

NEW ZEALAND ECOLOGICAL SOCIETY

Newsletter

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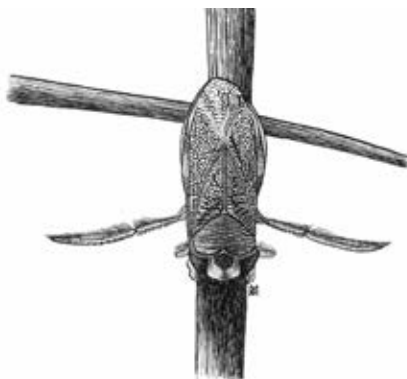
FROM THE EDITOR

Kia ora and welcome to my first issue as the new editor for the NZES newsletter. You can learn more about me in the council news section further on in this edition. I'd like to thank Debra Wotton for her excellent work over the last three and a half years of newsletter production. I'm looking forward to working with the NZES and receiving your ecological news, pictures, book reviews, articles and more. Please feel free to send me items you think would be of interest to the society for inclusion in the newsletter at any time.

I recently spent some time in Dunedin and while I was there I took the opportunity to attend meetings and field trips of the Botanical Society of Otago. Attending botanical society trips is something I wish I had done more often in the past. Personally I think you can never learn too many new plants, and these trips have certainly accelerated my learning of Otago plant communities. I believe that organisations like the Botanical Society of Otago are really important for ecologists. They get us out and into areas close to home that we might never visit otherwise. They are a fantastic place to learn about species from a group of passionate and extremely knowledgeable people. Therefore, they are also a fantastic place to meet people with similar interests to your own.

This leads nicely into pointing out that nominations are still open for the NZES awards (further details below). Please take a moment to consider if there is anyone that you know who should be considered for these awards and start nominating.

ILLUSTRATE ECOLOGY



Mark Galatowitsch

Sigara arguta waterboatmen are an aquatic insect found throughout New Zealand. They are commonly found swimming in tarns, lake margins, stock ponds, and slow stream reaches. (Pen and ink.)

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The deadline for submissions for the next issue of this newsletter is Friday 5 September 2014.

NZES CONFERENCE 2014

Annual conference at Massey University, Palmerston North, 16–20 November.

Registrations are now open for this conference, with the theme of "Is New Zealand the world's invasion hotspot?" Just look up the web page (www.nzes2014.org). Abstract submission is now open too.

Early-bird registration costs are \$570 for professionals, and \$240 for students, and includes the conference dinner, and the student session for students (on the Sunday).

There is a great programme of plenary speakers, including Phillip Cassey, Ragan Callaway and Ken Thompson. Several symposia are planned, both general and related to the conference theme. As well there are workshops, field trips, and for those needing a break, a writers' retreat over the following weekend.

Planned organisers and symposia:

Paul Barrett	Invasive pest management
Jill Rapson	Urban invasions
Mary Morgan-Richards	Hybridisation: invasion, assimilation, adaptation
Karen Hytten	Public attitudes to invaders
Phil Sneddon & Phil Battley	De-extinction
Steve Trewick	The Biological Heritage National Science Challenge
Tessa Roberts	Restoration of vegetation
Liz Daly	Evolutionary ecology
Jamie Wood	Metagenomic approaches to understanding ecosystems and biodiversity
Phil Battley	Migrations
Matt Krna & Matt Dickson	Tussock grassland dynamics

Other and general symposia are welcome.

NZES AWARDS 2014 – CALL FOR NOMINATIONS

Nominations for the following NZES awards close on the 2 July 2014.

- Honorary Life Membership
- Te Tohu Taiao – Award for Ecological Excellence
- Ecology in Action
- Best Publication on New Zealand Ecology

All nominations and queries about NZES awards and prizes should be emailed to George Perry (NZES Awards Convenor) at: george.perry@auckland.ac.nz

HONORARY LIFE MEMBERSHIP

Honorary life memberships are conferred from time to time to recognise excellence and long-standing service in the study or application of ecological science in New Zealand. The selection committee will consider candidates' eminence in their scientific field, their contribution to original research or the application of such research in New Zealand, and the extent of their association with the Society.

Nominations should also include a detailed statement of support outlining the candidate's contribution to their field and the society. Nominations must be seconded.

TE TOHU TAIAO – AWARD FOR ECOLOGICAL EXCELLENCE

Nominations are invited for the Te Tohu Taiao award (formerly NZES award). This award is presented annually to recognise individuals who have made an outstanding contribution to the study and application of ecological science. The award is made to the person(s) who have published the best original research regarding the ecology of New Zealand or its dependencies (including the Ross Dependency), or to the person(s) who have made a sustained and outstanding contribution to applied ecology, particularly conservation and management.

NB. This award used to be presented to members only but a council decision in 2006 supported the recommendation to make non-members eligible.

The Society awards recipients:

- \$500 contribution towards attending the next NZ Ecological Society Conference
- \$500 prize

Recipients of the award are invited to present a paper at the next annual NZ Ecological Society Conference and at the next annual conference of the Ecological Society of Australia.

Nominations should also include a detailed statement of support summarising the nominee's contribution to ecological science.

ECOLOGY IN ACTION

The Ecology in Action award reflects one of the primary aims of the society: the promotion of the study of ecology and the application of ecological knowledge in all its aspects. This award was established to recognise individuals who have made outstanding contributions to the promotion of ecology, including communication, education and transfer of ecological science at the grass roots in NZ or the Pacific. The Society would like to recognise such individuals' achievements in promoting ecology and education, with landowners, community groups, politicians, councils and others. The society recognises the important role of the transfer of ecological knowledge in changing behaviours and achieving practical protection and restoration of biodiversity.

The Society awards recipients:

- \$500 contribution towards attending the next NZ Ecological Society Conference
- \$500 prize

Recipients of the award are invited to present a paper at the next annual NZ Ecological Society Conference. The work can also be given profile via a media item, or highlighted in the NZ Ecological Society newsletter.

Nominations should also include a detailed statement of support outlining the nominee's contributions to the practice and application of ecology.

BEST PUBLICATION ON NEW ZEALAND ECOLOGY

The purpose of this award is to recognise a publication made in the last three years that has made an outstanding contribution to our understanding and/or management of ecosystems (terrestrial, aquatic or marine) in New Zealand or its dependencies (including the Ross Dependency). Publications may take the form of peer-reviewed journal articles, book chapters or books. They are not restricted to articles in the New Zealand Journal of Ecology, although these are eligible for nomination. The Society awards recipients:

- \$500 prize

Nominations should include a statement outlining the publication's significance and the role of the nominee (typically the senior author or sole author of the paper) in producing it.

BOOK REVIEW

Nature and Farming: Sustaining Native Biodiversity in Agricultural Landscapes

David Norton & Nick Reid

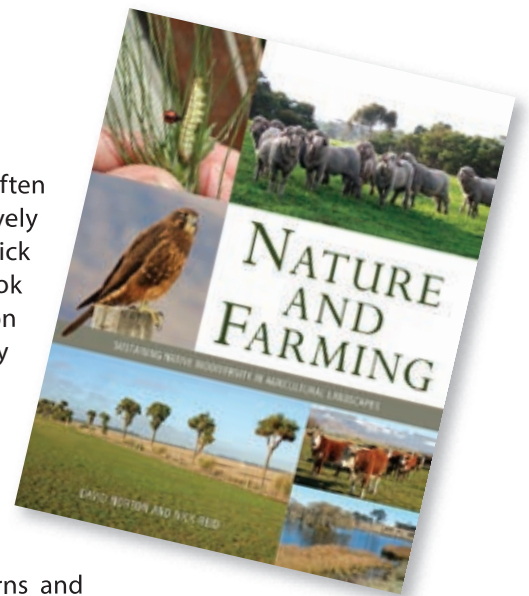
CSIRO Publishing, Melbourne ISBN: 9780643103252, Published 2013, RRP AU\$69.95

Reviewed by Bill Lee, Landcare research

Traditionally the domain of European studies, books on farming and nature often fail to resonate with New Zealand ecologists because they deal with relatively unfamiliar agricultural activities, landscapes and biota. David Norton and Nick Reid have sought to correct this imbalance with the production of a new book dealing with sustaining native biodiversity in agricultural landscapes based on their research and experience in New Zealand and Australia. The inter-country comparison is useful given their common biological antecedents, contrasting evolutionary and human histories, and more recently, convergence of agricultural intensification practices.

The book is focused on retaining native biodiversity in farming landscapes and is less about fostering particular types of agricultural land use. It begins by providing a rationale for retaining native biodiversity in production landscapes and sets out the ecologically important patterns and processes for biodiversity persistence that are often disrupted in modified settings. The overall aim here is to identify the specific drivers of biodiversity loss at a range of temporal and spatial scales.

Around half the book deals with "nuts and bolts" examples of ways in which farmers have shown how agricultural activity can sustain and enhance native biodiversity. It initially outlines a range of current programmes that support farmers wanting native biodiversity, drawing on examples from Australasia and elsewhere. There is also a series of useful property case studies involving different types of farming and diverse efforts to protect native biodiversity, often with highlighted benefits for pest control, stock or crops. These include the deliberate use of native species through to habitat restoration and amenity plantings.



The final chapters recognise the opportunities and obvious challenges for keeping native biodiversity amidst normal farming operations. They highlight some of the attitudes and obstacles for facilitating biodiversity conservation in these landscapes, particularly issues around property rights, the relative effectiveness of “stick” versus “carrot” incentives, and the importance of intentional goals, plans and monitoring for achieving biodiversity benefits.

I think farmers, regional and district council representatives and staff, consultants and researchers active in improving biodiversity outcomes in agricultural landscapes will all find value in this book. It certainly provides many interesting examples for consideration, some familiar to readers in both countries. The large A4-sized 294-paged book is well populated with illustrative colour pictures.

I agree with the authors that farmers need to be part of the solution to reversing the decline in native biodiversity in agricultural landscapes and I strongly endorse the idea that multiple options should be available to assist biodiversity protection on properties. From this book I get the impression that scale, economics and family affinity with place each play a part in encouraging farm practices that facilitate native biodiversity persistence. Perhaps the roles and relative importance of these should have been explored further. The links between retaining native biodiversity and sustainable agricultural practices are implicit but to be substantiated they need a more complete analysis of inputs and outputs in different types of farming. However, as mentioned by the authors, the entrance of corporate agri-business and unparalleled levels of intensification driven by extraordinarily high commodity prices are rapidly changing the types and scale of antipodean farming practices.

Native biodiversity in our rural landscapes faces a very uncertain future. The ideas and practical examples presented in *Nature and Farming* challenge us all to consider how we might best create a cultural and economic environment that sustains a place for native biodiversity in a country with strong agricultural dependency and 100% pure New Zealand aspirations.

ECOTAS 2013 REVIEW

EcoTas 2013 was recently reviewed in the journal *New Phytologist*. The review sums up the conference under four main headings:

- Ecosystem development and retrogression
- Human arrival and invasion ecology
- Changing climate
- Changing ecology

The paper provides an interesting take on the conference and is well worth reading. You can find it here: <http://onlinelibrary.wiley.com/doi/10.1111/nph.12724/abstract>

Dickie IA, Tjoelker MG 2014. Changing ecology. *New Phytologist* 202: 1118–1121. DOI: 10.1111/nph.12724

ECOTONES

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)

CAN CARBON FARMING BE A VIABLE LAND-USE OPTION IN NEW ZEALAND?

Carbon farming describes any land use in which the landowner derives economic benefit linked to the amount of carbon sequestration occurring on their land. Although carbon farming often includes exotic plantation forests, it is also associated with regeneration of native forests, which can provide more and a greater variety of ecological co-benefits. However, landowners are probably less likely to adopt carbon farming as a possible land use unless it can compete economically with other land uses, e.g. grazing. Funk et al. (2014) have recently modelled carbon farming in the Gisborne District to evaluate whether and where it could be a beneficial enterprise in comparison to grazing. Using what they considered a conservative value for carbon (NZ\$15 a ton), they found 102,951 ha in this District where the potential economic revenues from carbon could generate NZ\$912 million in excess of expected grazing revenues over 70 years of forest regeneration. These results suggest that reforestation could out-compete grazing on at least 27% of eligible land in the Gisborne District. However, the results were highly dependent on the price of carbon which in New Zealand is currently below even the conservative scenario used by Funk et al (2014), although on its way up (<http://www.carbonforestservices.co.nz/carbon-prices.html>).

Funk JM, Field CB, Kerr S, Daigneault A 2014. Modeling the impact of carbon farming on land use in a New Zealand landscape. *Environmental Science and Policy* 37: 1-10. DOI:10.1016/j.envsci.2013.08.008

HOW FAR CAN STOATS SWIM?

Managers of near-shore island biodiversity sanctuaries free from mammalian pests need to remain vigilant against pest reinvasion. However, islands more than 1.5 km offshore have usually been considered safe from stoat reinvasion. Disturbingly, in recent years rare incidents have been reported in which stoats have arrived at pest-free islands at least 3 km offshore (Rangitoto) and 5km offshore (Kapiti Island). So, how far can stoats swim, and on which islands must we remain vigilant for possible stoat arrival? To answer these questions, King et al. (2014) tested the swimming capabilities of 9 captive stoats in a flume equipped with an endless current at the University of Waikato. Several stoats swam for more than an hour and one stoat for almost 2 hours, at an average swimming speed of 1.3 km/hr. As these were captive animals, deprived of outdoor exercise for at least a year, the authors suggest these figures are likely minimums compared to wild stoats. They conclude that these figures, along with other observations, suggest that the swimming range of stoats has been underestimated, and that we should not be complacent to stoat reinvasion on all islands at least <3-5 km offshore.

King CM, Veale A, Patty B, Hayward L 2014. Swimming capabilities of stoats and the threat to inshore sanctuaries. *Biological Invasions* 16: 987-995. DOI:10.1007/s10530-013-0564-2

LIVING AND DYING IN A PLASTIC OCEAN

The amount of plastic debris accumulating in the world's oceans continues to increase from both ocean and land-based sources. Seabirds presumably mistake plastic fragments as food and regularly ingest it. In the mid-1990's, 35% of all seabird species had been recorded with plastic in stomachs, and this percentage has continued to increase. Also, the proportion of individuals within populations with ingested plastic is also increasing, with some studies reporting all individuals of some populations contain plastic. Ingested plastic generally has negative consequences for seabirds including physical (e.g. starvation) and chemical (e.g. accumulation of toxins) effects. Lavers et al. (2014) have recently looked at the contribution that plastic ingestion might be making to the population decline of flesh-footed shearwaters on Lord Howe Island in the Tasman Sea by looking at fledgling condition. They found that 90% of fledglings contained plastic, with one bird having 276 pieces of plastic in its stomach. Birds with high levels of plastic ingested had reduced condition and high contaminant (e.g. heavy metal) loads in their tissues. They concluded that ingested plastic poses a significant risk to flesh-footed shearwaters and helps explain the ongoing decline of this species across its range (including in New Zealand waters, Buxton et al. 2013). Effects on other seabird species in this region also seem probable.

Buxton RT, Currey CA, Lyver POB, Jones CJ 2013. Incidence of plastic fragments among burrow-nesting seabird colonies on offshore islands in northern New Zealand. *Marine Pollution Bulletin* 74: 420-424.

Lavers JL, Bond AL, Hutton I 2014. Plastic ingestion by flesh-footed shearwaters (*Puffinus carneipes*): Implications for fledgling body condition and the accumulation of plastic-derived chemicals. *Environmental Pollution* 187: 124-129. DOI:10.1016/j.envpol.2013.12.020

SWITCHING BETWEEN ECOSYSTEMS: ARE THERE ALTERNATIVE STABLE STATES ON COASTAL HEADLANDS?

Often two quite dissimilar but persistent ecosystems apparently occur side by side within the same environment. This phenomenon has been explained by the concept of alternative stable states, whereby each state is stable because of internal maintaining processes but can change to the other state when some controlling variable reaches a critical threshold level. Brownstein et al (2014) present a study of a New Zealand example that appears to illustrate such a system. They observed two frequent plant communities on exposed coastal headlands of the South Island: a native turf community and an exotic pasture grass community that occur in a mosaic of seemingly persistent patches. The native turf community contains several threatened plant species and such communities are the subject of conservation concern. Brownstein et al (2014) tested whether these two communities could be considered alternative stable states, and experimented with grazing, salt spray and soil nitrogen levels as factors driving persistence in or change between states. They found that the turf community was promoted with higher levels of grazing, low nitrogen, and high salt spray; whereas the pasture community was favoured under low grazing, low salt spray, but elevated nitrogen sometimes provided by introduced clovers. They did not conclude, however, that these two ecosystems were strictly alternative states because they did not appear to be stable under exactly the same environmental conditions. Rather they suggested that the cutoff point at which one state is favoured over the other is quite abrupt, and the environment fluctuates across this boundary. Although they did not find alternative states, this study shows the importance of understanding ecosystem drivers for any management or restoration of focal ecosystems.

Brownstein G, Lee WG, Pritchard DW, Wilson JB 2014. Turf wars: experimental tests for alternative stable states in a two-phase coastal ecosystem. *Ecology* 95: 411-424. DOI:10.1890/12-1982.1

GROUND-COVER WEEDS AFFECT INVERTEBRATE (AND FUNGAL?) COMMUNITY STRUCTURE

Ground-cover weeds of lowland native forest in New Zealand, e.g. *Tradescantia fluminensis* (tradescantia), *Hedychium gardnerianum* (kahili ginger), are already known to have substantial impacts on regeneration of native vegetation and to alter ecosystem processes such as decomposition. The effects of these weeds on decomposition may be mediated through changes in fungal biomass or community composition. Bassett (2014) postulated that if the fungal abundance or composition was changed because of weed presence, then such an impact would be apparent in differences in invertebrate fungivore communities between sites with and without weeds. Her results show that fungivorous beetles responded strongly in abundance to the presence or absence of weeds, but that the direction of that response varied considerably. She also showed that isopods, which are generally decomposers, increased in abundance when weeds were present. Although the direction of the effect of weeds on fungal invertebrates seemed somewhat idiosyncratic, it does strongly suggest that weeds can affect fungal communities in these ecosystems, and suggests such communities should be directly examined.

Bassett IE 2014. Impacts on invertebrate fungivores: a predictable consequence of ground-cover weed invasion? *Biodiversity and Conservation* 23: 791-810. DOI:10.1007/s10531-014-0634-5

OTHER RECENT PUBLICATIONS ON NEW ZEALAND ECOLOGY

Armstrong DP, Gorman N, Pike R, Kreigenhofer B, McArthur N, Govella S, Barrett P, Richard Y 2014: Strategic rat control for restoring populations of native species in forest fragments. *Conservation Biology* 28: 713-23. DOI:10.1111/cobi.12256

Bassett IE, Elliott GP, Walker KJ, Thorpe S, Beggs JR 2014. Are nesting seabirds important determinants of invertebrate community composition on subantarctic Adams Island? *Polar Biology* 37: 531-540. DOI:10.1007/s00300-014-1454-5

Blackie HM, MacKay JWB, Allen WJ, Smith DHV, Barrett B, Whyte B, Murphy EC, Ross J, Shapiro L, Ogilvie S, Sam S, MacMorran D, Inder S, Eason CT 2014. Innovative developments for long-term mammalian pest control. *Pest Management Science* 70: 345-351. DOI:10.1002/ps.3627

Brockerhoff EG, Kimberley M, Liebhold AM, Haack RA, Cavey JF 2014. Predicting how altering propagule pressure changes establishment rates of biological invaders across species pools. *Ecology* 95: 594-601. DOI:10.1890/13-0465.1

Brown RL, El-Sayed AM, Unelius CR, Suckling DM 2014. Attraction of the invasive social wasp, *Vespula vulgaris*, by volatiles from fermented brown sugar. *Entomologia Experimentalis et Applicata* 151: 182-190. DOI:10.1111/eea.12183

Brunbjerg AK, Cavender-Bares J, Eiserhardt WL, Ejrnaes R, Aarssen LW, Buckley HL, Forey E, Jansen F, Kattge J, Lane C, Lubke RA, Moles AT, Laura Monserrat A, Peet RK, Roncal J, Wootton L, Svenning J 2014: Multi-scale phylogenetic structure in coastal dune plant communities across the globe. *Journal of Plant Ecology* 7: 101-114. DOI:10.1093/jpe/rtt069

Burrell TK, O'Brien JM, Graham SE, Simon KS, Harding JS, McIntosh A 2014. Riparian shading mitigates stream eutrophication in agricultural catchments. *Freshwater Science* 33: 73-84. DOI:10.1086/674180

Buxton RT, Jones C, Moller H, Towns DR 2014. Drivers of seabird population recovery on New Zealand islands after predator eradication. *Conservation Biology* 28: 333-344. DOI:10.1111/cobi.12228

Campbell DI, Smith J, Goodrich JP, Wall AM, Schipper LA 2014. Year-round growing conditions explains large CO₂ sink strength in a New Zealand raised peat bog. *Agricultural and Forest Meteorology* 192: 59-68. DOI:10.1016/j.agrformet.2014.03.003

Canham CD, Ruscoe WA, Wright EF, Wilson DJ 2014. Spatial and temporal variation in tree seed production and dispersal in a New Zealand temperate rainforest. *Ecosphere* 5: article 49.

Cassey P, Prowse TAA, Blackburn TM 2014. A population model for predicting the successful establishment of introduced bird species. *Oecologia* 175: 417-428.

Clarkson BR, Moore TR, Fitzgerald NB, Thornburrow D, Watts CH, Miller S 2014. Water table regime regulates litter decomposition in restiad peatlands, New Zealand. *Ecosystems* 17: 317-326. DOI:10.1007/s10021-013-9726-4

Congdon NM, Briskie JV 2014. Changes in the life history traits of song thrushes *Turdus philomelos* introduced to New Zealand. *Bird Study* 61: 143-151. DOI:10.1080/00063657.2014.908820

Constantine R, Steel D, Allen J, Anderson M, Andrews O, Baker CS, Beeman P, Burns D, Charrassin J-B, Childerhouse S, Double M, Ensor P, Franklin T, Franklin W, Gales N, Garrigue C, Gibbs N, Harrison P, Hauser N, Hutsel A, Jenner C, Jenner M-N, Kaufman G, Macie A, Mattila D, Olavarria C, Oosterman A, Paton D, Poole M, Robbins J, Schmitt N, Stevick P, Tagarino A, Thompson K, Ward J 2014. Remote Antarctic feeding ground important for east Australian humpback whales. *Marine Biology* 161: 1087-1093. DOI:10.1007/s00227-014-2401-2

Dennis AB, Dunning LT, Dennis CJ, Sinclair BJ, Buckley TR 2014. Overwintering in New Zealand stick insects. *New Zealand Entomologist* 37: 35-44.

Dickie IA, Koele N, Blum JD, Gleason JD, McGlone MS 2014. Mycorrhizas in changing ecosystems. *Botany-Botanique* 92: 149-160. DOI:10.1139/cjb-2013-0091

Eddy TD 2014. One hundred-fold difference between perceived and actual levels of marine protection in New Zealand. *Marine Policy* 46: 61-67. DOI:10.1016/j.marpol.2014.01.004

- Eddy TD, Pitcher TJ, MacDiarmid AB, Byfield TT, Tam JC, Jones TT, Bell JJ, Gardner JPA 2014. Lobsters as keystone: Only in un-fished ecosystems? *Ecological Modelling* 275: 48-72. DOI:10.1016/j.ecolmodel.2013.12.006
- Forgie SA, Dymock JJ, Tompkins DM 2014: No evidence that brushtail possums (*Trichosurus vulpecula*) forage on dung beetles (Coleoptera: Scarabaeidae) in New Zealand. *New Zealand Journal of Zoology* 41: 95-102.
- Gill RE Jr, Douglas DC, Handel CM, Tibbitts TL, Hufford G, Piersma T 2014. Hemispheric-scale wind selection facilitates bar-tailed godwit circum-migration of the Pacific. *Animal Behaviour* 90: 117-130. DOI:10.1016/j.anbehav.2014.01.020
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- Grayson KL, Mitchell NJ, Monks JM, Keall SN, Wilson JN, Nelson NJ 2014. Sex ratio bias and extinction risk in an isolated population of tuatara (*Sphenodon punctatus*). *PLOS ONE* 9: e94214. DOI:10.1371/journal.pone.0094214
- Gundale MJ, Pauchard A, Langdon B, Peltzer DA, Maxwell BD, Nunez M 2014. Can model species be used to advance the field of invasion ecology? *Biological Invasions* 16: 591-607. DOI:10.1007/s10530-013-0610-0
- Harris KM, Dickinson KJM, Whigham PA 2014. Functional connectivity and matrix quality: network analysis for a critically endangered New Zealand lizard. *Landscape Ecology* 29: 41-53. DOI:10.1007/s10980-013-9967-9
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- Le Roux D, Le Roux NN, Waas JR 2014. Spatial and temporal variation in long-tailed bat echolocation activity in a New Zealand city. *New Zealand Journal of Zoology* 41: 21-31.
- Li X, Flenley JR, Rapson G 2014. Untangling the causes of vegetation change in a 5,300 year pollen record at Tiniroto Lakes, Gisborne, New Zealand. *Vegetation History and Archaeobotany* 23: 87-96. DOI:10.1007/s00334-013-0398-y
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- Painting CJ, Holwell GI 2014. Observations on the ecology and behaviour of the New Zealand giraffe weevil (*Lasiorhynchus barbicornis*). *New Zealand Journal of Zoology* 41: 147-153.
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- Romijn RL, Nelson NJ, Monks JM 2014. Forest geckos (*Mokopirirakau* 'Southern North Island') display diurno-nocturnal activity and are not reliant on retreats. *New Zealand Journal of Zoology* 41: 103-113.
- Smaill S, Bayne KM, Coker GWR, Paul TSH, Clinton PW 2014. The right tree for the job? Perceptions of species suitability for the provision of ecosystem services. *Environmental Management* 53: 783-799. DOI:10.1007/s00267-014-0239-5

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NEWS FROM COUNCIL

The NZES council has been busy with letters to the Minister of Conservation, introducing a trans-Tasman membership agreement, the new website development, and the appointment of a new Newsletter Editor.

LETTERS TO THE MINISTER OF CONSERVATION

Mackenzie Dryland Park

In June the NZES wrote to the Minister of Conservation, Hon Nick Smith, in support of the proposed Dryland Park in the Mackenzie Basin. The letter points out the high ecological values of the Mackenzie basin and the threats it faces with ongoing land use change in the area. Additionally, the letter highlights the support from local communities for the proposed park as well as from the Parliamentary Commissioner for the Environment.

Battle for our birds

In April the NZES wrote to the Hon Nick Smith, Minister of Conservation, to express support for the planned "Battle for our Birds" response to the mast seeding event currently taking place across New Zealand. However, the letter also expresses concern for the diversion of funds from existing DOC programmes in order to fund the proposed response. In the letter the NZES proposed the creation of a Pest Management Emergency Fund, to be held in reserve and allowed to accumulate in most years, but accessible to DOC in years with exceptional, or back-to-back mast seedfall. The NZES also queried the limited additional pest control for the North Island in DOC's response plan.

Both letters will be available to view online at: www.nzes.org.nz

NEW NEWSLETTER EDITOR—PROFILE

Jane Gosden

Jane is an ecologist with a strong interest in plants, especially New Zealand's alpine flora. Jane has spent the previous two summer seasons working for DOC as a field botanist on the Tier 1 national monitoring programme, as she will again this coming summer. Jane has a MSc in Ecology from the University of Canterbury where she studied the factors preventing hybridisation in *Celmisia* (NZ mountain daisies). In her spare time Jane enjoys exploring the New Zealand backcountry, photography, and painting pictures of New Zealand's flora and fauna.



TASMAN LINKAGE MEMBERSHIP UPDATE

Reciprocal membership between the Ecological Society of Australia (ESA) and the NZES is now available to members of both societies. For NZES members, discounted membership of the ESA is now available on the ESA website at \$46 AUD (the same as their unwaged membership). The NZES has the Tasman linkage as a new membership option for ESA members, the price is the same as for our unwaged members (\$55 NZD). The arrangement between the two societies also enables electronic access to publications and member rates at their conferences, as well as formalizing an interchange of award winners to present at conferences.

WEBSITE DEVELOPMENT

The new NZES website is getting closer to going live. It will be more functional and user friendly than the existing website. Thank you for all the hard work put in by Laura Young and Ellen Cieraad. Watch this space.

POSTGRAD PROFILES

Jay Iwasaki, University of Otago

Jay is a PhD candidate at the University of Otago, supervised by Katharine Dickinson and Barbara Barratt in Botany, and Alison Mercer in Zoology. Current advisors also include Janice Lord in the Botany department and Stacey Combes at Harvard University.

My research is centred around the context of the *Varroa* destructor mite invasion of New Zealand, now 14 years ago, and its effects on bee communities. This fatal parasitic mite has decimated feral honey bees on both main islands, which may have created a situation where other nectar users have an increased availability of resources. Using an experimental glasshouse at AgResearch Invermay I'm looking at honey bee and bumblebee foraging on artificial flowers, and potential competition where we experimentally alter the quality and abundance of provided resources. Bumblebees are the only bee species in New Zealand whose life cycle overlaps with honey bees in significant numbers when native bees are not present, and may as a result compete for resources during the times of year when resources are scarce. This study can shed insight into how the loss of honey bees may affect the ecology of the only other social bees in New Zealand (bumblebees) which are unaffected by *Varroa*.



Bees visiting one of Jay's artificial flower experiments.

Following this indoor study, I will be collaborating with various labs and CRIs to examine changes in pollinator networks and the potential competitive effects that these introduced social bees may have on the solitary native bee species. A better understanding of how these insects interact and share resources may provide an incentive for conservation and management of native bee nesting habitat. Quantifying the importance of native bees can foster a better appreciation of these often overlooked insects and contribute to a more resilient pollinator community both in New Zealand and globally.

Marine Aubert, University of Canterbury

Marine has just completed her first year of her PhD at the University of Canterbury, under the supervision of Prof Dave Kelly. She is the inaugural recipient of the Queen Elizabeth II National Trust 'Dr Brian Molloy Doctoral Scholarship', a major research grant intended for ecological studies of particular interest to New Zealand's natural environment.

In 2013 I was awarded my MSc in Environmental Science with 1st class honours at the University of Auckland, having built a sustainable restoration project in New Caledonia. I investigated the use of endemic tree species to establish ecological corridors between patches of a fragmented rainforest on a mining site. Although I was focusing on plants and the influence of environmental parameters, I soon realized the important role of mutualisms with birds in forest dynamics. Hence, for my PhD, I am now evaluating the effects of forest fragmentation and local bird communities on the regeneration of native plants.

New Zealand has been greatly affected by habitat fragmentation and loss of forest bird species. Some long-lived native plants, still remaining in forest fragments, rely on forest birds for pollination and seed dispersal. Cryptic disruptions of these mutualisms may remain unnoticed, preventing tree regeneration in small and/or isolated patches, which may then face subsequent local extinctions.

My research aims to assess breeding systems of bird-pollinated, bird-dispersed plants in a fragmented forest network. In order to evaluate plant-bird mutualisms at the local to landscape scale, I am focusing on tree fuchsia (*Fuchsia excorticata*) as a model species, and I am using a large set of lowland forest remnants on Banks Peninsula, varying in



Marine with Dr Brian Molloy (left) and Prof. Dave Kelly (right).

size (3 to over 1,000 hectares) and isolation. I estimate local bird populations, field rates of pollination and fruit removal, and I will assess inbreeding depression by measuring germination, growth and survival rates in germination trials. I am especially grateful to the QEII National Trust, which helped me gain access to suitable study sites on private covenants, and for their generous grant that allows me to take an innovative, multidisciplinary approach: my research design includes the use of new technologies, such as microsatellite genotyping and geospatial modelling, which have the potential to offer new insights in ecological research. While the results are aimed at improving conservation practices in New Zealand, by favouring long-term persistence of native plants in small protected forest patches, the methodology and outcomes of this research should be of global interest.

Michelle Lambert, University of Canterbury

Michelle is a Masters candidate at the University of Canterbury supervised by Prof. David Norton, Prof. Jason Tylianakis, and Dr William Godsoe with funding from Miss E.L. Hellaby Indigenous Grasslands Trust. Michelle has been passionate about native flora and fauna conservation from an early age and looks forward to growing her knowledge and enthusiasm of flora and fauna in the future.



Michelle Lambert recording data at one of her field sites in the Cass Mountain Research Area.

My thesis is a comparative study between two native New Zealand shrubs, the Nationally Declining *Olearia lineata* and Not Threatened *Olearia bullata*. I became interested in these species after completing a vegetation survey of the University of Canterbury's Cass Mountain Research Area (CMRA). We found a population of *O. lineata* within the CMRA and I wanted to investigate how it became a threatened plant. My study's aim is to understand the mechanisms causing the decline of *O. lineata* and how this affects the future persistence of this species. *O. lineata*, like many other woody trees in the lowland areas of New Zealand, has become threatened due to habitat loss resulting in habitat fragmentation, and from being outcompeted by invasive grasses such as brown top and sweet vernal. This has a negative effect, not only on the persistence of *O. lineata*, but also on the suite of native moths that feed exclusively on plants in the *Olearia* genus.

My research involves examining the population structure of *O. lineata* and *O. bullata* populations to assess their history and recruitment patterns. Glasshouse experiments are being used to quantify germination and seedling growth rates of both species in the presence and absence of grass. This will be used to determine how large an effect grass has on regeneration. I am also looking at the composition of the native moth communities to determine how reliant they are on these *Olearia* species.

My research is important as little is known of the ecology of *O. lineata* and *O. bullata*, with a small number of previous studies indicating the importance of these *Olearia* for invertebrate communities. I'm looking forward to see what results I attain to provide an insight into the mechanisms behind why *O. lineata* is declining.

Anne Tomlinson, University of Auckland

Anne has recently completed her PhD at the School of Biological Sciences, University of Auckland, supervised by Jacqueline Beggs and David Wardle, with funding support from the University of Auckland.

New Zealand's detritivore fauna has been augmented by a diverse assemblage of exotic species including earthworms (Oligochaeta), millipedes (Diplopoda) and woodlice (Isopoda), but there is limited understanding of their impacts on native litter fauna and ecosystem processes. Anne's PhD research focused on native and exotic millipedes and woodlice and aimed to: (1) identify factors influencing their distribution and abundance in native forests in the Auckland region; and (2) assess the potential for exotic decomposers to alter ecosystem processes by comparing the effects



Anne Tomlinson hand collecting millipedes at Woodhill Forest in west Auckland.

of a native and an exotic millipede on litter decay and nutrient release and the flow-on effects on growth rates of puriri (*Vitex lucens*) seedlings in a microcosm study.

Tree species identity was an important driver of native and exotic invertebrate species assemblages with high abundance and diversity in high nutrient litters such as puriri (*Vitex lucens*) and mahoe (*Melicactus ramiflorus*). No exotic isopods were collected but exotic millipedes were numerous and diverse at some sites and were often associated with diverse native millipede assemblages. Thus litter habitats favoured by native millipedes and isopods may be vulnerable to invasion by exotic millipedes. The abundance of exotic millipedes (*Oxidus gracilis*) dramatically increased during the microcosm study, which enhanced litter decay rates and increased soil nutrients and pH in treatments with this species compared to the native millipede treatment. Findings from Anne's PhD indicate that exotic millipedes form a significant component of the litter community in some native ecosystems, which may have profound impacts on decomposition processes. Further research is warranted on the impacts of invasive soil fauna in New Zealand ecosystems.

THE NOTICEBOARD

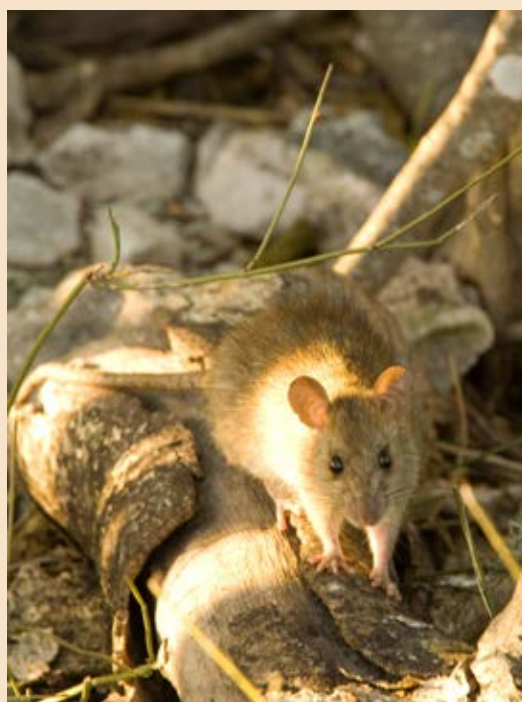
50TH ANNIVERSARY OF RODENT ERADICATIONS IN NEW ZEALAND

In 2014 we celebrate 50 years of rodent eradications in New Zealand, following the confirmation of successful eradication of Norway rats from Maria Island in 1964 by the Forest and Bird Protection Society with assistance from Don Merton, and a grant of 5 pounds from the Wildlife Service. At that time only 0.5% of New Zealand's islands were predator-free but today that percentage has increased to 10%, due to the pioneering efforts of staff in the NZ Wildlife Service and then Department of Conservation, supported by volunteers and community groups. Much has changed in those fifty years, including the landmark use of helicopters to deliver bait aerially, and the knowledge export of rodent eradications to other islands across the globe.

To celebrate these 50 years the University of Auckland and partners are hosting a symposium on rodent eradications to be held 10 September 2014 at the University of Auckland. The full-day symposium will consist of a series of talks by those involved at the time in pioneering eradications, presenting a retrospective of the eradication operation at the time, the benefits to the island today, and looking forward to the future of island conservation and rodent eradication. Registration is free and the symposium will be accessible to a general audience.

More information and registration is available here

<http://www.science.auckland.ac.nz/en/about/our-research/rateradication.html>
rateradication@auckland.ac.nz



DONATE NOW! KAURI FUND FOR ECOLOGICAL SCIENCE

We invite you to help grow the science of ecology in New Zealand by contributing to the NZES Kauri Fund. This fund was established in 2001 to provide resources for initiatives that assist the development of ecology and ecologists in New Zealand. As the Fund grows, it will play an increasingly critical role in advancing the Society's goals and fund exciting new initiatives for New Zealand ecology.

Please consider a donation to the Kauri Fund, whether \$10, \$20 or \$50, now or when you renew your subscription. You can contribute in two ways:

Send a cheque made out to: "NZES Kauri Fund" to the New Zealand Ecological Society, PO Box 5075, Papanui, Christchurch 8542.

Internet banking: credit to New Zealand Ecological Society, account 06 0729 0465881 00, identify the payment as "Kauri Fund".

UPCOMING MEETINGS

Island Biology 2014

7–11 July 2014

Hawaii, USA

<https://sites.google.com/a/hawaii.edu/islandbiology2014/>

To receive announcements email island.biology@gmail.com

Ecological Society of Australia 2014

28 September – 3 October 2014

Alice Springs Convention Centre

- Oral presentation abstract deadline: closed
- Poster abstract deadline: 29 August 2014
- Earlybird registration closes: 27 June 2014

<http://www.esa2014.org.au/>

10th Australian Plant Conservation Conference 2014

11–14 November 2014

Hobart, Tasmania

*"Sustaining Plant Diversity—
Adapting to a Changing World"*

The Australian Network for Plant Conservation (ANPC) & the Royal Tasmanian Botanic Gardens (RTBG)

- Abstract Submissions Close: 27 June 2014
- Early bird registrations will open very soon

<http://www.anbg.gov.au/anpc/index.html>

NZ Ecological Society Conference

16–20 November 2014

Massey University, Palmerston North

Is NZ the world's invasion hotspot?

- Abstract Submissions Close: 1 October 2014
- Early-bird Registrations Close: 1 October 2014

www.nzes2014.org

2014 Water Symposium

Joint conference of the New Zealand Hydrological Society, New Zealand Freshwater Sciences Society and the IPENZ Rivers Group.

24 – 28 November 2014

Marlborough Convention Centre, Blenheim

Integration: 'The Final Frontier' ~ Whakakotahi te amine rohenga

- Abstract Submissions Close: 22 August 2014
- Early-bird Registrations Close: 24 October 2014

<http://www.2014watersymposium.co.nz/>

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(Effective from 26 November 2013)

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SUBMISSIONS TO THE NEW ZEALAND ECOLOGICAL SOCIETY NEWSLETTER

Contributions from NZES members are sought in the form of:

- **Feature articles** on topics of interest to NZES members
- **Event announcements**, for listing on the Noticeboard
- **Conference reports**, on conferences of ecological relevance
- **Images**, for *Illustrate Ecology* on the newsletter cover
- **Ecology news from overseas**
- **Book reviews**
- **Post graduate profiles**

Feature articles can be up to 1,000 words accompanied by up to four images.

Conference reports should be around 600–800 words with up to three images.

Illustrate Ecology images should be accompanied by a short title and a caption explaining the ecological concept illustrated.

Book reviews of up to 1,000 words are now published in the newsletter. If you would like to review a book of interest to NZES members, please contact the newsletter editor.

Postgraduate profiles of current or recent PhD, MSc, or Honours students should be no more than 200–300 words and include a 2-sentence blurb about yourself, a summary of your thesis written for a general scientific audience, and a photo and caption related to your research.

Please do not use complex formatting—capital letters, italics, bold, and hard returns only, no spacing between paragraphs. All images should be emailed as high resolution (300 dpi) jpg attachments. All contributions and enquiries can be emailed to Jane Gosden, the Newsletter Editor: newsletter@nzes.org.nz

Unless indicated otherwise, the views expressed in this Newsletter are not necessarily those of the New Zealand Ecological Society or its Council.

Content for the September 2014 issue of the NZES Newsletter is due by Friday 5 September 2014.



MEMBERSHIP APPLICATION

PLEASE COMPLETE ALL SECTIONS AND EMAIL OR POST TO THE ADDRESS BELOW

A PERSONAL DETAILS

Circle Title: Prof Dr Mr Mrs Ms Miss	Last Name:	First Name(s):
Mailing Address:		Post Code:
E-Mail:		
Phone Bus:	Fax Bus:	Phone Private:

B MEMBERSHIP DETAILS

Occupation/Expertise:
Name of Employer:

C TYPES OF MEMBERSHIP AND SUBSCRIPTION RATES (2013)

(please tick the class for which you qualify)

Membership is open to any person interested in ecology and includes botanists, zoologists, teachers, students, soil scientists, conservation managers, amateurs and professionals

<input type="checkbox"/>	Full	Receive journal and newsletter	\$90.00* p.a.
<input type="checkbox"/>	Unwaged Member	Is available only on application to Council for full-time students, unwaged or retired persons. Unwaged members may receive the journal but must specifically request it.	\$55.00* p.a.
<input type="checkbox"/>	Overseas Full	Receive journal and newsletter	\$115.00* p.a.
<input type="checkbox"/>	Overseas Unwaged	Is available only on application to Council for full-time students, unwaged or retired persons. Unwaged members may receive the journal but must specifically request it.	\$75.00* p.a.
<input type="checkbox"/>	Tasman Linkage	Available only to members of the Ecological Society of Australia. Tasman Linkage members may receive the journal but must specifically request it.	\$55.00* p.a.

* There is a \$10 rebate for members who renew before 15 February each year and for new members

Make cheques payable to: NZ Ecological Society

Bank account details for direct payment: 060729 0465881 00 (make sure your name is included)

- Tick if you wish to make a donation to the Kauri Fund (see NZ Ecological Society website for details)
- Tick if you wish to make a donation to the Barlow Fund (see NZ Ecological Society website for details)
- Tick if you don't have an email address to receive the newsletter which is sent out electronically

The New Zealand Journal of Ecology is printed digitally and in hard copy. Please indicate which option you prefer. Receiving the journal digitally will allow more funds to go towards Society projects like the Kauri Fund.

Digital Hard copy

Signature of Applicant: _____ **Date:** _____