Tuhua (Mayor Island) in the Bay of Plenty. One observation that repeatedly struck me there was the abnormally large size of leaves on Tuhua of many native species I was familiar with on the mainland. Such observations of gigantism of island flora are not uncommon for our northern offshore islands, e.g. Beever (1986). Cox and Burns (2017) have now added to these observations by comparing seed and leaf size, and stature of 30 plants on the Chatham Islands with their closest relatives on the mainland. Again, they found that Chatham Island plants had significantly larger seeds and leaves than mainland relatives, although stature wasn't that different. They also discovered, however, that this variation in size was associated with how long each species had been on the Chatham Islands (divergence times). Although island environments are often more suitable for plant growth than mainland sites, these differences in size appear to be genetic, suggesting selection for size occurs on islands. One suggestion is that the processes of herbivory and seed predation may not be as intense on islands (i.e., only a subset of potential herbivores may be present), leading to larger leaves and seeds. Nevertheless, developing an understanding for these intriguing differences in island floras is still an open question needing further attention.

Beever RE (1986) Large-leaved plants of northern offshore islands, New Zealand. In: Wright AE, Beever RE (eds). The offshore islands of northern New Zealand. New Zealand Department of Lands and Survey Information Series vol. 16, pp 51–61.
Cox BTM, Burns KC 2017. Convergent evolution of gigantism in the flora of an isolated archipelago. Evolutionary Ecology 31: 741-752.

4. Attack of the giant willow aphid

The giant willow aphid (*Tuberolachnus salignus*) was confirmed in New Zealand in December 2013, but is already widespread and abundant here. It depressingly adds to New Zealand's already long list of invasive organisms that cause unwanted impacts. Sopow *et al.* (2017) have usefully summarised its impacts and future control options. As expected from its name, it feeds predominantly on willow (*Salix* spp.) but has also been found on poplars and, in one case, *Coprosma macrocarpa*. Although often willows are weeds in New Zealand, their use for erosion control and riparian stabilisation in rural areas means that the arrival of this aphid will not be welcomed. The aphid appears to reduce growth and survival rates of its host trees, particularly when the aphid is at high densities. Honeydew from the giant willow aphids can also be used by honey bees, but honey produced from this honeydew is sour and contains the trisaccharide melzitose, which crystallises out of the honey during the development process leading to granular honey. These granules reduce extraction efficiencies and reduce the honey quality considerably. The honeydew from the aphids also attracts and supports *Vespula* spp. wasp populations, so exacerbating the impacts of wasps in rural areas. The excess honeydew dropping from infested willows can also be a nuisance particularly when it grows sooty mould. More unanticipated impacts are likely as New

Zealanders learn to live with this pest. Options for control are being investigated and include possible biological control by a parasitoid and a ladybird beetle predator, but it is still early in the response to this invasion.

Sopow SL, Jones T, McIvor I, McLean JA, Pawson SM 2017. Potential impacts of (giant willow aphid) in New Zealand and options for control. Agricultural and Forest Entomology 19: 225-234.

5. Ecology inside a plant: introducing endophytes from mānuka controls plant disease in grapes

As with other large organisms, plants contain a community of endosymbionts, mostly fungi and bacteria, which live within them without causing apparent disease. To the contrary, some of these endophytes apparently assist growth and/or improve the plant's ability to withstand physical stress or resist biotic infection. One such example of an endophyte increasing plant resistance to disease is shown by the action of a bacterial endophyte of mānuka. This endophyte apparently is antagonistic towards fungal pathogens in the family Botryosphaeriaceae, a group that causes cankers and dieback of grape vines. Wicaksono *et al.* (2017) recently experimented with transferring these endophytes from mānuka to grapes for disease control. Their results were stunning in that the transferred endophytes colonised the grape vines, spread through the vines, and developed what appear to be persistent colonies. Not only this, but these endophytes exerted their biocontrol activity against the disease organisms targeted for grapes. Such advances are exciting and pave the way for sustainable approaches that reduce dependence on fungicides and other more expensive (both financially and environmentally) treatments.

Wicaksono WA, Eirian Jones E, Monk J, Ridgway HJ 2017. Using bacterial endophytes from a New Zealand native medicinal plant for control of grapevine trunk diseases. Biological Control 114: 65-72.

News from NZES council

Complied by Cate Macinnis-Ng

Tēnā koutou katou,
I am delighted to be serving as the 7th female president of the NZES and I look forward to working with the council team listed below.

2017/18 Council
President - Cate Macinnis-Ng (UoAuckland)
Vice President - Tim Curran (Lincoln)
Treasurer - Chris Bycroft (Wildlands)
Secretary - Kiri Wallace (Waikato)
Council members - Martin Bader (AUT), Bruce Burns (UoA), Simon Moore (DOC), Rachel Nepia (Waikato)
Immediate Past President - Clayson Howell (DOC)
Journal Editor - George Perry (ex-officio, UoA)
Newsletter Editor - Angela Simpson (ex-officio, Wildlands)
Membership officer - Gretchen Brownstein (ex-officio, Manaaki Whenua)

Welcome aboard to Kiri, Martin, Simon and Rachel. Bruce rejoins council and thanks to Tim, Chris, George, Angela and Gretchen for ongoing contributions.

We are grateful for the tireless work of our outgoing council members. Clayson has been on council for a decade, first as treasurer (eight years), then as president for the last two years. He doesn't get to leave us yet as he remains engaged as immediate past president. Debra Wotton has been a council member for the last four years and was newsletter editor for three years before that. Debra has most recently acted as awards coordinator, but she always brought careful and strategic thinking to council. I have learnt a lot from Debra and I will miss her attention to detail and her substantial efforts towards all council activities. Sandra Anderson has ably supported council activities by acting as secretary for the last two years. Sandra was thrown into the role but quickly picked up the processes and has left big shoes for Kiri to fill! Fleur Maseyk spent two years on council after a previous term some years ago. Fleur's contributions to submissions and strategic documents have been very valuable. Jamie Wood has also been on council for the last two years. Jamie has made a phenomenal contribution in his role as webmaster. We appreciate the amount of work Jamie has into maintaining and further developing the website.

A warm thank you to all our outgoing council members. Ka pai Clayson, Debra, Sandra, Jamie and Fleur!

EcoTAS2017

The recent EcoTAS conference with the Ecological Society of Australia in the Hunter Valley was a great success. Thanks to all those NZES members who joined us for some superb science and great social interactions. We were a small bunch of about 40 NZES members at the conference but we made our presence known, particularly at the conference dinner. It was a very Australian conference with warm weather, visits by wallabies and even a goanna sighting.

Congratulations to Rachel Nepia on winning the NZ Journal of Zoology Award for best student presentation in the scope of the NZJZ. Rachel spoke about her bee research in her talk entitled 'Understanding the role and impact of introduced honey bees in native New Zealand submontane forest'. Thank you to RSNZ publishing for their generous support of this award.

The ESA allowed me to join their planning day before the conference began on Sunday 26th November. It was a great opportunity to learn about ESA processes and activities. Thanks to Don, Gail and the board for having me. By mutual agreement, we have revised the agreement to shift joint conferences from every four years to every five years. We look forward to hosting the next joint conference in Aotearoa in 2022.

Next year, we will be in Wellington and planning is already underway for an engaging conference in November.

The year ahead

2018 is an exciting year for NZES. We will be considering ways we can improve our services to members based on our recent member survey. We are also refreshing our strategic plans and we have a new equity and diversity statement to share with you (see later in the newsletter). We are calling for comment on the equity and diversity statement so please let us know what you think. We will also be producing a communication about the future of the journal for member consultation. Some of you may have heard some talk about the journal. We will produce a document laying out the facts, so members have the full details. Once the document is prepared, we will distribute to members for consultation before any further decisions are made.

If you'd like to get in touch about any matter, my email address is c.macinnis-ng@auckland.ac.nz

Meri Kirihimete me te Hape Nū Ia!
Mauri ora,
Cate Macinnis-Ng

2017 New Zealand Ecological Society award winners

Te Tohu Taiao Award

Awarded to Dr Graeme Elliott, nominated by John Innes, Susan Walker and James Griffiths.

Graeme is well-known for his career goal of putting himself out of a job as he works towards sustainable conservation of native birds, bats, lizards and snails throughout New Zealand's mainland forests. Graeme has published over 60 peer-reviewed papers and more than 80 reports and technical papers, but he is best known for his steely determination, 'rascally' leadership style and practical approach to conservation though his decades of work with the Department of Conservation.

From the nomination –

"Graeme is among New Zealand's most highly regarded and capable ecologists. His breadth of field, mathematical and computing, innovation (including in electronics!) and communication skills could have taken him in many directions. We are fortunate that he has used them astutely to understand South Island forest ecosystems, and to make meaningful change for threatened native species in the real world of operational conservation management.

Graeme is best known for being a cornerstone of DOC's Battle for our Birds (BFOB) in recent years. He both provided technical guidance to operational management and fronted the media for the largest coordinated predator control programs ever undertaken across New Zealand forests. Battle for our Birds is a colossal team effort, but it simply could not have happened without Graeme.

But in addition to the immediate frenetic demands of those operational programs, Graeme is behind the scenes designing and running major programs of field research into masting and the ecological benefits of 1080. This research gathers critical data for predicting future predator explosions and maximises learning from the operational programs, so that DOC's forest predator control becomes more sophisticated and more cost effective every year. BFOB is currently broadening its scope beyond masting beech into large-scale pest control operations in both beech and podocarp-broadleaved forests in both North and South Islands, and is therefore unarguably the largest scale and most important biodiversity-targeted pest control programme in the country.

Since his MSc on banded rail and PhD on mohua in the 1980s, Graeme has amassed a wealth of hands on experience and knowledge of native bird ecology and predator control. He has made, and continues to make major contributions to the recovery of specific taxa including kea, weka, rifleman, and rock wren, and has long-standing service on whio, mohua and kakapo Recovery Groups. And not satisfied, he is always up for a new challenge, such as cracking the conundrum of conservation management of great spotted kiwi.

Always in hot demand, Graeme never seems too busy or unavailable to give a raft of advice to others, be it help with modelling, databases, bird ecology, or predator control. That is, if you ring him up. And unless you try to get hold of Graeme in his other life on the subantarctic islands, where on their own personal initiative, he and his partner Kath Walker have spent six weeks every year since 1991 monitoring populations of wandering albatrosses. By documenting dramatic shifts in the mortality and foraging ranges of females since 2004, this work is a foundation for conservation management of these Nationally Critical threatened species.

It has been more important to Graeme to turn science into time-critical, on-the-ground outcomes than publications. There is a NZ ecological-community legend that Graeme stops projects as soon as answers have been found and implemented, but often before they have been published. He is sensitive about this, but in making this nomination we unearthed an entirely impressive publication record (see Bibliography). This nevertheless represents only the tip of the iceberg of data that he has collected, analysed, used, and communicated.

Solid design is a hallmark of the countless databases Graeme has had a hand in, and we look forward to more of the fruits of this prodigious effort emerging into the conservation and ecology literature in coming years. Graeme is currently working with his team to prepare papers on the survival and productivity of weka, rifleman, kaka and rock wren over 6 years in environments regularly treated or not treated with aerial 1080; and the response of the forest bird community to aerial 1080 based on bird counts from standardized recordings of bird calls.

Collegiality is central to Graeme's working style, and the ground floor of his Nelson DOC office is always a hive of research activity. The aggregation of early stage researchers, visiting students, ecologists and technicians around him is testimony to his skill as collaborator and mentor. Other researchers gravitate to his combination of excellence, curiosity, open mindedness, inventiveness, preparedness to muck-in, and sense of humour.

Solid, straightforward, spin-free advice is a hallmark of his communication style. Graeme, with his ego firmly out of sight, easily wins trust. He takes people with him by plainly stating what we don't know as well as what we do know, and admitting mistakes made alongside celebrating the significant advances.

We think there are few New Zealand ecologists as deserving of recognition for outstanding achievement in the study and application of ecological science. We hope this award will encourage Graeme to keep doing what he does best, for example:

- Being famously plain speaking, and making ecological science common sense to everyone from ministers to the most intransigent of 1080 sceptics
- Using sound experimental design principles to design ambitious data gathering initiatives
- Inspiring and leading large teams of field-hardy folk in gathering key ecological data
- Applying his prodigious maths and computing skills to those data to help make decisions on where best to spend conservation dollars
- Interpreting and communicating complex technical information and research data in accessible form
- Climbing rimu trees in the rain in his undies, to peer at the kaka chicks his science has done so much to save."

We are delighted to present the Te Tohu Taiao award to Graeme for his outstanding contributions to ecology and conservation. He is the first recipient outside a university or Landcare Research - Maanaki Whenua. Congratulations Graeme!

Ecology in Action Award

Awarded to Richelle Kahui McConnell, nominated by Mel Galbraith, Nick Waipara and Dan Blanchon.

From Mel's nomination –

"Richelle's philosophy of developing applied ecological outcomes within the indigenous realm of Aotearoa, combining ecological science and kaupapa Māori science, are well demonstrated by her achievements which I believe warrant recognition. Very evident is her commitment to empowering communities and youth to achieve positive environmental outcomes. Richelle is a visionary, and perhaps her passion for the environment is best summed up as a drive to protect and restore the mauri of earth systems, globally.

With a Bachelor of Resource Management, specialising in ecological restoration and environmental law, Richelle applies a unique approach to merging dual-world outcomes, utilizing traditional science alongside mātauranga and cultural health indicators. She is highly skilled at weaving science and mātauranga into innovative frameworks and research that are respectful of people and place, with the ultimate outcome of restoring te tohu o te mauri (the signs of essence of life). This approach to protection of the environment is underpinned by her

knowledge of ecological systems, and her whakapapa, and is the motivation to be innovative and to respond to passion of the people.

Three examples of contributions:

- one of the Mātauranga Māori Technical Writers of the first New Zealand Marine Spatial Plan (2016) for the Hauraki Gulf
- development and management of the multi-award winning Ōkahu Catchment Ecological Restoration Plan on behalf of Ngāti Whātua Ōrākei that addresses environmental and social capital outcomes for the restoration of mauri of Ōkahu Bay, Auckland
- working with in collaboration with the University of Otago and NIWA to define and implement a monitoring methodology to identify oceanic acidification implications within the Waitemata Harbour and Tikapa Moana (the First of Thames) which encompasses the transference of empirical data and mātauranga.

Richelle's philosophy of developing applied ecological outcomes within the indigenous realm of Aotearoa, combining ecological science and kaupapa Māori science, are well demonstrated by her achievements which I believe warrant recognition. Very evident is her commitment to empowering communities and youth to achieve positive environmental outcomes. Richelle is a visionary, and perhaps her passion for the environment is best summed up as a drive to protect and restore the mauri of earth systems, globally."

Richelle is the first recipient of the Ecology in Action award to receive the award specifically for her application of mātauranga in ecological restoration. We are delighted to acknowledge and celebrate Richelle's unique contribution to ecology by awarding her the Ecology in Action Award for 2017.

NZES Award for Best Publication in the New Zealand Journal of Ecology by a New Researcher

The early career publication award went to Jay Ruffell for his paper, co-authored with Raphael Didham, 'Conserving biodiversity in New Zealand's lowland landscapes: does forest cover or pest control have a greater effect on native birds?' In this paper the authors evaluate how native bird taxa respond to control of invasive species and native forest loss across nearly 200 sites on mainland northern NZ. They conclude that the benefits of restoring forest cover and controlling invasive species will depend on the context in which they are occurring. Congratulations to Jay for this engaging piece of research!

New Zealand Ecological Society diversity statement 2017

Prepared by Cate Macinnis-Ng in consultation with 2017 NZES Council.

Rationale

Progress in science (and ecology in particular) is enhanced by the range of perspectives that come from diverse, heterogeneous collaborations. To address our greatest challenges in ecology, we need a highly diverse and socially

inclusive workforce to enhance creativity and innovation. We also need to make sure our science is relevant and accessible to all parts of society.

An analysis of diversity in NZES was presented as a poster by Wehi, Anderson, Lee and Wilson at the 2015 conference in Christchurch. Notably, at the time, only one of 23 life members was female, there was a strong male gender bias in winners of the Te Tohu Taiao award, and presidents have predominantly been male, while secretaries are predominantly female. Of 994 papers in the New Zealand Journal of Ecology, only 16 included the terms 'Māori' 'culture' and/or 'mātauranga'. While there has been some progress since this presentation, for instance a second female life member, Shona Myers, was elected in 2016, and Jacqueline Beggs received the Te Tohu Taiao award in 2015, there is still much to do to address the issue of a lack of diversity.

The NZES council has prepared an equity and diversity statement and action plan to address the issue of underrepresentation of minority groups in our society. We welcome member feedback on the attached document and we look forward to working with the membership to enact this strategy.

Diversity statement

For the best outcomes for ecology and conservation in New Zealand, the NZES is committed to active enhancement of equity and diversity within the society and more broadly.

Our commitment

The New Zealand Ecological Society aims to promote the study of ecology and the application of ecological knowledge in all its aspects. The society also strives to foster an inclusive and supportive culture for students, scientists, professionals and other people interested in ecology.

As a society, we embrace the rich heritage of Māori culture in Aotearoa New Zealand and we recognise our obligations under the Treaty of Waitangi. We acknowledge the wisdom of mātauranga Māori and the role that it plays in protecting and restoring our unique ecosystems.

We welcome participation by all individuals regardless of age, culture, ethnicity, gender identity or expression, physical or mental difference, politics, race, religion, sex, sexual orientation, socio-economic status or subculture.

The society is committed to actively addressing bias against women, Māori, Pacifica and other under-represented groups. We will actively work towards enhancing opportunities for under-represented groups by doing the following things.

1. We encourage all members to nominate those from under-represented groups for awards and prizes.
2. We will ask organisers of our annual conference to consider diversity when inviting speakers and session chairs. We aim for at least 40% of panel members to be female and there should also be an ethnic mix on all panels.
3. We will develop a code of conduct for conferences.

4. We will establish a mentoring scheme for members who identify as under-represented minorities.
5. We will collect data on gender and ethnic diversity of our members and we will publish this annually as anonymised data.
6. We will continue the NZ Journal of Ecology reviewer mentoring scheme.
7. We will develop a database of speakers that can be used to help identify suitable invitees from under-represented groups and update links to similar databases.
8. We will endeavour to support someone from an under-represented group with a travel award for our annual conference.
9. We will do a stocktake of diversity of academics, students and scientists in crown research institutions in ecology on a regular basis.
10. We will review this diversity statement and action plan every three years.

News from across the ditch

The Ecological Society of Australia November bulletin included articles about the benefits and opportunities of using social media, interdisciplinary research, NECTAR - a collaboration tools and resources website, and an update from a threatened species forum. You can read more online here:
https://www.ecolsoc.org.au/files/bulletins/bulletin_nov17.pdf

Tribute to Roger Michael Greenwood (1920–2017)

Anthea McClelland, Chair, Forest & Bird Manawatū
With contributions from Jill Rapson, Massey University

Roger Michael Greenwood, known as Michael, was best known among New Zealand ecologists for his work with colleague Ian Atkinson on developing the hypothesis on the influence of moa browsing on the evolution of divaricating plants[1,2]. Michael's papers on this topic have been cited over 300 times and stimulated considerable interest among both amateurs and professionals. The hypothesis has led to several research projects on the topic, to date largely supporting it.

A founding member of the New Zealand Ecological Society, Michael was awarded Honorary Life Membership in 2009 for his scientific achievement, contribution to Keeble's Bush and contribution to restoration ecology. Michael started planting natives long before the science of restoration ecology was even developed, planting up an area adjacent to his house on Atawhai Road in Palmerston North, and experimenting there using a variety of natives. His modest report in 2004[3] on the first 50 years of this planting shows his attention to detail and love of the plants. Its scientific and historical value mean this area has been awarded the protection of a QEII covenant. From this planting and his own knowledge of plant variation in the field, Michael practised eco-sourcing long before the term was coined. All of his later plantings at Keeble's Bush and in the Greenwood scarp were carefully sourced from material as local as possible.

Michael was born in New Plymouth and educated in Wanganui and Canterbury. After university, in 1943, he joined the Plant Chemistry Division, DSIR, where he worked (apart from 18 months at the University of Western Australia when he was awarded a fellowship in Soil Microbiology) until he retired in 1980. During this time, his work at DSIR centred on isolating and typing Rhizobium bacterial strains to find their ability to nodulate their specific legume hosts. 'NZ 2037', the most famous, was one of his strains that has been used widely for inoculating white clover. Seed coated with Rhizobium provides young clover plants with a kick-start and ability to fix nitrogen. This was an important development and part of the reason why our pastures are internationally considered so successful. During his time at the University of Western Australia Michael spent, along with his family, as much time as possible exploring the flora of Western Australia, which greatly influenced his thinking about floras and their evolution.

Before Michael retired, he became interested in Keeble's Bush, which is close to Palmerston North. Keeble's Bush is widely considered the best remnant of lowland podocarp-broadleaved forest in the Manawatu. In his will, Charles Keeble reserved it for scientific purposes only and, in the decade after Charles died in 1971, Michael worked to form a Charitable Trust to look after this well-preserved 17 ha bush remnant. In 1985, Michael became the inaugural Chairman of the C.T. Keeble Memorial Forest Trust, served as chair until 2001 and remained on the trust until 2012. In 1980, he was offered a 1.8 ha scarp downstream from Keeble's Bush to plant in native trees and since it had a wide range of differing habitats, he decided to take it on as a retirement project. Michael's specific aim, which he followed in this restoration programme, was to propagate and establish species that had become very rare in Keeble's Bush, thus securing their future in the Manawatu District. He continued growing and planting in this area over the next 30 years. His efforts inspired the planting of the intervening area, the Link, by Peter van Essen, starting in 1996.

Michael was a tireless advocate for protecting native forests and bush remnants. In 1984, he was involved with the 'Save the Odlins Block Committee' which, through urgent negotiation, saved a 2000-hectare area of native bush at Tokomaru from being logged; it has now been returned to the Tararura Forest Park. He also contributed to the understanding and protection of most other remnants in the Manawatu through sharing his knowledge of New Zealand's flora and vegetation. In 1993, he was awarded the prestigious Loder Cup, New Zealand's premier conservation award, which celebrates our unique and distinctive flora and honours those who make outstanding contributions to its conservation.

Michael was a Life Member of Forest and Bird. He was one of the foundation members of the Manawatu Branch when it was created in November 1957 and served on the committee for over 20 years. He, together with Mrs Una Esler, formed the Junior Naturalists, which was designed to get children, 8–16 years old, in closer touch with conservation through recognition of native flora and fauna. In addition, he was a constant participant in many of the meetings and field excursions of Forest and Bird, and the Manawatu Botanical Society over the decades. He was also a member of the Pukeiti Rhododendron Trust, the Wellington Botanical Society and the Manawatu Museum Society, and was a long-standing member of the local branch of the Royal Society of New Zealand and the NZ Institute of Chemistry.

Though largely unacknowledged, Michael is probably New Zealand's first and foremost restoration ecologist, as well as being an inspired scientist, an active and effective conservationist, and a true gentleman and friend. He will be greatly missed.

References

1. Greenwood, RM; Atkinson, IAE. (1977) Evolution of divaricating plants in New Zealand in relation to moa browsing. Proceedings of the New Zealand Ecological Society 24, 21–33.

2. Atkinson, IAE; Greenwood, RM (1989) Relationships between moas and plants. New Zealand Journal of Ecology 12(s), 67-96.

3. Greenwood, RM (2004) Indigenous planting after 50 years. New Zealand Botanical Society Newsletter, 78, 11-16.

Transforming Biodiversity conference report

Ben Paris
Senior Biodiversity Advisor, Auckland Council

The Transforming Biodiversity: Challenging the boundaries conference was held in Napier, on 14-16 November 2017. It was an interesting conference covering topics such as:

- how pest management can be integrated across a landscape scale
- biodiversity outcomes
- environmental education to benefit biodiversity

- social science research about communicating with public about new technology and pest management plans
- the use of new trapping technologies

The presentations are available to view at capetocity.co.nz/conference. The Twitter chain provided a great summary and can be found by following this link: https://storify.com/NZBatman/transforming-biodiversity-challenging-the-boundari

In the last few days we've also been working on some of our own story-telling with the media about urban dotterels and bats. The NZ dotterels have turned up at shopping malls, boat yards and urban parks over the last few years. Here are links to these stories: https://www.tvnz.co.nz/one-news/new-zealand/all-us-guardians-here-auckland-council-and-locals-protecting-endangered-dotterel-birds-in-urban-environment and https://www.stuff.co.nz/auckland/local-news/central-leader/99094192/dotterel-popping-up-in-urban-areas-across-auckland-has-conservationists-worried.

Community bat detectors at Auckland Council have become increasingly popular this year with over 50 on the wait list now. Great that people want to look for long-tailed bats in their backyards, schools and parks. Here are links to these stories: http://www.newshub.co.nz/home/new-zealand/2017/11/long-tailed-bats-keep-low-profile-in-west-auckland-stakeout.html and https://soundcloud.com/nzbatman/the-breeze-part-1.

Postgraduate profile: Elizabeth E. Elliot

PhD Candidate, University of Waikato, New Zealand
I am currently half-way through my PhD work on the benefits of urban restoration to native birds and to people, supervised by Bruce Clarkson, John Innes, Ottilie Stolte and Chaitanya Joshi. Having grown up in Wrocław, Poland's fourth largest city, I have personal experience of how the wildlife and greenspaces of a city can awaken awe and fascination with nature that will result in a child growing up to be a conservationist. I am convinced of the need to promote ecological restoration in urban areas, bringing back and protecting native species in the places where most people now live and work.

Studies have highlighted the great potential cities have to act as refuges for native flora and fauna. Habitat restoration in cities has been championed as a means to improve bird conservation and reconnect city residents with native nature.

My research combines ecological and social science to evaluate the contribution that restored native forests in urban areas in New Zealand can make to native bird conservation and reconnecting urban residents with nature. The purpose of the research is to identify which factors among local habitat variables, landscape characteristics, site age and predation levels determine the ability of native New Zealand bush birds to benefit from urban restored forests. The study further investigates how the resources provided by these forests change over time since restoration.

Using qualitative, semi-structured interviews, the study explores the question whether frequent use of restored forest, either as a restoration volunteer or simply as a city resident, can re-establish a relationship between people and native nature and lead to greater support for biodiversity conservation. An online survey investigates the role native birds play in re-establishing this relationship and, more specifically, whether appreciation for native birds can promote wildlife gardening efforts and other pro-conservation behaviour.

Elizabeth Elliot running a bird count transect in the Hakarimata Range, north-west of Hamilton.

Other recent publications on New Zealand ecology

Bruce Burns

Apologies if I have missed your publication in my search. If I have, please send a citation to **b.burns@auckland.ac.nz** so I can include it in the next Ecotones.

Bosley KM, Copeman LA, Dumbauld BR, Bosley KL 2017. Identification of burrowing shrimp food sources along an estuarine gradient using fatty acid analysis and stable isotope ratios. Estuaries and Coasts 40: 1113-1130.

Brandt AJ, Lee WG, Tanentzap AJ, Hayman E, Fukami T, Anderson BJ 2017. Evolutionary priority effects persist in anthropogenically created habitats, but not through nonnative plant invasion. New Phytologist 215: 865-876.

Burge OR, Kelly D, Wilmshurst JM 2017. Interspecies interference and monitoring duration affect detection rates in chew cards. Austral Ecology 42: 522-532.

Akbaripasand A, Closs GP 2018. Effects of food supply and stream physical characteristics on habitat use of a stream-dwelling fish. Ecology of Freshwater Fish 27: 270-279.

Armstrong DP, Le Coeur C, Thorne JM, Panfylova J, Lovegrove TG, Frost PGH, Ewen JG 2017. Using Bayesian mark-recapture modelling to quantify the strength and duration of post-release effects in reintroduced populations. Biological Conservation 215: 39-45.

Avila GA, Withers TM, Holwell GI 2017. Courtship and mating behaviour in the parasitoid wasp *Cotesia urabae* (Hymenoptera: Braconidae): mate location and the influence of competition and body size on male mating success. Bulletin of Entomological Research 107: 439-447.

Ball OJ-P, Webber WR, Shepherd LD 2017. New species and phylogeny of landhoppers in the genus *Waematau* Duncan, 1994 (Crustacea: Amphipoda: Talitridae) from northern New Zealand. Zootaxa 4306: 151-207.

Banker SE, Wade EJ, Simon C 2017. The confounding effects of hybridization on phylogenetic estimation in the New Zealand cicada genus *Kikihia*. Molecular Phylogenetics and Evolution 116: 172-181.

Be M, Chase KD, Brockerhoff EG 2017. Use of shelterbelt pine trees as 'stepping stones' by *Hylastes ater* in agricultural landscapes. New Zealand Entomologist 40: 86-91.

Berthelsen A, Atalah J, Clark D, Goodwin E, Patterson M, Sinner J 2018. Relationships between biotic indices, multiple stressors and natural variability in New Zealand estuaries. Ecological Indicators., 85: 634-643.

Bierschenk AM, Savage C, Matthaei CD 2017. Intensity of catchment land use influences biological traits of benthic invertebrates along a freshwater-marine continuum. Limnology and Oceanography 62: S292-S308.

Burge OR, Bodmin KA, Clarkson BR, Bartlam S, Watts CH, Tanner CC 2017. Glyphosate redirects wetland vegetation trajectory following willow invasion. Applied Vegetation Science 20: 620-630.

Cirtwill AR, Lagrue C, Poulin R, Stouffer DB 2017. Host taxonomy constrains the properties of trophic transmission routes for parasites in lake food webs. Ecology 98: 2401-2412.

Cundy ME, Santana-Garcon J, Ferguson AM, Fairclough DV, Jennings P, Harvey ES 2017. Baited remote underwater stereo-video outperforms baited downward-facing single-video for assessments of fish diversity, abundance and size composition. Journal of Experimental Marine Biology and Ecology 497: 19-32.

Dawson SM, Bowman MH, Leunissen E, Sirguey P 2017. Inexpensive aerial photogrammetry for studies of whales and large marine animals. Frontiers in Marine Science 4: art. no. 366.

Dowsett CA, James TK 2017. Is heat treatment a viable option for destroying weed seeds in biosecurity risk goods? New Zealand Plant Protection 70: 25-30.

Egli D, Olckers T 2017. Establishment and impact of insect agents deployed for the biological control of invasive Asteraceae: prospects for the control of *Senecio madagascariensis*. BioControl 62: 681-692.

Fahey B, Payne J 2017. The Glendhu experimental catchment study, upland east Otago, New Zealand: 34 years of hydrological observations on the afforestation of tussock grasslands. Hydrological Processes 31: 2921-2934.

Farrar DR, Stensvold MC 2017. Observations on bipolar disjunctions of moonwort ferns (*Botrychium*, Ophioglossaceae). American Journal of Botany 104: 1675-1679.

Feller IC, Ball MC, Ellis JI, Lovelock CE, Reef R 2017. Interactive effects of climate and nutrient enrichment on patterns of herbivory by different feeding guilds in mangrove forests. Global Ecology and Biogeography 26: 1326-1338.

Ganivet E, Moltchanova E, Bloomberg M 2017. Developing a framework for growth modelling in a managed southern black beech forest. New Zealand Journal of Forestry Science 47: art. no. 11.

Garnock-Jones PJ 2017. New Zealand botanical heritage, sub-disciplines and Leonard Cockayne's views on species. Journal of the Royal Society of New Zealand 47: 232-243.

González-Chang M, Boyer S, Creasy GL, Lefort M-C, Wratten SD 2017. Mussel shell mulch can increase vineyard sustainability by changing scarab pest behaviour. Agronomy for Sustainable Development 37: art. no. 42.

Gruber MAM, Cooling M, Baty JW, Buckley K, Friedlander A, Quinn O, Russell JFEJ, Sébastien A, Lester PJ 2017. Single-stranded RNA viruses infecting the invasive Argentine ant, *Linepithema humile*. Scientific Reports 7: art. no. 3304.

Guerra M, Hickmott L, van der Hoop J, Rayment W, Leunissen E, Slooten E, Moore M 2017. Diverse foraging strategies by a marine top predator: Sperm whales exploit pelagic and demersal habitats in the Kaikōura submarine canyon. Deep-Sea Research Part I: Oceanographic Research Papers 128: 98-108.
Healey MR, Hing JS, Dey CJ, Quinn JS 2017. A novel PCR-based genetic marker shows that sex of offspring does not account for hatch-order effects on growth, survival and dominance in Pūkeko *Porphyrio melanotus melanotus*. Ibis 159: 725-733.
Heugten RAV, Hale ML, Bryan S, Griensven BV, Satter S, Brailsford L, Buckley HL 2017. Isolation of polymorphic microsatellite loci in the New Zealand endemic sand-binder, *Ficinia spiralis* (Cyperaceae). Applications in Plant Sciences 5 (9): art. no. 1700039.
Hodge S, Curtis N, Vink CJ, Marris J, Brown SDJ 2017. Native arthropods on exotic sand dune flowers: consideration of sample size and number for investigating rare species and sparse communities. Arthropod-Plant Interactions 11: 691-701.
Hølleland H 2017. Caged for protection: Exploring the paradoxes of protecting New Zealand's *Dactylanthus taylorii*. Environment and History 23: 545-567.
Howlett BG, Read SFJ, Jesson LK, Benoist A, Evans LE, Pattemore DE 2017. Diurnal insect visitation patterns to 'Hayward' kiwifruit flowers in New Zealand. New Zealand Plant Protection 70: 52-57.
Johnson JS, Clements KD, Raubenheimer D 2017. The nutritional basis of seasonal selective feeding by a marine herbivorous fish. Marine Biology 164 (10): art. no. 201.
Johnston PR, Weir BS, Cooper JA 2017. Open data on fungi and bacterial plant pathogens in New Zealand. Mycology 8: 59-66.
Jones HFE, Özkundakci D, McBride CG, Pilditch CA, Allan MG, Hamilton DP 2018. Modelling interactive effects of multiple disturbances on a coastal lake ecosystem: Implications for management. Journal of Environmental Management 207: 444-455.
Julian JP, De Beurs KM, Owsley B, Davies-Colley RJ, Ausseil A-GE 2017. River water quality changes in New Zealand over 26 years: Response to land use intensity. Hydrology and Earth System Sciences 21: 1149-1171.
Kelly CD 2017. Sexually dimorphic effect of mating on the melanotic encapsulation response in the harem-defending Wellington tree weta, *Hemideina crassidens* (Orthoptera: Tettigonioidea: Anostostomatidae). Ethology 123: 785-792.
Lamb SD, Taylor HR, Holtmann B, Santos ESA, Tamayo JH, Johnson SL, Nakagawa S, Lara CE 2017. Coprophagy in dunnocks (*Prunella modularis*): a frequent behavior in females, infrequent in males, and very unusual in nestlings. Wilson Journal of Ornithology 129: 615-620.
Laughlin DC, Lusk CH, Bellingham PJ, Burslem DFRP, Simpson AH, Kramer-Walter KR 2017. Intraspecific trait variation can weaken interspecific trait correlations when assessing the whole-plant economic spectrum. Ecology and Evolution 7: 8936-8949.
Le Port A, Montgomery JC, Smith ANH, Croucher AE, McLeod IM, Lavery SD 2017. Temperate marine protected area provides recruitment subsidies to local fisheries. Proceedings of the Royal Society B: Biological Sciences 284: art. no. 20171300.
Lentini PE, Stirnemann IA, Stojanovic D, Worthy TH, Stein JA 2018. Using fossil records to inform reintroduction of the kakapo as a refugee species. Biological Conservation 217: 157-165.
Lyver POB, Timoti P, Jones CJ, Richardson SJ, Tahi BL, Greenhalgh S 2017. An indigenous community-based monitoring system for assessing forest health in New Zealand. Biodiversity and Conservation 26: 3183-3212.
Macinnis-Ng C, Wyse SV, Webb T, Taylor D, Schwendenmann L 2017. Sustained carbon uptake in a mixed age southern conifer forest. Trees - Structure and Function 31: 967-980.
Major RN, Ogilvie SC, Jeffs AG 2017. Laboratory investigations of the foraging behaviour of New Zealand scampi. Journal of Experimental Marine Biology and Ecology 497: 99-106.

Mathews G, Derraik JGB, Walker M, Knox R, Barraclough RK 2017. Morphological variation in invasive mosquito *Culex quinquefasciatus* Say (Diptera: Culicidae) larvae from an urban site in Auckland, New Zealand. New Zealand Journal of Zoology 44: 342-353.
McBrydie HM, Howlett BG, Pattemore DE 2017. Relative abundance and movement of flower visitors within 'Black Doris' plum orchards in Hawke's Bay, New Zealand. New Zealand Plant Protection 70: 58-62.
Miller KA, Duran A, Melville J, Thompson MB, Chapple DG 2017. Sex-specific shifts in morphology and colour pattern polymorphism during range expansion of an invasive lizard. Journal of Biogeography 44: 2778-2788.
Myers SS, Holwell GI, Buckley TR 2017. Genetic and morphometric data demonstrate alternative consequences of secondary contact in *Clitarchus* stick insects. Journal of Biogeography 44: 2069-2081.
Nboyine JA, Saville D, Boyer S, Cruickshank RH, Wratten SD 2017. When host-plant resistance to a pest leads to higher plant damage. Journal of Pest Science 90: 173-182.
Noben S, Kessler M, Quandt D, Weigand A, Wicke S, Krug M, Lehnert M 2017. Biogeography of the Gondwanan tree fern family Dicksoniaceae - A tale of vicariance, dispersal and extinction. Journal of Biogeography 44: 2648-2659.
Paynter Q, Konuma A, Dodd SL, Hill RL, Field L, Gourlay AH, Winks CJ 2017. Prospects for biological control of *Lonicera japonica* (Caprifoliaceae) in New Zealand. Biological Control 105: 56-65.
Pearse GD, Morgenroth J, Watt MS, Dash JP 2017. Optimising prediction of forest leaf area index from discrete airborne lidar. Remote Sensing of Environment 200: 220-239.
Perry EK, Digby A, Taylor MW 2017. The low-diversity fecal microbiota of the critically endangered kakapo is robust to anthropogenic dietary and geographic influences. Frontiers in Microbiology 8.
Putland RL, Ranjard L, Constantine R, Radford CA 2018. A hidden Markov model approach to indicate Bryde's whale acoustics. Ecological Indicators 84: 479-487.
Pyšek P, Pergl J, Essl F, Lenzner B, Dawson W, Kreft H, Weigelt P, Winter M, Kartesz J, Nishino M, Antonova LA, Barcelona JF, Cabezas FJ, Cárdenas D, Cárdenas-Toro J, Castaño N, Chacón E, Chatelain C, Dullinger S, Ebel AL, Figueiredo E, Fuentes N, Genovesi P, Groom QJ, Henderson L, Inderjit Kupriyanov A, Masciadri S, Maurel N, Meerman J, Morozova O, Moser D, Nickrent D, Nowak PM, Pagad S, Patzelt A, Pelser PB, Seebens H, Shu W-S, Thomas J, Velayos M, Weber E, Wieringa JJ, Baptiste MP, Van Kleunen M 2017. Naturalized alien flora of the world: Species diversity, taxonomic and phylogenetic patterns, geographic distribution and global hotspots of plant invasion. Preslia 89: 203-274.
Richards NK, Ehau-Taumaunu H, Ferguson CM 2017. DNA from 33-year-old dried moth specimens help confirm larva as the elusive *Wiseana fuliginea*. New Zealand Plant Protection 70: 235-240.
Ricotta C, Rapson GL, Asmus U, Pyšek P, Kühn I, La Sorte FA, Thompson K 2017. British plants as aliens in New Zealand cities: residence time moderates their impact on the beta diversity of urban floras. Biological Invasions 19: 3589-3599.
Shepherd LD, de Lange PJ, Perrie LR, Heenan PB 2017. Chloroplast phylogeography of New Zealand *Sophora* trees (Fabaceae): extensive hybridization and widespread Last Glacial Maximum survival. Journal of Biogeography 44: 1640-1651.
Shepherd LD, Heenan PB 2017. Evidence for both long-distance dispersal and isolation in the Southern Oceans: molecular phylogeny of *Sophora* sect Edwardsia (Fabaceae). New Zealand Journal of Botany 55: 334-346.
Sheppard JL, Arnold TW, Amundson CL, Klee D 2017. Effects of surgically implanted transmitters on reproduction and survival in mallards. Wildlife Society Bulletin 41: 597-604.
Shouman S, Mason N, Kichey T, Closset-Kopp D, Heberling JM, Kobeissi A, Decocq G 2017. Functional shift of sycamore maple (*Acer pseudoplatanus*) towards greater plasticity and shade tolerance in its invasive range. Perspectives in Plant Ecology, Evolution and Systematics 29: 30-40.

Sijbranda DC, Hunter S, Howe L, Lenting B, Argilla L, Gartrell BD 2017. Cases of mortality in little penguins (*Eudyptula minor*) in New Zealand associated with avian malaria. New Zealand Veterinary Journal 65: 332-337.
South PM, Floerl O, Forrest BM, Thomsen MS 2017. A review of three decades of research on the invasive kelp *Undaria pinnatifida* in Australasia: An assessment of its success, impacts and status as one of the world's worst invaders. Marine Environmental Research 131: 243-257.
Suárez-Jiménez R, Hepburn CD, Hyndes GA, McLeod RJ, Taylor RB, Hurd CL 2017. The invasive kelp *Undaria pinnatifida* hosts an epifaunal assemblage similar to native seaweeds with comparable morphologies. Marine Ecology Progress Series 582: 45-55.
Trewick SA, Pilkington S, Shepherd LD, Gibb GC, Morgan-Richards M 2017. Closing the gap: Avian lineage splits at a young, narrow seaway imply a protracted history of mixed population response. Molecular Ecology 26: 5752-5772.
Twort VG, Dennis AB, Park D, Lomas KF, Newcomb RD, Buckley TR 2017. Positive selection and comparative molecular evolution of reproductive proteins from New Zealand tree weta (Orthoptera, *Hemideina*). PLoS ONE 12 (11): art. no. e0188147.
van Heugten RA, Hale RJ, Bowie MH, Hale ML 2017. Sleeping with the 'enemy': hybridization of an endangered tree weta. Conservation Genetics 18: 1377-1387.
Vink CJ 2017. A history of araneology in New Zealand. Journal of the Royal Society of New Zealand 47: 262-273.
Wang C-J, Wan J-Z, Zhang Z-X 2017. Expansion potential of invasive tree plants in ecoregions under climate change scenarios: an assessment of 54 species at a global scale. Scandinavian Journal of Forest Research 32: 663-670.
Wehi PM, Monks A, Morgan-Richards M 2017. Male tree weta are attracted to cuticular scent cues but do not discriminate according to sex or among two closely related species. Ethology 123: 825-834.
Whaanga H, Wehi P 2017. Rāhui and conservation? Māori voices in the nineteenth century niupepa Māori. Journal of the Royal Society of New Zealand 47: 100-106.
Wigley K, Moot D, Wakelin SA, Laugraud A, Blond C, Seth K, Ridgway H 2017. Diverse bacterial taxa inhabit root nodules of lucerne (*Medicago sativa* L.) in New Zealand pastoral soils. Plant and Soil 420: 253-262.
Wu C, Twort VG, Crowhurst RN, Newcomb RD, Buckley TR 2017. Assembling large genomes: Analysis of the stick insect (*Clitarchus hookeri*) genome reveals a high repeat content and sex-biased genes associated with reproduction. BMC Genomics 18: art. no. 884.

Noticeboard and upcoming conferences

NZES conference 2018

The next NZES conference will be held in Wellington during November 2018. More details will be released in future newsletters and on our website as plans develop.

Our exhibition - 'Ngāi Tipu Taketake – Indigenous Flora' will take place from March 30th - 1st July 2018 at the Auckland Botanic Gardens, with the possibility of it travelling to other main NZ cities.

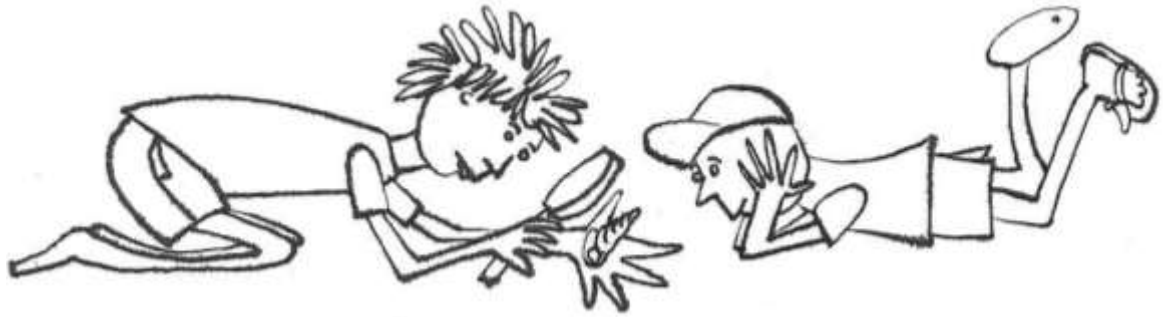
National Wetland Trust 'wins' a BioBlitz

This is a first for New Zealand – a competition with a BioBlitz as the prize, courtesy of Landcare Research! The event will be held at Lake Rotopiko, 25 km south of Hamilton. Originally a single peat lake and one of more than 30 spread along the former course of the Waikato River, Rotopiko now comprises three lakes (unimaginatively referred to as Lakes east, south and north).

With science support from Landcare Research, the National Wetland Trust will be hosting a BioBlitz at Lake Rotopiko in mid-February 2018. The dates for the event are Feb 16 (1pm - 7pm) and Feb 17 (9:30 – 3:30). Participants will be given the opportunity to explore the fenced sanctuary and surrounding areas as well as witness the spectacle of vast flocks of starlings and other exotic species pouring into pest-free site at dusk.

A brief history of BioBlitz in NZ

A strong 'numbers' focus characterised early BioBlitz events – basically collecting and identifying as many species as possible. Though still important, objectives may now include identifying which species are absent from the site, which weeds and pests are present, and strengthening participant learning opportunities. For example, data collected at the Bioblitz in Kepa Bush (Auckland, March 2015) helped



inform the restoration plan for adjacent land (Pourewa, currently a pony club) that had been returned to Ngati Whatua Orakei. One approach being discussed for Rotopiko, is to set up two study sites – one inside the fence and the other outside, and see how different they are. There will also be a suite of educational and awareness-raising aims. Ultimately, an engaged and aware public is the key to making the future National Wetlands Centre earmarked for Rotopiko viable and sustainable.

Volunteering at a BioBlitz

One of the key learnings from all BioBlitzes is that volunteers play a crucial role. Although many experts are needed for species identification, setting up a solid infrastructure to support members of the public to participate is where volunteers come in. At Rotopiko we would expect upwards of 100 members of

the public to come along over the two days. Volunteers can help with the following:

Setting up: there will be tents and tables and chairs…. And more which will need to be constructed, and arranged

Marshalling traffic: helping members of the public park their cars at the Lake Rotopiko carpark

Manning the information stand: pointing members of the public where to go, who to talk to, what resources to look at etc

Liaising with schools: assisting with developing a BioBlitz education programme; showing schools around the site

Taking guided walks: Showing people around the site(s), collecting specimens for identification, onside species id – whatever your speciality is

Supporting scientists at their stands: species id, getting cups of tea, liaising with the public

Data entry: Helping to log species into the database from paper-based forms, developing reports for post-event follow-up

Tech support: Helping people use online tools such as Naturewatch NZ for data entry

Being creative: Taking a mini workshop e.g., on botanical art or nature photography

The BioBlitz will be intensive and rewarding…so please join in!

If you can help, please contact enquiries@wetlandtrust.org.nz

This article is based on a blog post (April 2016) titled 'Citsci projects tour #2: Destination Auckland… BioBlitz, Citsci in schools, Community ecological restoration'. Available from www.monicalogues.com

Resilient Coasts, Resilient Communities:

Coastal Restoration Trust Annual Conference

Petone 21-23 March 2018

- Presentations on coastal issues of national, regional and local significance
- Fieldtrips to sites in the Wellington Region
- Project updates by researchers and community groups
- A chance to share experiences with others who work on the restoration of coasts around the country

Green Ribbon Awards 2017 Finalist

Green Ribbon Awards 2014 Winner

Details online at:
www.coastalrestorationtrust.org.nz/Petone2018

COASTAL RESTORATION TRUST OF NEW ZEALAND
Tāhuna Ora

14-15 FEBRUARY 2018 | TE WHAREWAKA TAPERE, WELLINGTON

NZ Ecological Society Members are entitled to a 15% discount. To qualify, enter the promotional

code MPJSY3 while booking online at www.conferenz.co.nz/freshwater

Office Holders of the New Zealand Ecological Society 2017

(Effective from December 2017)

In the first instance, please send postal or e-mail correspondence to:

Secretariat (society office – Susan Sheppard)
NZ Ecological Society Secretariat
PO Box 5075
Papanui
CHRISTCHURCH 8542
Physical Address:
46 Genesis Drive
Edendale, RD 1
CHRISTCHURCH 7671
P: 64 3 318 1056
F: 64 3 318 1061
E: nzecosoc@paradise.net.nz
W: www.nzes.org.nz

President
Cate Macinnis-Ng
School of Biological Sciences
University of Auckland
Private Bag 92019
AUCKLAND
P: 64 9 923 2343
E: c.macinnis-ng@auckland.ac.nz
T: @LoraxCate

Immediate Past President
Clayson Howell
Department of Conservation
PO Box 10-420
WELLINGTON
P: 64 4 471 3113
M: 64 21 973 181
E:President@newzealandecology.org

Vice President
Tim Curran
PO Box 85084
Pest-management and conservation
Lincoln University
Lincoln 7647
Canterbury, New Zealand
E: Timothy.Curran@lincoln.ac.nz
T: @TimCurran8

Secretary
Kiri Wallace
Environmental Research Institute
University of Waikato
E: kiri.wallace@waikato.ac.nz

Treasurer
Chris Bycroft
Wildland Consultants
PO Box 7137
Te Ngae
ROTORUA 3042
E: Chris.Bycroft@wildlands.co.nz

Councillors (4)
Martin Bader
Auckland University of Technology
E: martin.bader@aut.ac.nz

Bruce Burns
E: b.burns@auckland.ac.nz

Simon Moore
Department of Conservation
Private Bag 5
NELSON 7042
P: 027 204 4791
E: shmoore@doc.govt.nz

Rachel Nepia
University of Waikato
E: ret12@students.waikato.ac.nz

Journal scientific editor
George Perry
School of Environment
University of Auckland
Private Bag 92019
AUCKLAND
E: Editor@newzealandecology.org

Newsletter editor
Angela Simpson
Wildland Consultants
PO Box 7137
Te Ngae
ROTORUA 3042
E:Newsletter@newzealandecology.org

Webmaster
E:Webmaster@newzealandecology.org

Membership officer
Gretchen Brownstein
E:brownsteing@landcareresearch.co.nz