NEW ZEALAND ECOLOGICAL SOCIETY

Newsletter

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From the Editor

Kia ora koutou,

Welcome to the third newsletter of 2020 from the NZ Ecological Society, and happy Conservation Week! The theme for this year's Conservation Week is Seeing Nature through New Eyes, and it's a pretty fitting theme given what we've been through this year with the lockdown and now back in Level 2/3. I have found that nature is a wonderful constant in these dynamic times!

This Newsletter features Ecotones from Bruce Burns, a Hot Topic, Illustrate Ecology, and several other announcements. I hope you enjoy it!

I hope you all are keeping well and enjoying the days as the daylight slowly increases.

Ngā mihi,
Rowan

News from NZES council

Kia ora koutou,

First, a huge welcome to Council to Jenn Sheppard, who joins us in an ex-officio capacity as Sustainability Officer. Jenn runs her own consultancy (Simax Ecology), and has a background in avian conservation, particularly in waterfowl. We are really excited to have Jenn on board to help us implement our Sustainability Plan and further our efforts to make our conference and operations more sustainable. Welcome Jenn!

One of the recent tasks of Council has been determining the nature of the AGM this year. We have decided to have the AGM entirely online this year, to be held from 1-2pm Friday 4 December 2020. The AGM will be followed by talks from our two major prize winners for 2019 (Sarah Richardson, who won the Te Tohu Taiao award for ecological excellence, and Laura Young, who won the Ecology in Action award), and the announcements of the 2020 awards. These talks will be given in front of a live audience in Lincoln, and streamed live online. More details on the AGM and plenaries will follow soon. Please don't forget to nominate people for the 2020 awards; these are due by 17 September 2020.

Other recent work by Council has included ongoing review of our Strategic Plan, development of more information and guidelines regarding NZES submissions, and investment plans for the Kauri and Barlow funds.

Congratulations to our Immediate Past President, Cate Macinnis-Ng, who was recently elected to the Council of the Royal Society Te Apārangi, as the Constituent Organisation (CO) representative. Given her considerable experience with the NZES we know Cate will do a great job representing us and the other COs.

After a successful year as the inaugural editor of the Hot Topics series, James Brock is stepping down. Many thanks, James, for getting this series up and running! Of course, this means we are looking for a replacement to fill this volunteer position. If you are interested, please get in touch.

Finally, all the very best to those members who are in Level 3 lockdown in the Greater Auckland area. We are thinking of you, are very grateful for the sacrifices you are making to ensure NZ gets covid under control again, and wish you a speedy and safe return to normality. To the rest of the membership, please stay safe. If we as a country keep following the best scientific and

medical advice, surely we'll suppress this second wave of the pandemic, just as we did the first wave.

Kia kaha

Tim Curran

Notice on NZES Awards: Deadline 17 September

The deadline for the applications for our awards is fast approaching on 17 September 2020. These awards are the following: Te Tohu Taiao, Ecology in Action, and Outstanding Publication on New Zealand Ecology awards. Because of the cancellation of the conference, there will be no student travel awards for 2020. For more information about these awards and nominations, please see the website.

Ecology Advocacy/ Communication opportunity available

Role Title: NZ Ecological Society Hot Topics Coordinator/Editor

Description: The NZ Ecological society is currently accepting expressions of interest for the role of Hot Topics Coordinator/Editor. This volunteer role entails soliciting NZ ecological experts to write short opinion pieces on currently popular science on behalf of the NZES. These science communication pieces are typically about 500 words and constitute a brief overview and scientific perspective on an issue currently of interest in mainstream society. The pieces are expected to be supported by open access journal articles if possible and are peer-reviewed before dissemination through the NZES website and social media platforms.

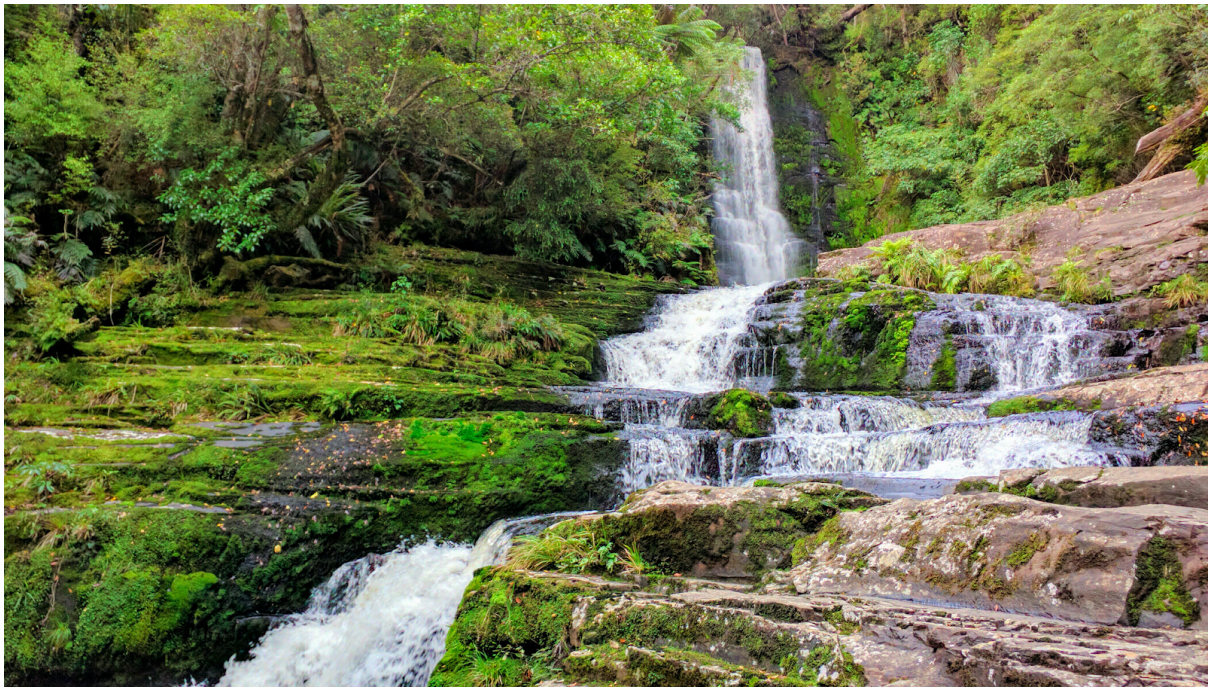
If you enjoy science communication or would like to promote awareness of ecological knowledge this is a great opportunity! This role requires coordination of the creation of these pieces right from topic selection through to technical editing before release. A large ecological social network and ability to schmooze possible contributing authors are helpful skills...

For more on Hot Topics and some example pieces please see our website: https://newzealandecology.org/nzes-hot-topics

Management of this role is overseen by George Perry, NZ Journal of Ecology Editor and Kiri Joy Wallace, NZES Vice President.

The successful candidate could start immediately and must start by 1 December 2020 at the latest. To make inquiries or submit an expression of interest please email NZES Vice President Kiri Joy Wallace kwallace@waikato.ac.nz by 1 October 2020.

Time commitment: Maximum 2 hours/week (flexible, as needed)



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). The list of other publications on New Zealand ecology can be found towards the end of the newsletter.

1. Postcards from a weedy New Zealand

Reflecting on the scale of invasive plant colonization in New Zealand can be sobering. Approximately half of all wild plants in New Zealand are now non-native, and they dominate many natural ecosystems. The two main islands of New Zealand have more invasive plant species relative to land area than almost all other islands elsewhere (Hulme 2020). Invasive plants are also direct threats to many endangered ecosystems and species. So how has New Zealand society responded to the challenges posed by invasive plants? To answer this question, Hulme (2020) has provided a fascinating review of New Zealand's plant biosecurity experience (the subject of his Cockayne Lecture) highlighting both successes and failures. New Zealand was amongst the first countries to instigate policies to slow arrival of new weed species, but implementation at borders has been problematic. Eleven non-native plant species have been successfully

eradicated from New Zealand, although many other eradication programmes have failed often because the time needed to undertake such tasks have been underestimated. New Zealand also has instigated many novel control solutions, including being a world leader in applying biological control. Nevertheless, the area and number of programmes under which control of invasive plants occurs has been progressively reducing over time. It is clear from Hulme's review that, while New Zealand has made some progress in meeting the challenges of non-native plant management, significant opportunities still exist to build on and improve this response.

Hulme PE 2020. Plant invasions in New Zealand: global lessons in prevention, eradication and control. Biological Invasions 22 (5): 1539-1562.

Weedy climbing asparagus (*Asparagus scandens*) in bush near Auckland. Image source: Margaret Stanley.

2. Tracking an epidemic of cabbage trees

Epidemics can cause dramatic changes to population structures of affected species, with potential consequent changes to landscapes. Over time, these changes can become perceived as the new normal. Brockie (2020) has recently reminded us that up to the 1990s, large, mature cabbage trees occurred abundantly across northern New Zealand landscapes but have now gone; a loss hardly recognized today. The cause was a disease labelled as 'Sudden Decline' of cabbage trees, first reported in Northland in 1987 and caused by a ☐hytoplasma spread by a planthopper. Older, mature trees show much greater vulnerability to infection than younger trees, and once infected, die and disintegrate within four years, so they disappear from landscapes. Brockie (2020) followed the fates of cabbage tree populations in different regions of New Zealand from 1990 to 2014 using repeated surveys from a moving car. In the northern North Island, older trees were wiped out before 2006 leaving populations of younger trees. Southern populations, however, have not been so affected with moderate deaths of older trees in the lower North Island, and virtually none in the majority of the South Island. Brockie (2020) suggests that this latitudinal distribution of the disease is related to temperature-related range limits of the vector. He also warns that this is likely to extend with climate change. Why the disease is so much more virulent on older trees is not known. What is clear is that the disease still exists in New Zealand landscapes, and will continue to impact cabbage trees in the north of New Zealand as they reach vulnerable ages/sizes.

Brockie RE 2020. Impact of Phytoplasma (*Candidatus* Phytoplasma *australiense*) on cabbage trees (*Cordyline australis* (Forst.f.) Endl.) throughout New Zealand, 1990–2014. New Zealand Journal of Botany 58 (3): 194-200.

View from the Kauri Museum at Matakohe, Northland, in 1995, when 85 live trees remained of the 145 healthy trees seen in 1990. By 2000, the single remaining tree at the site stood dead. Image Source: Brockie 2020.

3. Modelling the best way to control stoats after beech masting.

Sudden pulses of resources into ecosystems are widespread phenomena that lead to large but temporary disruptions to food webs. One example of such events in New Zealand is the mast seeding of beech forest that leads to irruptions of rodents then stoats with consequent dramatic increases in bird predation pressures. With beech forest widespread in New Zealand and native bird conservation critical, how best to manage such irruptions is a key management necessity. In view of this, Köhnke et al 2020 have recently built and interrogated a model of the beech mast consumer system seeking insights into optimizing a predator control response for conservation of native birds. One of the key factors in this model was that stoats were generally killed by secondary poisoning from rodent carcasses, so somewhat perversely there was value in maintaining a moderate population of rodents in the system to provide a vector for killing stoats. Because of this requirement, Köhnke et al's model found that control applied in June was most effective at reducing stoat populations as rodent populations were high then. They also found that intermediate levels of control were more effective than higher intensity control. The intermediate values allowed a residual rodent population to survive so they could continue to act as vectors for secondary poisoning of stoats. Completely eliminating rodents was counterproductive in this model. Such insights may lead to cost and ecological efficiencies in these control programmes, but depends on accepting continued rodent-specific ecological costs on these ecosystems.

Köhnke MC, Binny RN, Holland EP, James A 2020. The necessity of tailored control of irrupting pest populations driven by pulsed resources. Theoretical Ecology 13 (2): 261-275.

4. Did divaricates evolve in response to moa browse and climate?

The unusual abundance of the strangely beautiful divaricate life form of plants in New Zealand has prompted much ecological debate. Divaricates are 'wire plants' with a shrubby growth habit defined by a complex of thin, interlacing branches of high tensile strength. Curiously, they are over-represented in the New Zealand flora compared to the floras of broadly equivalent climatic zones elsewhere. Debate has been largely polarized on which of two competing selection mechanisms caused evolution of this growth form – a response to climatic extremes, or to browse by moa. Lusk et al (2020) have sought evidence to explore an innovative synthetic hypothesis that combines these two explanations. They hypothesised that the divaricate form will be most prevalent on fertile sites (e.g., alluvial terraces) attractive to browsers where extreme climatic factors (e.g., frost) slow growth of plants out of the browse zone. To explore this idea, they computed the proportion of divaricate species in almost 10,000 vegetation plots spread across New Zealand, then compared this proportion against plot topography and macroclimate. They also looked at the specific distribution of frosts and soil fertility in different topographic locations at five dissimilar sites. This analysis confirmed that terraces were generally more fertile and frostier than other topographic locations. It also showed that divaricates were most prominent on terraces that occurred in cold, dry areas, supporting their synthetic hypothesis. So ironically, the answer to the divaricate riddle may not be one or the other, but both.

Lusk CH, Wiser SK, Laughlin DC 2020. Macroclimate and topography interact to influence the abundance of divaricate plants in New Zealand. Frontiers in Plant Science 11: art. No. 507.

Sophora prostrata showing divaricate growth habit. Image source: Bruce Burns

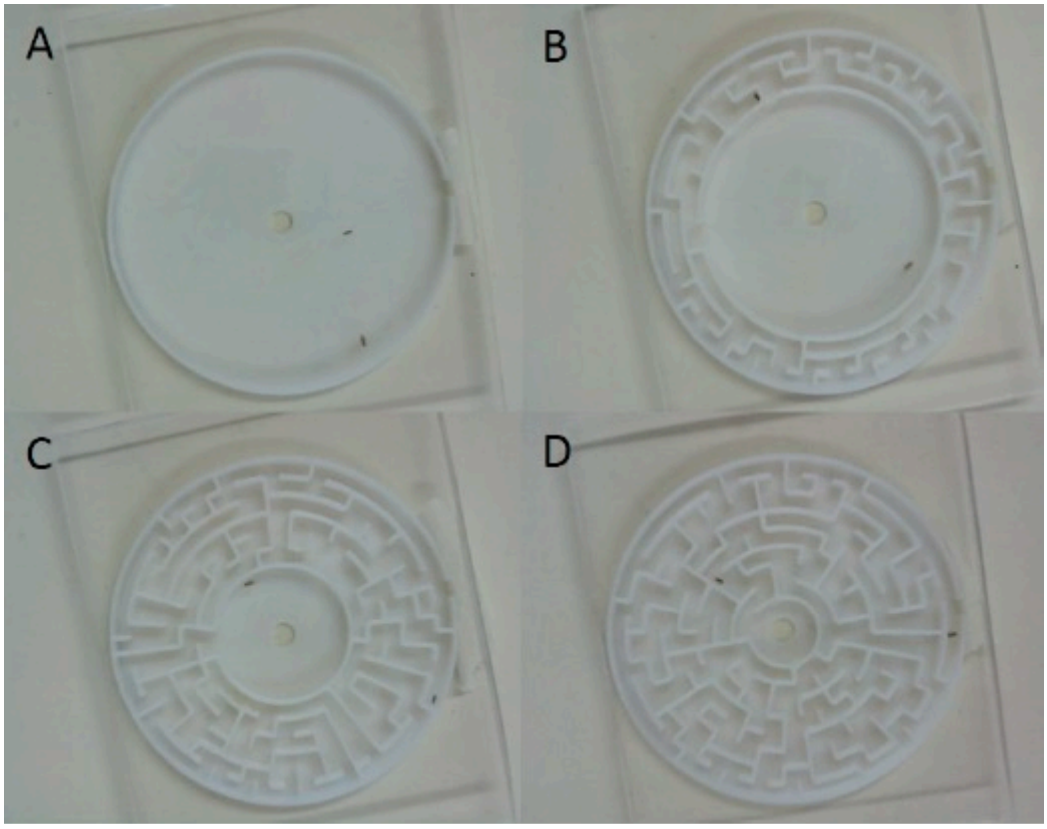
5. Using 3D printing to investigate Allee effects

Populations at low densities can be subject to Allee effects because individuals at these densities find it difficult to locate mates, engage in cooperative defence, etc., and population growth rates become negative. This is important for both species attempting to colonize new habitats, e.g., invasive species, and species under conservation management. For both situations, it suggests that populations need to occur over some threshold density to ensure a high probability of persistence. In Stringer et al. (2020), the authors present a novel experiment to investigate the existence and nature of mate-finding Allee effects in a population of *Drosophila simulans* using 3D generated mazes of different complexities. They created a range of mazes of measured complexity as in the

figure below, then introduced flies at different densities and recorded how long it took for mating to occur. As another factor, they also added a predatory pseudoscorpion to half the mazes. Increasing the complexity of the mazes clearly decreased the extent of mate finding for these flies. The presence of a predator then increased the time necessary for flies to find a mate at all densities further, but did not prevent mating from occurring for at least one pair. Overall, the experiment successfully demonstrated that mechanisms that could cause Allee effects existed and that they were more pronounced in complex habitats. It is also a great example of how 3D printing now provides huge potential for investigating key ecological principles limited only by our imagination.

Youtube video of the experiment: https://youtu.be/BeaRsO0h2v0

Stringer LD, Sullivan NJ, White R, Pérez AJ, Furlong J, Kean JM, Beggs JR, Suckling DM 2020. Mazes to study the effects of spatial complexity and population density on mate finding. Insects 11(4), 256.



Four mazes of different complexities were created using 3D printing to test factors affecting mate finding in *Drosophila simulans*. Image source: Stringer et al. 2020.

Hot Topic: Indigenizing agroecology in Aotearoa

Dr Valance Smith, Peter Edwards, Dr John Perrott, Assoc. Prof. Hannah Buckley, Dr David Norton, Dr Leilani Walker

The Situation
There is increasing recognition worldwide that native biodiversity plays a vital role in building agricultural ecosystem resilience. Kaitiakitanga is a key principle from the Māori world view to assist in sustaining native biodiversity in New Zealand landscapes. However, we argue that in agricultural landscapes, kaitiakitanga alone cannot achieve desired biodiversity outcomes. Like kaitiakitanga, agroecology is a holistic pathway for incorporating ecological and social processes into the management of agricultural landscapes using methods that will protect the land, biodiversity and consequently the people. In addition to kaitiakitanga aspirations of sustaining land and resources, our primary question is what is the innovation within mātauranga Māori (Māori knowledge) that might also lead to enhanced yields and increased profits for all?

The Challenge
Mātauranga Māori is a complex and open system of knowing the world. The challenge is identifying innovations within this open and complex system pertinent to building agricultural ecosystem resilience in Aotearoa. At the heart of this conversation is building resilience by incorporating mātauranga Māori into Western approaches to agroecology.

Kaitiakitanga as a land ethic has multiple but distinct layers of meaning and several pathways to navigate the human-nature continuum. One such layer is the relationship between mana (respect and authority) and whenua (land and placenta). Māori values and principles form the ethical framework where Māori can legitimately engage with the land, as they provide the 'instruments through which Māori make sense of, experience, and interpret their environment'. One of these values is respect for mana whenua (authority over land and resources derived from a physical and spiritual connection to the land).

The Opportunity
The 'economy of mana' as a land ethic framework highlights the notion of enhancing and protecting the mana within people and their communities. It is associated with manaakitanga (hospitality), utu (reciprocity, exchange), aroha (compassion), whanaungatanga (relationships) that all relied, and still rely, on the nurturing and utility of natural resources. Thus, it stems from a Māori worldview, using traditional mātauranga principles, informed by traditional Māori economics which is firmly grounded by utu (reciprocity) or as some have coined it, 'the economy of affection'. Furthermore, the economy of mana focuses on four well-beings -spiritual, ecological, kinship, and economic. Resource development and harvesting are fixed in the ecological system that sustains them. Therefore, an essential component that regulates these four well-beings for resource development and harvest is rāhui (restricted access).

Kaitiakitanga is similarly about caring and nurturing, whether it is nature or whānau, or whānau whānui (wider family). Both approaches are imbued with wairuatanga asserting spiritual intimacy with the land. However, the opportunity is that the economy of mana extends to resource development and harvesting.

This framework emphasises the potential to manage natural resources such that those resources can be successfully harvested and restored without long- or short-term detriment to the resource itself. This echoes the sentiments of agroecology, which focuses on how the sustainability of land and resources is driven by human behaviour. In light of this, the economy of mana encourages us to reimagine and rethink our approach to the sustainability and enhancement of native biodiversity in agroecosystems. To achieve this we need to consider clearly defined decision-making and co- management processes that combine private and mana whenua (kaitiaki) rights that ensure the protection of mana whenua knowledge. How we might do that is to look at and work in partnership with current marae- and hapu-based initiatives that practice Māori- centric approaches in the management of their agroecosystems. The transformative potential of the economy of mana is worth further investigation as it offers an alternative approach to agroecology that protects the land, biodiversity and the people.

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Read the Hot Topic online here: https://newzealandecology.org/indigenizing-agroecology-aotearoa

Illustrate Ecology: NZ Neuston News

John Flux

The first major stranding (lower inset) of *Velella velella,* by-the-wind-sailor, (central top inset) in New Zealand was in 2006. Now some strand most years, and I record their numbers per 100 m, sail orientation (top left inset), and size. In 2006, 27%, and in 2016, 47%, were left hand sailors - the wind blows them left. In other years almost all have been right hand sailors. Why and how mirror-image forms persist is unclear, but the result is left sailors escape clockwise gyres in the northern hemisphere to be cast ashore, and right sailors the counter-clockwise gyre here. *Velella* feed on plankton and are eaten by turtles, sun-fish, and snails like *Janthina janthina* with bubble floats (top right inset). The main photo is of a buoy barnacle (*Dosima fascicularis*) fishing from a partly eaten *Velella* in a rock pool in 2019, when barnacles were common; I found only one in earlier years.

Postgraduate Profile: Lolita-Maria Vallyon

Lolita-Maria Vallyon

Kia ora! My name is Lolita-Maria Vallyon and I have recently completed a MSc (Research) in Ecology and Biodiversity at the University of Waikato with First Class Honours. I am now on the lookout for a future PhD project and I am passionate about animal behaviour, birds and marine ecology. My thesis investigated a perceived conservation conflict occurring between the endemic, recovering shorebird, the South Island pied oystercatcher (tōrea) and a taonga surf clam, the toheroa at Ripiro Beach, Northland. The toheroa was a popular food commodity for Māori and Pākehā in the early 1900s but was overharvested until the populations collapsed. Despite harvesting bans in place for over 40 years the toheroa has continued to decline. Oystercatcher predation has been implicated as one of the reasons toheroa populations have not recovered. There have even been calls to cull the birds to protect the clams. My thesis aimed to examine the predator-prey interactions between the two species by answering the following three questions: 1) what are the spatio-temporal associations between oystercatchers and toheroa 2) what is the composition of the oystercatcher's diet and 3) what size toheroa are the birds taking? Data gathered from bird count surveys, oystercatcher foraging behaviour observations and toheroa population size structure surveys revealed that though the oystercatchers successfully predate on intermediate-sized (30-50 mm in length) toheroa at two major toheroa beds, the spatial distribution of the two species do not overlap otherwise. Overall, the South Island pied oystercatcher is not responsible for the continuing decline of toheroa across the whole of Ripiro Beach. This research demonstrated the importance of acquiring information on interacting species prior to undertaking any conservation management decisions. The oystercatchers and the toheroa should be managed through an ecosystem-based approach.

A South Island pied oystercatcher probing into the substrate to find food. Image source: Lolita-Maria Vallyon.

Contribute to the Review of the Report for the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)

The Royal Society Te Apārangi has invited the NZES membership to provide comment to the International Science Council on a draft scoping report for the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES).

The Royal Society Te Apārangi is keen to collate NZES feedback so that they can get a sense of how New Zealand is responding. Please send your feedback to Matthew Turnbull (International Union of Biological Sciences NZ Representative): matthew.turnbull@canterbury.ac.nz.

More information: https://ipbes.net/transformative-change/scoping-document-registration

Deadline for contributions: 28 August 2020.

New Zealand Molecular Ecology Conference is going to be online this year

Sarah Flanagan

The University of Canterbury has the privilege of hosting the New Zealand Molecular Ecology Conference (#NZMolEcol2020), and after much deliberation, we've decided to go virtual (with local hubs, COVID-19 permitting).

Details (including website and Twitter updates) will follow, but for now, please save the date: 4-6 Dec 2020.

Also, rest assured we aren't planning 3 days of full-on virtual conferencing (we are well aware that ZOOM fatigue is a thing). Instead, please anticipate a virtual pub quiz on Fri evening, scheduled talks on Sat and Sun morning, and optional afternoon break-outs on one or both days. We're also planning a few short-and-sharp networking opportunities over the coming months, so everyone who is keen to join us will have an opportunity to meet and greet with like-minded folks before the big weekend.

For more information, please visit the website:
https://www.nzmolecol.org/conferences

Publications in the current issue of NZ Journal of Ecology (Volume 44, Issue 2, 2020)

Research Articles

Monitoring Austropuccinia psidii (myrtle rust) on New Zealand Myrtaceae in native forest : 3414
Roanne Sutherland, Julia Soewarto, Rob Beresford, Beccy Ganley

Historical analyses of coastal marine sediments reveal land-based impacts on the benthos : 3415
Sean J Handley, Mark Horrocks, Trevor J Willis, Anna Bradley, Sarah Bury, Julie Brown, Lisa Northcote

Does habitat manipulation enhance native woody seedling recruitment in a dryland river floodplain? : 3416
Debra M Wotton, Philip B. Grove, Dave Kelly

Effects of aerial 1080 operations on deer populations in New Zealand : 3417
Grant A. Morriss, John P. Parkes, Graham Nugent

Economic valuation of the ecosystem services provided by Pāmu Landcorp farms : 3412
Clint Cameron, Joanna McQueen-Watton, William Shaw

Effectiveness of aerial 1080 for control of mammal pests in the Blue Mountains, New Zealand : 3406
Peter Dilks, Tim Sjoberg, Elaine C. Murphy

Impacts of aerial 1080 predator control on nest success and adult survival of South Island robins : 3407
Yolanda van Heezik, Samantha M. Ray, Ian G. Jamieson, Olivia Allen, Robert Schadewinkel

Achieving win-win outcomes for pastoral farming and biodiversity conservation in New Zealand : 3408
David A. Norton, Febyana Suryaningrum, Hannah L. Buckley, Brad S. Case, C. Hamish Cochrane, Adam S. Forbes, Matt Harcombe

Stable isotope analysis reveals variable diets of stoats (*Mustela erminea*) in the alpine zone of New Zealand : 3409
Jamie McAulay, Philip J. Seddon, Deborah J. Wilson, Joanne M. Monks

Short Communication
Bat dispersal of fern spores in New Zealand : 3410
James M R Brock, Kathleen Collier

Forum Article
Biodiversity monitoring, ecological integrity, and the design of the New Zealand Biodiversity Assessment Framework : 3411
Matt S McGlone, Kate McNutt, Sarah J Richardson, Peter J Bellingham, Elaine F Wright

Opportunities for modern genetic technologies to maintain and enhance Aotearoa New Zealand's bioheritage : 3413
Sarah N Inwood, Gemma M McLaughlin, Thomas R Buckley, Murray P Cox, Kim M Handley, Tammy E Steeves, Timothy J Strabala, Rebecca McDougal, Peter K Dearden

Other recent publications on New Zealand ecology

Bruce Burns, University of Auckland

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.

Anderson SE, Closs GP, Matthaei CD 2020. Agricultural land-use legacy, the invasive alga *Didymosphenia geminata* and invertebrate communities in upland streams with natural flow regimes. Environmental Management 65 (6): 804-817.

Arroyo-Correa B, Burkle LA, Emer C 2020. Alien plants and flower visitors disrupt the seasonal dynamics of mutualistic networks. Journal of Ecology 108 (4): 1475-1486.

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Avosani S, Sullivan TES, Ciolli M, Mazzoni V, Suckling DM 2020. Can vibrational playbacks either disrupt mating or influence other relevant behaviours in *Bactericera cockerelli* (Triozidae: Hemiptera)? Insects 11: 299.
Bassett IE, McNaughton EJ, Plank GD, Stanley MC 2020. Cat ownership and proximity to significant ecological areas influence attitudes towards cat impacts and management practices. Environmental Management 66 (1): 30-41.
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Byers A-K, Condron L, Donavan T, O'Callaghan M, Patuawa T, Waipara N, Black A 2020. Soil microbial diversity in adjacent forest systems-contrasting native, old growth kauri (*Agathis australis*) forest with exotic pine (*Pinus radiata*) plantation forest. FEMS Microbiology Ecology 96 (5): art. no. fiaa047.
Carter ZT, Perry GLW, Russell JC 2020. Determining the underlying structure of insular isolation measures. Journal of Biogeography 47 (4): 955-967.
Case BS, Pannell JL, Stanley MC, Norton DA, Brugman A, Funaki M, Mathieu C, Songling C, Suryaningrum F, Buckley HL 2020. The roles of non-production vegetation in agroecosystems: a research framework for filling process knowledge gaps in a social-ecological context. People and Nature in press.
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https://www.isbe2020.com/program/call-for-abstracts/ -
Postponed to 11-16 September 2022

11th INTECOL International Wetlands Conference, Christchurch, 2021

The INTECOL Wetland Working Group (WWG) will hold the 11th INTECOL International Wetlands Conference in Christchurch, New Zealand, in October 2021. The Chair of the organizing committee is Philippe Gerbeaux, and the Co-Chairs are Deirdre Hart, Clive Howard-Williams, Di Lucas, Aroha Mead and Shona Myers. The tentative conference theme is: Traditional knowledge and innovative science in wetland research and management. A strong Maori and Oceania cultural presence is guaranteed within and around the conference.

Stay tuned for more information! http://intecol.org/node/37

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