NEW ZEALAND ECOLOGICAL SOCIETY

Newsletter

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Inside

From the Editor

Kia ora koutou

Welcome to the October 2019 newsletter. This newsletter includes an update on the 2019 conference at Lincoln, NZES sustainability plan, and an update from a previous Kauri Seed Scholar. Thank you for all the contributions.

Ngā mihi
Angela Simpson

Newsletter Editor: Angela Simpson. Email: newsletter@nzes.org.nz
Deadline for submissions for the next issue of this newsletter is **Friday 13th December 2019**

Illustrate Ecology

Triaenonychid harvestman photographed under bright UV light.

Some invertebrates glow under ultraviolet light including flatworms, harvestmen, moths, beetles, weta, and some spiders.

By Bryce McQuillan.

Ecotones – New ecological research

Bruce Burns, University of Auckland

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. Reversing soil profiles increases soil carbon storage

Techniques of storing carbon (C) long-term to moderate climate change is a major focus of world attention. While much focus is on the benefits of planting more trees, methods to increase soil organic C as a long-term reservoir are also under scrutiny. On New Zealand's West Coast, deep soil flipping on pastureland has been practiced for decades to break up Podzol iron pans and improve drainage. Schiedung et al. (2019) realized that this technique essentially buries the existing topsoil, full of organic C, 1-3m underground, and allows the development of a new C-rich topsoil at the surface. In a new paper, they compared C stocks in 'flipped' soils up to 20 years post-flipping, with unflipped soils. Total C in flipped soils was

about 70% higher than unflipped soils, with three quarters of this C occurring at depth. As well, the amount of deep C did not change over time indicating long-term stability. After 20 years, the new topsoil had accumulated C but not yet to the soil C content of unflipped soils, indicating that further C accumulation was still possible. Lastly, the increase in soil C by flipping was several times higher than the C emissions caused by the process of flipping and dairy farming on this land over 20 years. Although this technique is not appropriate everywhere, it adds a further option for positively managing C to a sector searching for ideas.

Schiedung M, Tregurtha CS, Beare MH, Thomas SM, Don A 2019. Deep soil flipping increases carbon stocks of New Zealand grasslands. Global Change Biology 25 (7): 2296-2309.

2. Weaving webs underwater: is aquatic spider silk different?

The ability to produce silks of various types is a key characteristic of spiders, providing them essential functions; e.g., trapping prey, dispersal, reproduction; that define their ecology. Although mainly terrestrial, a few spiders occur in aquatic habitats. One example is *Desis marina*, which lives in marine rock crevices around New Zealand shorelines (Vink et al. 2017). This spider lines its retreats with silk, and then seals the entrance with silk at high tide, trapping air underwater for its survival. Is there anything different about the silk of this spider that allows it to function in this unusual arachnid habitat? Correa-Garhwal et al. (2019) recently compared silk composition and production in three taxonomically related spiders that occur in different habitats, including *D. marina*. Although many similarities amongst species were present, silks of aquatic species had hydrophobic residues that are probably important in construction of underwater refuges, allowing adhesion of silks in water. As well, terrestrial spider webs are susceptible to changes with humidity, supercontracting when wet. No such issues occurred with silks produced by aquatic spiders. So aquatic spider silk is different and a key to utilisation of such unusual spidery habitats. What uses might a biomimic of aquatic spider silk have?

Correa-Garhwal SM, Clarke III TH, Janssen M, Crevecoeur L, McQuillan BN, Simpson AH, Vink CJ, Hayashi CY 2019. Spidroins and silk fibers of aquatic spiders. Scientific Reports 9: art. no. 13656.

Vink CJ, McQuillan BN, Simpson A, Correa-Garhwal SM 2017. The marine spider, *Desis marina* (Araneae: Desidae): new observations and localities. The Weta 51: 71–79.

3. Fishing out the invaders: progress on invasive fish control

Introduced fish have significant impacts in New Zealand freshwater ecosystems through predation of native biota, increased turbidity, changes in macrophyte communities, and algal blooms. There is limited knowledge and experience, however, on methods to control or eradicate introduced fish. Two recent studies have helped to fill this void (McEwan and Crisp 2019, Tempero et al. 2019). McEwan and Crisp (2019) describe the results of a netting trial to reduce introduced fish (trout, perch, and rudd) in Barton's lagoon, a small water body attached to Lake Wairarapa. Their netting regime led to a >80% decline in introduced fish biomass in one year which was then maintained, with significant increases in native fish density and diversity. In comparison, Tempero et al. (2019) report on a trial to remove carp, goldfish, and catfish from Lake Ohinewai, Waikato by netting and electrofishing, and installation of a one-way barrier to prevent carp from re-entering the lake. Invasive fish biomass was again greatly reduced from fishing treatments, and native fish populations increased. Once the control operations were halted, however, invasive fish biomass rose again, although the barrier to adult carp movement into the lake affected community composition. Taken together, these studies show that invasive fish communities can be controlled with significant benefits to native biota, but persistence is paramount.

McEwan AJ, Crisp P 2019. Restoration of a New Zealand lagoon: Evaluation of two years of introduced fish control trials. Ecological Restoration 37 (2): 90-100.
Tempero GW, Hicks BJ, Ling N, Morgan D, Daniel AJ, Özkundakci D, David B 2019. Fish community responses to invasive fish removal and installation of an exclusion barrier at Lake Ohinewai, Waikato. New Zealand Journal of Marine and Freshwater Research 53 (3): 397-415.

4. Predicting the demise of cold refuges increases risk to endangered species

Climate change is causing range shifts of species poleward and upward as temperatures warm. This phenomenon will also affect the ranges of some of our most damaging invasive species, such as Australian brushtail possums and ship rats. Walker et al. (2019) argue that expansion of such predators of native bird species into previously cold refuges will significantly increase extinction risk. They identified that bird species that were large, nest in tree cavities and dispersed poorly were most vulnerable to extinction from predation. Comparison of occupancy of these species between 1969-1979 and 1999-2004 showed decline in warm forests and a contraction to high-elevation, colder parts of forested mountains, clarifying the link between temperature and predation. The authors fear that continued climate change will make previously cold refuges available to predators. This timely analysis further heightens the need for effective predator control technologies in New Zealand, and particularly in 'warm' forests where predation pressure is highest.

Walker S, Monks A, Innes J 2019. Thermal squeeze will exacerbate declines in New Zealand's endemic forest birds. Biological Conservation 237: 166-174.

5. Could cities be lizard biodiversity hotspots?

Urban areas are generally thought of as sites of high modification and low biodiversity values. On the other hand, cities may have substantial opportunities for enhancing biodiversity because of untapped human resources present to take action. That is, directing an increasing public interest in conservation at a neighbourhood level seems entirely feasible. With this in mind, Woolley et al. (2019) have recently considered the opportunities for lizard conservation in six New Zealand cities. They found that 40 lizard species probably once occupied the areas now covered by these cities, but only 21 species have been reported in these areas over the last 50 years. They also found that those species that had been lost were most commonly large-bodied species, suggesting a role of predation in these community changes. These authors also scanned likely opportunities for lizard restoration and conservation in these cities and concluded that there were many and large opportunities to improve urban lizard faunas. Here's hoping for more reptilian life in our cities soon!

Woolley CK, Hartley S, Hitchmough RA, Innes JG, van Heezik Y, Wilson DJ, Nelson NJ 2019. Reviewing the past, present and potential lizard faunas of New Zealand cities. Landscape and Urban Planning 192: art. no. 103647.

News from NZES council

Kia ora koutou,

I hope you are all enjoying spring!

We've been making some great progress within NZES council recently. Here are some of the highlights - We kicked off the mentoring scheme with 15 keen

mentees and 15 willing mentors. Thanks to all who have expressed support for this initiative. Let me know if you have any feedback – we want to make it worthwhile for all members.

I submitted a response to the DOC Biodiversity Strategy on behalf of NZES. Please get in touch if you would like to see the submission. In short, we are calling on DOC to show bold leadership to address the biodiversity crisis.

Our Secretary, Kiri Wallace has been leading the development of a sustainability strategy. We look forward to sharing that with everyone soon.

In journal news, Katherine Russell has left the role of technical editor. We thank Katherine for her outstanding contributions towards maintaining the high quality of the New Zealand Journal of Ecology. It has been a pleasure to work with Katherine and we wish her all the best in the future. James Brock is now filling the role. James provided parental leave cover for Katherine so he brings some existing knowledge of the processes. Welcome to James!

Our AGM will be held at our annual conference as usual this year. We are looking for more council members to join us for elected and appointed roles. If you'd like to be a part of council, please get in touch. It's a great way to meet other ecologists and give back to the ecology community.

Registration is now open for #NZES19. Join us for our annual conference in Lincoln with the theme Ngā Koiora o Konei / Biodiversity Where We Are, we are expecting a great diversity of talks and symposia. Highlights include the launch of the special issue of New Zealand Journal of Ecology on Mātauranga Māori, and a great range of symposia, workshops and fieldtrips. See the conference website for more details https://confer.eventsair.com/nzes2019/

Ngā mihi nui,
Cate Macinnis-Ng President

NZES Draft Sustainability Plan

The NZES council has formed a Sustainability Plan to guide the society and would like to invite feedback on it from NZES members. It is presented below. Please send us your comments to improve it! When doing so, please refer to specific numbered lines of text within the document and email to the NZES secretary Kiri Joy Wallace: kwallace@waikato.ac.nz by 24 November 2019.

Draft Sustainability Plan

2020 – 2025

Version: 3 September 2019

NEW ZEALAND ECOLOGICAL SOCIETY

The New Zealand Ecological Society's Sustainability Statement

The New Zealand Ecological Society (NZES) views sustainability as an issue of paramount importance. We strive to operate as a sustainable entity, respecting both planetary and social boundaries. We acknowledge that the current dominant economic model of growth without limits and measurement of success using GDP is not adequate for humans and nature to prosper long-term.

We acknowledge the Intergovernmental Panel on Climate Change (IPCC) 2018 Special Report on the impacts of global warming of 1.5°C above pre-industrial levels, and its call for large, immediate and unprecedented global efforts to avoid and reduce greenhouse gas emissions to achieve net-zero-emissions by mid-century. We also acknowledge the key messages of the Report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, including: '*Nature can be conserved, restored and used sustainably while other global societal goals are simultaneously met through urgent and concerted efforts fostering transformative change*'.

We feel it is our duty to reach beyond the current legal and regulatory requirements to be leaders in sustainable practice. We are committed to supporting NZES members and New Zealand society more broadly in making sustainable decisions in environmental (i.e. ecological), economic, and social contexts. We recognise these three systems are intertwined.

We define sustainability as

The ability to sustain a full range of systems: environmental, economic and social, indefinitely.

Web links in coloured font below define in greater detail.

- Environmental sustainability is the ability to maintain rates of renewable resource harvest, pollution creation, and non-renewable resource depletion that can be continued indefinitely.

- Economic sustainability is the ability to support a defined level of economic production indefinitely.

- Social sustainability is the ability of a social system, at any level, such as a community or a country, to function at a defined level of social wellbeing indefinitely.

We will focus on four key steps towards being sustainable:

i. *Reduce the carbon footprint of our activities to net zero carbon, and encourage our members to do likewise*
ii. *Advocate for ecologically/environmentally sustainable practices*
iii. *Encourage the social engagement and wellbeing of our members*
iv. *Be good stewards of our finances*

To achieve these four steps we will:

i. **Reduce our carbon footprint to net zero carbon:** Aim to avoid generating greenhouse gas emissions, and offset unavoidable emissions. Ways to accomplish this in the context of the NZES include:

a. Minimise air and car travel and instead use remote meeting methods whenever possible, including for council and the annual conference.
b. Eliminate meat from catered food consumption and instead support alternatives, particularly vegetarian/vegan.
c. Minimise use of paper by going digital and otherwise using recycled/recyclable eco-friendly office supplies.
d. Follow best practice for carbon off-setting, e.g. use electric vehicles and pay to offset unavoidable flights when booking, or via accredited certification schemes[1].
e. Maintain a Conference Sustainability Guide available for conference organisers.
f. Encourage our members to become net carbon zero by providing tools and guidelines to reach this goal.

ii. **Advocate for ecologically/environmentally sustainable practices:**

a. When opportunities arise, we will make public submissions on policy or support our members to do so, including in collaboration with our overseas ecological society counterparts. These will align with sustainability as defined in our sustainability statement.
b. We will use our voice on social media and our website to share information on sustainable practices with the public and our members.

[1] For example: https://ekos.org.nz/; https://calculators.enviro-mark.com/public?calculator=travel.

c. We encourage members who are not also members of the Royal Society of New Zealand and/or the Environment Institute of Australia and New Zealand to abide by the sustainability provisions of the codes of ethics and professional standards of those two organisations[2].

iii. Encourage the social engagement and wellbeing of our members

a. We will create opportunities for our members to adopt and encourage others to adopt sustainable practices and feel empowered to promote the earth's sustainable future.

iv. Be good stewards of our finances:

a. Ensure investment of NZES funds is ethical, excluding fossil fuel exploration, exploitation or activities that promote the use of fossil fuels and any other activities promoting environmental or social degradation.

Monitoring, Reporting and Adaptation

- We will monitor our activities and outcomes via a genuine progress indicator to see that we are achieving what we aimed for. This process will be embedded into the annual review of the NZES Strategic Plan. We will review the above four steps to sustainability to ensure our progress in fulfilling them and adapting as necessary.

- We will communicate our progress to our members through appropriate channels (our newsletter, social media and emails) and use their feedback to inform and adapt the sustainability plan.

- The NZES Council is responsible for ensuring this plan is implemented, and will therefore appoint a Sustainability Officer to council who will be responsible for supporting implementation of the key steps identified here. All others engaged by or employed by the NZES are encouraged to support the key steps outlined here.

[2] https://royalsociety.org.nz/assets/Uploads/Code-of-Prof-Stds-and-Ethics-1-Jan-2019-web.pdf; https://www.eianz.org/document/item/2672

Acknowledgements

The NZES council thanks the working group who drafted this plan: Dr. Kiri Joy Wallace, Sir Alan Mark, and Fred Overmars. We also thank the British Ecological Society, who shared documentation regarding similar environmental and sustainability initiatives, and those who have provided the website resources we have linked to within this document.

Obituary – Ian Atkinson

I.A.E. Atkinson 1932–2019

Ian Atkinson, a life member and former office-holder of NZ Ecological Society, died in Dunedin on 23 August. Although much of Ian's career was with Botany Division, DSIR, Ian was a true ecologist, pioneering our understanding of the impact of introduced mammals, particularly rats, on native ecosystems. Perhaps his experiences in Hawaii, where he gained his PhD in Soil Science, led to his many years of research on island ecosystems. Ian's focus on plant/animal interactions enabled his development (with Michael Greenwood) of the moa-browsing hypothesis to explain the high rates of heterophylly and divarication in the endemic flora of Aotearoa. Another signature piece of Ian's work was his vegetation classification scheme, developed for and exemplified by his mapping of the vegetation of Tongariro National Park. This methodology has been used by many ecologists.

Ian was always thinking about native ecosystems, and he passed his knowledge on to agencies through his membership of numerous committees within organisations such as the WWF-NZ, the Department of Lands and Survey, the NZ Wildlife Service, and subsequently the Department of Conservation. He was, for example, a member of the Kakapo Scientific and Technical Advisory Committee and served on the Chatham Islands Conservation Board for nine years.

Ian's contribution to ecology and management has been recognised in his Life Membership of NZ Ecological Society (2001), the awarding of a New Zealand 1990 Commemoration Medal and the RSNZ Sir Charles Fleming Award for Environmental Achievement (1992).

A full obituary will be published in NZ Journal of Ecology.

NZES Hot Topics

Following hot on the heels of the success of the Hot Topics programme run by the Ecological Society of Australia, the NZES aims to improve communication of science from the conservation and ecological community within Aotearoa New Zealand to the people of NZ. The NZES Hot Topic reports will likewise provide a robust source of ecological and conservation science to counter misinformation and evidence complacency. The programme was established in 2018 as an initiative of the Kauri Fund.

NZES Hot Topic reports are evidence-based communiqués on conservation, environmental and predominantly ecological issues that are currently either in the media, or of interest to a broad cross-section of people from policy makers, land managers, conservation volunteers. NZES Hot Topics aim to provide clear, concise, evidence-based statements that aspire to enhance the nature of scientific debate in New Zealand and objectively inform public discourse on topics of national and regional importance.

NZES Hot Topics is governed by an editorial team consisting of New Zealand-based ecologists George Perry and James Brock. More information about Hot Topics can be found here https://newzealandecology.org/nzes-hot-topics

The first Hot Topic is "Cats and biodiversity" and can be read here, on the NZ Ecological Society website https://newzealandecology.org/cats-and-biodiversity-nz

The second Hot Topic is "Threats to New Zealand's dryland ecosystems", a synthesis by Dr Susan Walker, Manaaki Whenua–Landcare Research. It can be found here https://newzealandecology.org/threats-new-zealand%E2%80%99s-dryland-ecosystems

Where am I now? The story of an NZES Kauri Seed Scholar

Natalie de Burgh
Biodiversity Officer – Predator Free Hawke's Bay

I was awarded the Kauri Seed scholarship in 2015 and attended the NZES conference in Christchurch. The conference was held a few days after my final exams, so it was perfect timing to take in the variety of vocations and topics presented over the three days. I found the experience really valuable and I am grateful to have been given the opportunity for such exposure to the diversity of possibilities for a career in conservation in New Zealand.

The student day in particular was really helpful, and I am still in regular contact with people I first met then. I presented a small piece of research on the influence of coarse woody debris on seedling recruitment in the quick-fire round that had been a group project from one of our third-year ecology papers. It was a great opportunity to gain speaking experience.

A few months later I started at the Hawke's Bay Regional Council as project support for the Cape to City and Poutiri Ao ō Tāne projects. My role has been varied, and changed as the projects have matured, now falling under the umbrella of Predator Free Hawke's Bay which includes the Whakatipu Māhia project and the largest mainland farmland possum eradication. One of the highlights for me was organising the Transforming Biodiversity: challenging the boundaries Conference in 2017 which showcased learnings and research from Cape to City and Poutiri Ao ō Tāne. I have also had the opportunity to be involved in broader HBRC Biosecurity/Biodiversity work, including providing support for the ecosystem prioritisation work, and Regional Pest Management Plan review.

I have also had the opportunity to further my conservation experience with three stints in Greece with ARCHELON: the sea turtle protection society of Greece. I was able to spend time on nesting beach projects in Preveza and Gythio, and an in-water loggerhead population research project at Amvrakikos Bay.

News from across the ditch

The Ecological Society of Australia September bulletin includes articles about ecology in Australian cities, community engagement, threatened species recovery, and using Twitter. You can read more online here: https://www.ecolsoc.org.au/publications/bulletin/esa-bulletin-september-2019

Fools and Dreamers – short film

A free 30 minute documentary about the restoration at Hinewai Nature Reserve on Banks Peninsula and botanist Hugh Wilson is available for viewing here https://happenfilms.com/fools-and-dreamers?mc_cid=029c41a697&mc_eid=bf9a389f22
This short film describes the story of the wonderful work achieved over about 30 years. Large areas of gorse have gradually been allowed to regenerate into native forest.

One of the field trips during the conference will be to Hinewai Nature Reserve and led by Hugh Wilson.

Publications in the current issue of NZ Journal of Ecology (Volume 43, Issue 2)

Review Article

Roads and wildlife: the need for evidence-based decisions; New Zealand bats as a case study : 3376
Chris Jones, Kerry Borkin, Des Smith

Research Article

Use of distance sampling to measure long-term changes in bird densities in a fenced wildlife sanctuary : 3371
Faline M. Drummond, Doug P. Armstrong

Variability of little blue penguin (*Eudyptula minor*) diving behaviour across New Zealand : 3366
B. Louise Chilvers

Forum Article

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.

Ashley K, Sainsbury J, McBrydie H, Robertson AW, Pattemore D 2019. A scientific note on range expansion of a sedentary bumble bee (*Bombus hortorum*) in New Zealand. Apidologie 50: 11-13.

Bakker MR, Udo N, Atlan A, Gire C, Gonzalez M, Graham D, Leckie A, Milin S, Niollet S, Xue J, Delerue F 2019. Explaining the larger seed bank of an invasive shrub in non-native versus native environments by differences in seed predation and plant size. Annals of Botany 123: 917-927.

Abell JM, Özkundakci D, Hamilton DP, Van Dam-Bates P, McDowell RW 2019. Quantifying the extent of anthropogenic eutrophication of lakes at a national scale in New Zealand. Environmental Science and Technology 53 (16): 9439-9452.

Ausseil AGE, Daigneault AJ, Frame B, Teixeira EI 2019. Towards an integrated assessment of climate and socio-economic change impacts and implications in New Zealand. Environmental Modelling and Software 119: 1-20.

Bastakoti U, Robertson J, Marchand C, Alfaro AC 2019. Mangrove removal: Effects on trace metal concentrations in temperate estuarine sediments. Marine Chemistry 216: art. no. 103688.

Beets PN, Kimberley MO, Garrett LG, Paul TSH, Matson AL 2019. Soil productivity drivers in New Zealand planted forests. Forest Ecology and Management 449: art. no. 117480.

Bennet DG, Horton TW, Goldstien SJ, Rowe L, Briskie JV 2019. Flying south: Foraging locations of the Hutton's shearwater (*Puffinus huttoni*) revealed by Time-Depth Recorders and GPS tracking. Ecology and Evolution 9 (14): 7914-7927.

Bowie MH, Shields MW, He S, Ross JG, Cruickshank RH, Hodge S 2019. A survey of ground beetles (Coleoptera: Carabidae) in Ahuriri Scenic Reserve, Banks Peninsula, and comparisons with a previous survey performed 30 years earlier. New Zealand Journal of Zoology 46 (4): 285-300.

Bruce SJ, Zito S, Gates MC, Aguilar G, Walker JK, Goldwater N, Dale A 2019. Predation and risk behaviors of free-roaming owned cats in Auckland, New Zealand via the use of animal-borne cameras. Frontiers in Veterinary Science 6 (JUL): art. no. 205.

Carpenter JK, O'Donnell CFJ, Moltchanova E, Kelly D 2019. Long seed dispersal distances by an inquisitive flightless rail (*Gallirallus australis*) are reduced by interaction with humans. Royal Society Open Science 6 (8): art. no. 190397.

Chen SH, Guja LK, Schmidt-Lebuhn AN 2019. Conservation implications of widespread polyploidy and apomixis: a case study in the genus *Pomaderris* (Rhamnaceae). Conservation Genetics 20 (4): 917-926.

Chilvers BL, Battley PF 2019. Species prioritization index for oiled wildlife response planning in New Zealand. Marine Pollution Bulletin, 149, art. no. 110529.

Collier KJ, Pilditch CA, Lundquist CJ 2019. Mountains-to-the-sea conservation: An island perspective. Aquatic Conservation: Marine and Freshwater Ecosystems 29 (9): 1383-1390.

Coxon S, Harding JS, Gilpin B 2019. Faecal indicator bacteria in New Zealand freshwater fish: a pilot study. New Zealand Journal of Marine and Freshwater Research 53 (3): 470-479.

Daly EE, Walker KJ, Morgan-Richards M, Trewick SA 2019. Spatial genetics of a high elevation lineage of Rhytididae land snails in New Zealand: the *Powelliphanta* Kawatiri complex. Molluscan Research 39 (3): 280-289.

Dash JP, Watt MS, Paul TSH, Morgenroth J, Pearse GD 2019. Early detection of invasive exotic trees using UAV and manned aircraft multispectral and LiDAR Data. Remote Sensing, 11 (15): art. no. 1812.

David BO, Jarvis M, Özkundakci D, Collier KJ, Hicks AS, Reid M 2019. To sea or not to sea? Multiple lines of evidence reveal the contribution of non-diadromous recruitment for supporting endemic fish populations within New Zealand's longest river. Aquatic Conservation: Marine and Freshwater Ecosystems 29 (9): 1409-1423.

Dussex N, von Seth J, Knapp M, Kardailsky O, Robertson BC, Dalén L 2019. Complete genomes of two extinct New Zealand passerines show responses to climate fluctuations but no evidence for genomic erosion prior to extinction. Biology letters 15 (9): 20190491.

Easdale TA, Richardson SJ, Marden M, England JR, Gayoso-Aguilar J, Guerra-Cárcamo JE, McCarthy JK, Paul KI, Schwendenmann L, Brandon AM 2019. Root biomass allocation in southern temperate forests. Forest Ecology and Management 453: art. no. 117542.
Ghanizadeh H, Harrington KC 2019. Weed management in New Zealand pastures. Agronomy 9 (8): art. no. 448.
Glare TR, O'Callaghan M 2019. Microbial biopesticides for control of invertebrates: Progress from New Zealand. Journal of Invertebrate Pathology 165: 82-88.
Guo T, Morgenroth J, Conway T 2019. To plant, remove, or retain: Understanding property owner decisions about trees during redevelopment. Landscape and Urban Planning 190: art. no. 103601.
Kaemingk MA, Swearer SE, Bury SJ, Shima JS 2019. Landscape edges shape dispersal and population structure of a migratory fish. Oecologia 190 (3): 579-588.
Kean JM, Stringer LD 2019. Optimising the seasonal deployment of surveillance traps for detection of incipient pest invasions. Crop Protection 123: 36-44.
Kelly DJ, Schallenberg M 2019. Assessing food web structure in relation to nutrient enrichment, macrophyte collapse and lake resilience in shallow lowland lakes. New Zealand Journal of Marine and Freshwater Research 53 (4): 603-619.
Khwaja N, Briskie JV, Hatchwell BJ 2019. Individuality, kin similarity and experimental playback of contact calls in cooperatively breeding riflemen. New Zealand Journal of Zoology 46 (4): 334-347.
Larned ST, Schallenberg M 2019. Stressor-response relationships and the prospective management of aquatic ecosystems. New Zealand Journal of Marine and Freshwater Research 53 (4): 489-512.
Lieffering M, Newton PCD, Brock SC, Theobald PW 2019. Some effects of topographic aspect on grassland responses to elevated CO2. Plant Production Science 22 (3): 345-351.
Littlejohn CP, Hofmann RW, Wratten SD 2019. Delivery of multiple ecosystem services in pasture by shelter created from the hybrid sterile bioenergy grass *Miscanthus* x *giganteus*. Scientific Reports 9 (1): art. no. 5575.
Liu J-F, Zhang Z-Q, Beggs JR, Wei X-Y 2019. Influence of pathogenic fungi on the life history and predation rate of mites attacking a psyllid pest. Ecotoxicology and Environmental Safety 183: art. no. 109585.
Lusk CH, Grierson ERP, Laughlin DC 2019. Large leaves in warm, moist environments confer an advantage in seedling light interception efficiency. New Phytologist 223 (3): 1319-1327.
Mavoa S, Lucassen M, Denny S, Utter J, Clark T, Smith M 2019. Natural neighbourhood environments and the emotional health of urban New Zealand adolescents. Landscape and Urban Planning 191: art. no. 103638.
McCulloch GA, Foster BJ, Ingram T, Waters JM 2019. Insect wing loss is tightly linked to the treeline: evidence from a diverse stonefly assemblage. Ecography 42 (4): 811-813.
Meijer CG, Warburton HJ, Harding JS, McIntosh AR 2019. Shifts in population size structure for a drying-tolerant fish in response to extreme drought. Austral Ecology 44 (4): 658-667.
Mikutta R, Turner S, Schippers A, Gentsch N, Meyer-Stüve S, Condron LM, Peltzer DA, Richardson SJ, Eger A, Hempel G, Kaiser K, Klotzbücher T, Guggenberger G 2019. Microbial and abiotic controls on mineral-associated organic matter in soil profiles along an ecosystem gradient. Scientific Reports 9 (1): art. no. 10294.
Nakano M, Morgan-Richards M, Godfrey AJR, McCormick AC 2019. Parthenogenetic females of the stick insect *Clitarchus hookeri* maintain sexual traits. Insects 10 (7): art. no. 202.
Newnham RM, Hazell ZJ, Charman DJ, Lowe DJ, Rees ABH, Amesbury MJ, Roland TP, Gehrels M, van den Bos V, Jara IA 2019. Peat humification records from Restionaceae bogs in northern New Zealand as potential indicators of Holocene precipitation, seasonality, and ENSO. Quaternary Science Reviews 218: 378-394.

Ogilvie S, McCarthy A, Allen W, Grant A, Mark-Shadbolt M, Pawson S, Richardson B, Strand T, Langer ER, Marzano M 2019. Unmanned aerial vehicles and biosecurity: Enabling participatory-design to help address social licence to operate issues. Forests 10 (8): art. no. 695.
Paolini L, Schwendenmann L, Aráoz E, Powell PA 2019. Decoupling of the urban vegetation productivity from climate. Urban Forestry and Urban Greening 44: art. no. 126428.
Park JBK, Sukias JPS, Tanner CC 2019. Floating treatment wetlands supplemented with aeration and biofilm attachment surfaces for efficient domestic wastewater treatment. Ecological Engineering 139: art. no. 105582.
Ramírez GH, Anderson FE, Bianchinotti MV 2019. Induction of sporulation of cercosporoid pathogens of moth vine (*Araujia hortorum*). New Zealand Journal of Botany 57 (3): 179-187.
Rodgers RMR, Cain KE 2019. No evidence for side preference or handedness in a New Zealand rail species with habitual foot-usage, the pukeko. Behavioural Processes 167: art. no. 103910.
Roman L, Paterson H, Townsend KA, Wilcox C, Hardesty BD, Hindell MA 2019. Size of marine debris items ingested and retained by petrels. Marine Pollution Bulletin 142: 569-575.
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Noticeboard and upcoming conferences

New Zealand Ecological Society Conference 2019
1 - 5 December
Lincoln University, Lincoln, New Zealand

Call for Online Registration!
Early Bird Deadline: 18 October 2019

Follow the link below to register for the conference as well as sign up for Workshops and Field trips.

Click to Register

Photo Competition

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Awards will be available for 'Best Photo' and 'People's Choice'. The competition aims to highlight the diversity, beauty and interest of the biodiversity and ecosystems of New Zealand, and the role of ecologists in unravelling their mysteries. For more information and details on how to submit please visit the conference website.

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Find Out More

Workshops - Sunday, 1 December

There is no charge for attending, but please sign up through the online registration form

Workshop 1 - Full Day: 09.00 - 17.00

Meteorological and hydrological measurements and datalogging for ecology applications

Workshop 2 - Half Day Morning: 10.30 - 12.30

NZES as an active Treaty Partner

Workshop 3 - Half Day Afternoon: 13.30 - 16.30

Ecological Impact Assessment - what, why and how?

Workshop 4 - Half Day Afternoon: 13.30 - 16.30

Kaitiakitanga in urban spaces

Read More

Field Trips - Thursday, 5 December

There is a fee applicable for attending the field trips, please visit the Field Trips page on the website for details.

Field trip 1: 08.30 - 16.30: Hinewai Nature Reserve

Field trip 2: 09.00 - 17.00: Quail Island

Field trip 3: 09.00 - 14.30: Port Hills Fire

Field trip 4: 09.00 - 15.30: Red Zone and Riccarton Bush

Full conference programme released!

Accommodation Booking Reminder

December is a very busy time of year in this region and accommodation is limited. Take advantage of the university campus accommodation offering and have the convenience of staying onsite - but book early as limited rooms are available.

View Accommodation Options

A big thank you to our confirmed sponsors:

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11th INTECOL International Wetlands Conference, Christchurch, 2020

The INTECOL Wetland Working Group (WWG) will hold the 11th INTECOL International Wetlands Conference in Christchurch, New Zealand, on 18-23 October 2020. 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

37th annual John Child Bryophyte and Lichen Workshop Camp Taringatura, Southland -- 14 - 19 November 2019

We are pleased to announce that the 2019 John Child Bryophyte and Lichen Workshop will be based at Camp Taringatura from the evening of **Thursday, 14 November**, to the morning of **Tuesday, 19 November**. The Camp sits beside the Taringatura Reserve, situated between Dipton and Winton. Nearby are all sorts of rare and interesting remnants of the original wetlands, tussock grasslands, shrublands, rock outcrops, and diverse forests that once covered the Southland plains and Hokonui Hills, most of them carefully preserved by QEII Covenants or DOC Reserves. The covenant owners especially will be pleased to have bryophytes and lichens added to their species lists.

The workshop is open to anyone and everyone with an interest in the mosses, liverworts, and lichens of New Zealand, from beginner to expert. We have booked exclusive use of Camp Taringatura for the workshop and accommodation is available on site (bunks in 5 separate cabins for $25/night or campsites for $15/night). Evening meals will be catered and breakfast/lunch foods will be provided as well. We anticipate total cost for the workshop will be around $350; we will be requesting a deposit of $150 to confirm your place by 14 October.

Tom Moss Award: This award is open to any student studying any aspect of Australasian bryophytes and/or lichens. See the Wellington Botanical Society page for details.

Botanical Society of Otago Grants: This year the Botanical Society of Otago is offering two grants of $100 each to assist two people who might otherwise not be able to attend the workshop. If you would like to apply for one of these grants, please email bso@otago.ac.nz by 1 September with a paragraph summary, including:

1) Your background and why you would benefit from the grant

2) What you can do to benefit the Workshop (e.g., give a talk, help set up a display table)

Estimate of numbers: We would appreciate your indication of interest in attending the workshop. Please email angela.j.brandt@gmail.com as soon as possible with one of the following responses:

1. Yes, I will be attending the workshop and I'll stay at Camp Taringatura
2. Yes, I will be attending the workshop but I will find my own accommodation
3. I do not know if I can attend yet but will let you know as soon as possible

4. No, I will not be attending this year

5. Please take me off your mailing list a) for this year or b) forever

Please spread the word! Feel free to pass this information on to any other interested parties, who can request to be added to the mailing list for further updates on the workshop. We will send out the next circular with more details by early May.

We look forward to seeing you in Southland this November!

Organisers: Angela Brandt, Allison Knight, Maia Mistral, John Steel, David Glenny, Kelly Frogley, and Penelope Gillette

University of Canterbury summer course: Practical Field Botany

Practical Field Botany (BIOL305) is an intensive, short summer course designed to meet the need for training in the collection, preparation, and identification of botanical specimens.

Venue: University of Canterbury - Cass Mountain Research Area, Canterbury
Dates: 21 – 29 January 2020

This course will be of interest to amateur botanists, members of the workforce (e.g. Crown Research Institutes, Department of Conservation, Local and Regional Councils, Botanic Gardens, horticulturists and teachers) and biology students who need to acquire or upgrade taxonomic skills and are interested in field ecology, conservation, biodiversity and biosystematics. The course is targeted at participants with various entry levels: from students with a limited plant knowledge to experienced career professionals.

Goals of the course:

- To enable participants to become familiar with the plants of the central Canterbury mountains,
- identify and name plants correctly and accurately using online and hard-copy identification keys,
- take and edit scientific-quality plant photos,
- maximise usefulness and minimise environmental impact when collecting specimens,
- prepare high quality voucher specimens of plants,
- use scientific names to access detailed information about New Zealand plants,
- understand the patterns of variation within populations,
- appreciate unique and unusual aspects of the New Zealand flora.

Enrolment starts 1 October 2019.

More information:
Contact Matt Walters (matt.walters@canterbury.ac.nz; 03 369 5211) or Pieter Pelser (pieter.pelser@canterbury.ac.nz; 03 369 5228).

http://wchnz.com/wch2020

eLIFE

Research Practise Survey

How do you run and share your research?

Do you publish open access, post preprints, make your data readily available? All or none of the above? We'd like to hear from you. We're asking researchers across the life and biomedical sciences to complete our survey into research practices. It's our hope that the results will help us and other involved organisations to develop resources and policies in tune with the community needs.

Take the survey now

https://www.isbe2020.com/program/call-for-abstracts/

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(Effective from December 2018)

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
P: 64 3 318 1056
F: 64 3 318 1061
E: nzecosoc@outlook.com
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
Pest-management and conservation
PO Box 85084
Lincoln University
Lincoln 7647
Canterbury
E: Timothy.Curran@lincoln.ac.nz
T: @TimCurran8

Secretary
Kiri Wallace
Environmental Research Institute
University of Waikato
Hamilton
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 (3)

Bruce Burns
School of Biological Sciences
University of Auckland
Private Bag 92019
Auckland
P: 64 27 280 8332
E: b.burns@auckland.ac.nz
T: @BruceTracks

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

Rachel Nepia
University of Waikato
Hamilton
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
Sarah Wyse
Bio-Protection Research Centre
PO Box 85084
Lincoln University
Lincoln 7647
Canterbury
E:Webmaster@newzealandecology.org
T: @SarahTheWyse

Membership officer
Olivia Burge
Landcare Research
Lincoln
Canterbury
E: burgeo@landcareresearch.co.nz