NEW ZEALAND ECOLOGICAL SOCIETY

Newsletter

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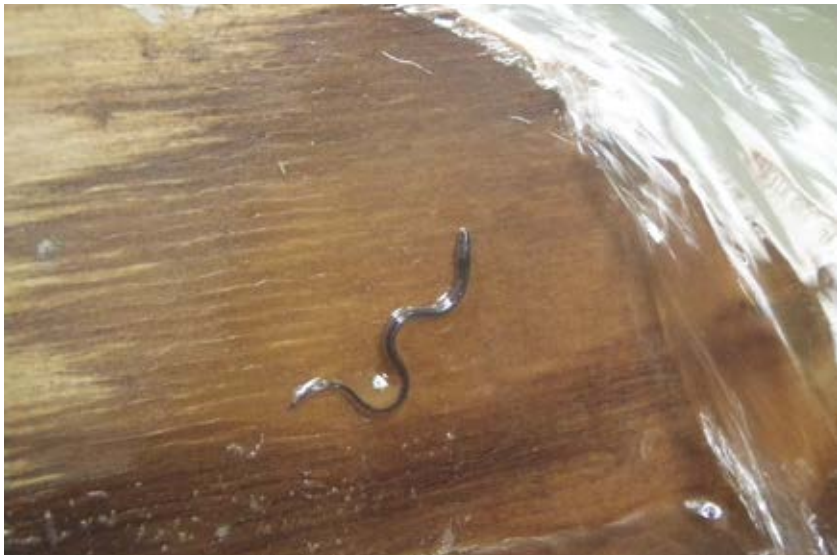
FROM THE EDITOR

Over the last year, the NZ Ecological Society Council has been developing a Strategy to plan the Society's activities and expenditure over the coming five years (see page 8 for details). The development of the plan was kicked off with a full day strategic planning session in February 2012. Fleur Maseyk has been instrumental in keeping the Council on track with developing and finalising the plan. I'm pleased to announce the plan is now available on the Society's website at www.nzes.org.nz/strategy. The Society will continue to do all the things we already do so well, including holding an annual conference, recognising ecological excellence, and publishing a journal and newsletter. Additional activities that are a priority for the first year include further development of our website, including the ability to pay membership fees online.

Plans for this year's NZES joint conference with the Ecological Society of Australia in Auckland are well underway, and it promises to be an exciting meeting. The call for symposium proposals is now open and proposal are due by **22 March 2013**. Conference details are available at http://ecotas13.org/.

ILLUSTRATE ECOLOGY



Elver climbing a vertical timber weir to move upstream at Oakly Creek, an urban stream in Mt Albert, Auckland.
(Photo: Wendy Johns)

Oakley Creek is the site of an urban ecological restoration project, but nevertheless, under the usual pressures from urbanisation, including the construction of a new motorway. This photo illustrates the ability of diadromous species to use water tension to adhere to surfaces as they overcome obstacles in their path, and the importance of clean water that ensures there is water tension to allow the adaptation's function.
(Caption: Mel Galbraith)

INSIDE:

Newsletter Editor: Debra Wotton, Landcare Research, Lincoln. E-mail: newsletter@nzes.org.nz
Layout and design: Jeremy Rolfe

*The deadline for submissions for the next issue of this newsletter is **Friday 7 June 2013**.*

EDITORIAL

Overseas visitor levy for conservation and national parks?

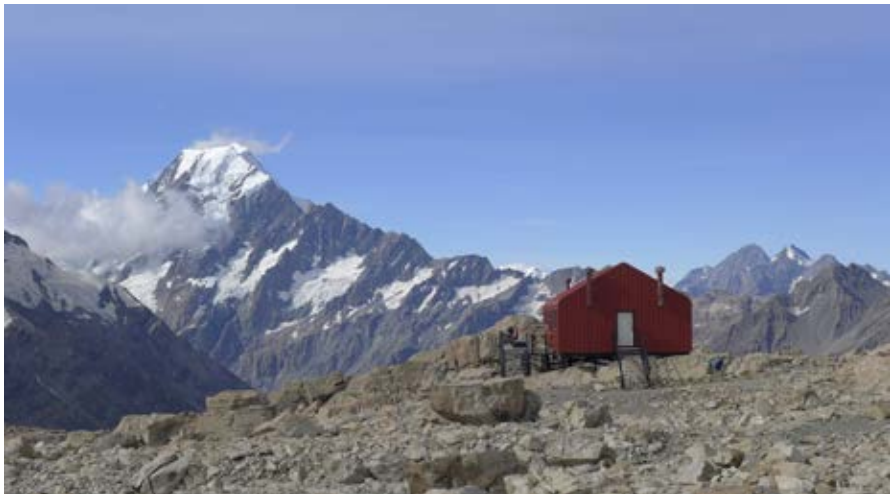
Debra Wotton

A recent trip to Mueller Hut in Aoraki Mount Cook National Park reminded me just how lucky I am to live in New Zealand and have this stunning landscape in my backyard. Climbing to more than 1,800 m above sea level with vistas of massive glaciers and imposing peaks, this relatively accessible tramp is understandably popular. There was great excitement among hut visitors when half a dozen kea arrived to investigate. The predominantly overseas tourists were surprised to learn that kea are threatened with extinction and fewer than 5,000 individuals remain in the wild[1]. For some visitors, the opportunity to see kea in the wild was one of the highlights of their trip to New Zealand.

Vast sums of money are spent providing visitor access to places like Mueller Hut. Unfortunately there's not enough money for saving unique ecosystems and species such as kea that attract them there. Perhaps one of the solutions is to charge a conservation or national park levy for overseas tourists on arrival into New Zealand. Although overseas visitors generate significant income for New Zealand, access to national parks, walking tracks and huts is often free or heavily subsidised by New Zealand taxpayers.

Day walkers currently don't pay any fees and I estimate they outnumbered overnight trampers on the Mueller track by at least five to one. The track to Mueller Hut includes over 1,800 steps and must have cost an arm and a leg to build, much less maintain. Over a hundred helicopter trips were needed to transport materials for the latest hut, which cost over $400,000 to build (it's the fifth in a series of huts at this rugged site). The hut is used by both overnight visitors and day walkers. Those staying at Mueller hut do pay a fee, although I seriously doubt it covers the huge cost of building and maintaining the track, and helicopter transport of gas to, and waste from, the hut.

The track to Mueller Hut includes over 1,800 steps, just part of the outstanding (but expensive) infrastructure provided for visitor access. (Photo: Debra Wotton)



Mueller Hut with Mt Cook in the background. (Photo: Debra Wotton)

The nationally endangered kea, a highlight for international visitors to New Zealand. (Photo: Debra Wotton)

In other parts of the world (e.g. Western Australia) fees to enter national parks are commonplace. I'm perfectly happy to pay for a national parks pass when travelling overseas, especially when it's obvious money is being spent to manage parks and biodiversity. An appropriate fee is unlikely to deter tourists but would generate substantial income from the more than 2.5 million international visitors to New Zealand each year[2]. These funds could be used to enhance ecological management of our national parks and ensure their unique biodiversity thrives for the enjoyment of future generations.

References

[1] www.doc.govt.nz/conservation/native-animals/birds/land-birds/kea/

[2] www.med.govt.nz/sectors-industries/tourism/tourism-research-data/international-visitor-survey/ivs-key-data/ivs-key-data/YE-Dec-2012.pdf

ECOTAS13 CONFERENCE

5TH JOINT CONFERENCE OF THE NZ ECOLOGICAL SOCIETY AND ECOLOGICAL SOCIETY OF AUSTRALIA

24–29 November 2013

Aotea Centre, Auckland

Join us in Auckland to explore and discuss the critical ecological science of our times, and seek new cross-Tasman synergies through sharing common problems and novel insights. Please join the mailing list at http://ecotas13.org/ to receive conference updates directly.

Call for symposium proposals now open

We invite proposals for symposia for EcoTas13, the 5th joint conference of the New Zealand Ecological Society and Ecological Society of Australia. The meeting will be held 24–29 November, 2013 in Auckland, New Zealand. More details of the conference are available at http://ecotas13.org/.

Symposia are the scientific foundations of the conference. They will be assigned premium meeting space at the Aotea Center and will serve as the cornerstone for assembly of the scientific program. Proposals addressing any timely and coherent subject of broad interest in ecology will be considered. We also welcome proposals that explore interdisciplinary connections with areas of social and natural science outside of ecology.

Symposia convenors are expected to invite a group of relevant speakers on the topic of the symposium. These speakers are required to submit an abstract to the conference in the same timeframe as other speakers. The Symposium organiser will be asked to ensure that these abstracts are received.

Proposals must be received on or before **Friday, 22 March 2013**. Please enter into the portal established on http://ecotas13.org/ under the 'Symposia' menu. Decisions on accepting symposia will be made by **1 April 2013**.

Important dates

- Symposium proposals due: 22 March 2013
- Call for abstracts: 8 April 2013
- Registration opens: 10 June 2013

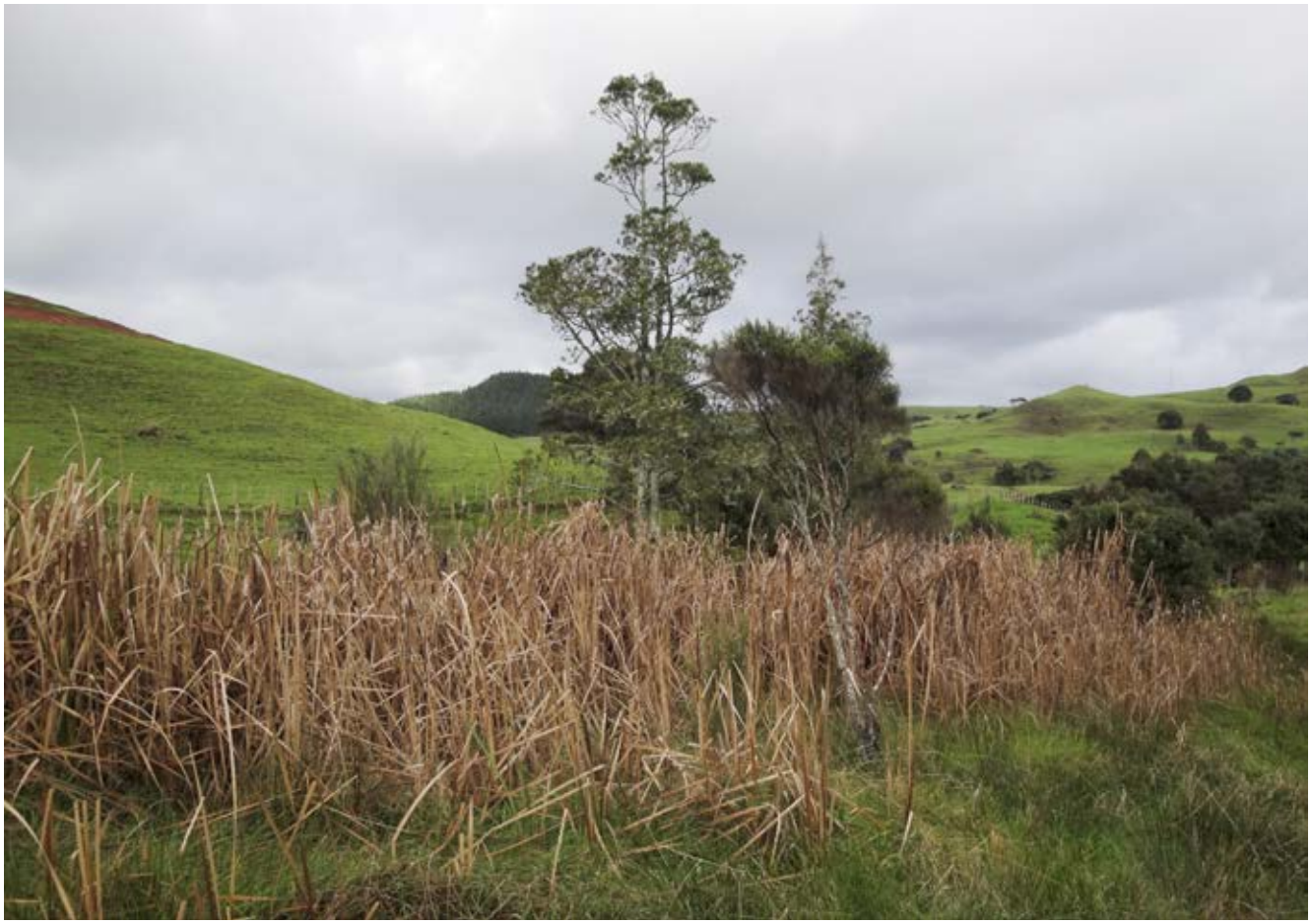
Bruce Burns, Conference Co-convenor

ARTICLE

PREVENTING LOSS OF WETLANDS IN NEW ZEALAND THROUGH REGULATION – IS IT WORKING?

Shona Myers, Wildland Consultants Ltd

There are very few studies in New Zealand of the effectiveness of legislation and regulation in protecting indigenous biological diversity and ecosystems. The Resource Management Act identifies the protection of significant indigenous vegetation and habitats, including wetlands, as a matter of national importance. The strength of rules in regional and district plans developed by councils is fundamental to implementing this legislative direction, preventing further loss and achieving on the ground protection and restoration. A review of the effectiveness of regulation in preventing loss of wetlands in New Zealand has recently been undertaken and published in Ecological Engineering[1]. This report was first presented at the Wetland Ecosystem Services Symposium at the 15th International Diffuse Pollution and Eutrophication Conference in 2011. It was one of a number of reports from different countries at the symposium on the effectiveness of policy in protecting and preventing loss of wetlands worldwide.



A small covenanted wetland on private land in Rodney District. (Photo: Shona Myers)

Wetland loss in New Zealand has been more significant than in most parts of the world, and ecosystems in fertile lowlands have been most severely impacted by agricultural development. The protection of wetlands on private land has been identified as a national priority for action. While most of the larger nationally and internationally significant wetlands are in public ownership, the vast majority of smaller wetlands, and regionally significant wetlands, which contribute to the full diversity of lowland ecosystems, are on private land.

Regional and district councils have responsibilities to implement legislation and to develop policies and regulations to protect wetlands and prevent their damage and degradation. Regional councils play a significant role in preventing the loss of wetlands through regulations in regional plans which govern freshwater ecosystems.

1 Myers, S.C., et al., Wetland management in New Zealand: Are current approaches and policies sustaining wetland ecosystems in agricultural landscapes? Ecol. Eng. (2013), http://dx.doi.org/10.1016/j.ecoleng.2012.12.097

This study found that most regional councils use a mix of regulatory mechanisms and voluntary incentives to encourage protection and restoration of wetlands. It investigated the relative strength of wetland regulation developed by regional councils, and found that the quality of these rules varies considerably across the country. Stronger more restrictive rules are found in plans in more populated regions and where loss in extent has been more significant. While all regional plans have some form of rule restricting damaging activities in wetlands, less than half of plans have strong regulations where drainage is non-compliant. The majority of plans (60%) restrict damaging activities only in wetlands that are in a schedule or meet criteria for ecological significance. Rules in most plans do not regulate drainage of smaller, often degraded wetlands.

Monitoring of the effectiveness of regulations in plans throughout the country is sparse and virtually non-existent. Although wetland loss and degradation reportedly still occurs in many regions, national and regional rates of loss are not reported. There is very little co-ordinated information to assess loss at either a national or local level. The development of effective mechanisms to manage wetlands is dependent on good information. A response to the issues raised in the paper requires a combination of:

- strong national policies on preventing further loss,
- the implementation of regulations in regional and district plans, and
- monitoring of the effectiveness of policies, rules, and non-statutory mechanisms.

A combination of bottom lines for statutory regulation, and voluntary incentives including support for fencing, and restoration, and effective practical management is required. New Zealand's wetland management policy is now over 25 years old. Up-to-date national policy is required to provide strong direction to councils to develop and implement regulation to prevent loss of wetlands and achieve on the ground protection and restoration.

CONFERENCE REPORT

VII SOUTHERN CONNECTIONS CONGRESS

University of Otago, 21–25 January 2013

George Gibbs

This event, held approximately every three years somewhere in the Southern Hemisphere, brings together a group of scientists, principally biologists, interested in discussing their work on southern temperate ecosystems and biota. For a loosely-organised group, with a President, Vice President and southern international council but no funding or publication commitments, it generates huge interest among its followers. This was seen in Dunedin this summer when about 300 ecologists, biogeographers, systematists, geologists, marine biologists, representing 21 countries enjoyed Dunedin's hospitality and a meeting at which 10 plenaries and 275 papers were presented. Mid-congress field trips were available to 8 Otago venues offering everything from albatrosses to alpine herbfields and exquisite Miocene leaf fossils in diatomite.

Within the broad congress theme of 'Southern lands and southern oceans: life on the edge' the ecologists were well catered for with symposia discussing perennial topics like the alpine zone, forest dynamics, climate change, drivers of plant and animal radiations. The human aspect was covered under grasslands conservation, ecological restoration, the anthropogenic influence on pollination systems, climate change, future-proofing of urban environments, wildfire regimes and wilding trees. Even past history had its day with some Cenozoic island biogeography, the paleontological potential for amber in the Southern Hemisphere, biogeography of Cenozoic terrestrial vertebrates and Late Quaternary extinctions.

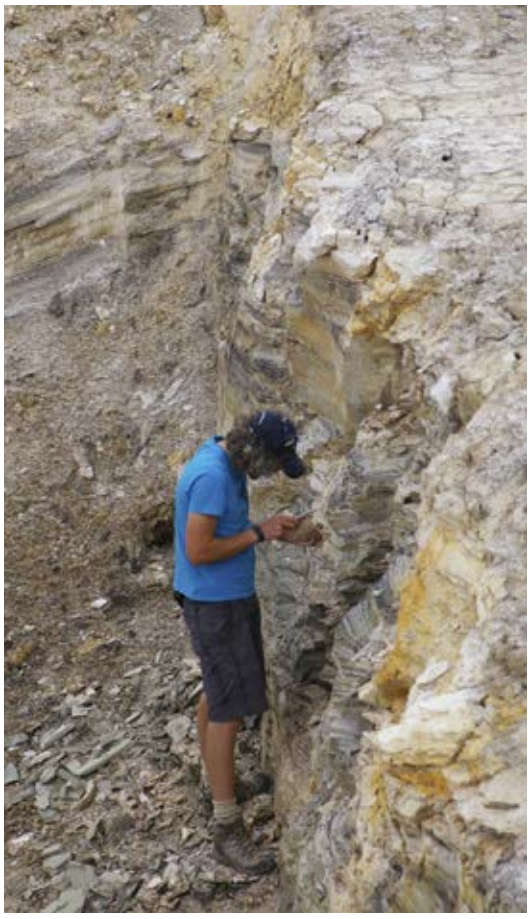
These congresses highlight Southern Hemisphere examples of widely studied phenomena. The intractable theoretical debates tend to be put aside and practical case studies presented that enable participants to compare notes on their experiences on the different southern continents. It is a forum for bringing people together, who otherwise have little chance of interacting, from Australia, New Zealand and Chile in particular (the main sources of delegates). For me, the memorable things about these meetings are the range of disciplines being presented from geologists, oceanographers and biologists and the wide-ranging discussions. Student participation was notably less than at an NZES conference but that is not to say that grad students were absent—they contributed to both the talks and the day-to day running of Powerpoint presentations and smooth operation of the programme. The sun shone, pleasant coffee breaks were spent outside munching on the excellent products of the catering contractors. The smooth running programme and social functions were a credit to the local organising committee. And Sir Alan Mark officially launched his 'last book' on the alpine flora.

As one who has avidly followed paleontological advances in the discovery of fossils in New Zealand, I was filled with encouragement at the session on 'Amber: paleontological potential for the southern hemisphere', for which Dr Alexander Schmidt, of Gottingen, Germany led the way with his Plenary address on the potential for amber fossils

in the southern hemisphere. The good news for New Zealand is that our resin-producing gymnosperms may hold the key to a whole new world of amber fossils. Kauri gum and other resin derivatives are abundant in New Zealand, especially in deposits of lignite, but have been regarded as opaque and of little value for revealing those exquisite preserved insects and small organisms that are commonly found in northern hemisphere amber. New techniques are available which effectively clarify or scan opaque amber to see the contents. For example, just 3 hours collecting at a Roxburgh lignite mine yielded fungi, nematodes, pseudoscorpions, mites, spiders, springtails, wasps, bugs, moth wing scales, and beetles.

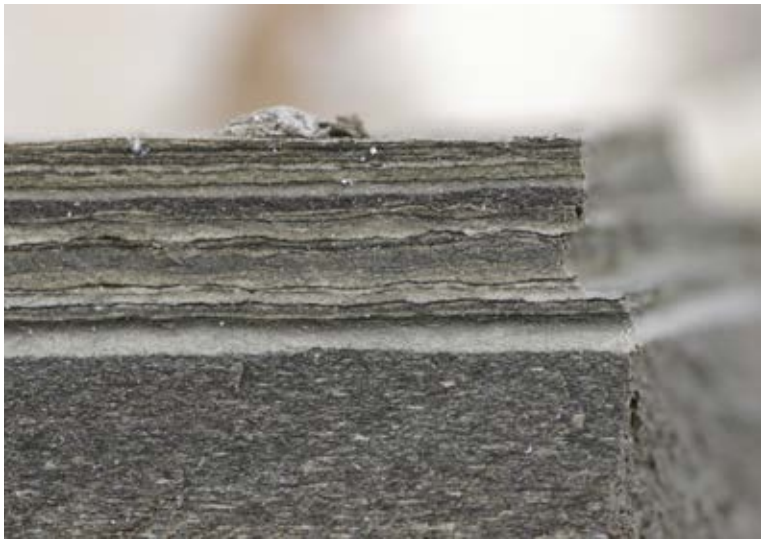
Miocene fossil leaves, Foulden Maar. (Photo: George Gibbs)

For some ecologists the penny might have already dropped, but for those who missed it, this congress finally sunk the case for a Zealandian inundation (alias 'Oligocene drowning') in the sense of total submersion and the consequent need for re-colonisation to explain all our present-day terrestrial biota. There is no question that the continent of Zealandia was severely reduced at that time by incursions of the sea, probably to a low-lying archipelago. Some strategic sites, such as Pomahaka in W Otago, show an alternation of estuarine and shallow marine beds. The final death knells have come from palynology (Dallas Mildenhall) and fossil shoreline studies (Daphne Lee), which focussed on the crucial Waitakian time period (27–22 Ma) during the maximum marine transgression. Rather than a mass-extinction event, perhaps we should be thinking in terms of a time of opportunity for radiations and speciation. Terrestrial plant diversity was at peak levels, considerably above that of today.



Lincoln PhD student Sam Brown fossicks for fossils. (Photo: George Gibbs)

A special vote of thanks to Kath Dickinson and Bill Lee, congress co-convenors, and your team for arranging such a satisfying meeting. This was a fitting occasion for the 20th anniversary of Southern Connections, built on previous meetings in Hobart 1993, Valdivia 1997, Lincoln 2000, Cape Town 2004, Adelaide 2007 and Bariloche 2010. Who needs a 'society', a subscription, a journal and an ever-more time-consuming organisation, when this meeting works so well?

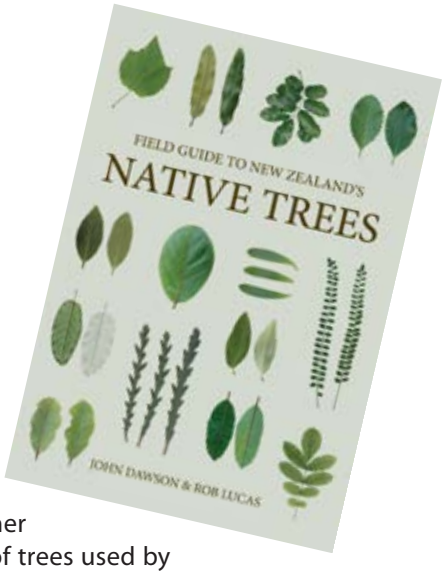


Broken edge of diatomite sediment showing light (summer) and dark (winter) layering. (Photo: George Gibbs)

Photos from Field Excursion to Foulden Maar Lake, a Miocene diatomite deposit. (Leaders: Daphne Lee and Uwe Kaulfuss)

BOOK REVIEW

FIELD GUIDE TO NEW ZEALAND'S NATIVE TREES



Reviewed by Liz Overdyke

Authors: John Dawson & Rob Lucas
Publisher: Craig Potton Publishing
Published: 2012
ISBN: 9781877517822
Details: 436 pages, over 210 species, 1500 colour photos

This attractive and easy to handle softcover book has been derived from the large hardcover book, *New Zealand's Native Trees* by Dawson and Lucas (2011). Although a field guide, this book has thorough introductions to each of the three sections about conifers, tree ferns and flowering trees, alongside identification keys, generous species descriptions and many quality photographs. This book is more comprehensive than similar field guides because it includes tree ferns and species from the North, South, Stewart and Chatham Islands (yet it excludes other outlying islands included in the larger book by the same authors). The definition of trees used by the authors is clearly stated but they acknowledge the difficulty in distinguishing trees from shrubs and have included some hard-to-categorise species, although some large shrubs that are included in the larger book are excluded from the guide e.g. *Clianthus* and *Urtica*. Vines and mistletoes, which might potentially be confused for trees, have not been included.

Mature kauri bark.

As an experienced field botanist I found the alphabetical ordering within the three sections made it easy to search by species name, however, trees can also be keyed out by leaf shape and size using the good quality photographic keys with magnification scales given. There are two separate keys for conifers and flowering trees, requiring some prior knowledge of which group you are dealing with at the outset of keying. These keys might have been combined for easier use by a novice botanist. A useful inclusion in the flowering trees key is a category for trees with variable juvenile and adult foliage, and conifers which fit this description are helpfully included here.

The species descriptions often begin with an interesting statement or description of a striking characteristic of the species, which makes for enjoyable reading although in a strict sense may not be necessary in a field guide. I do like that many species have "distinguishing features" highlighted in a box, an addition not included in the larger hardcover book by the same authors. These are practical notes and in many cases provide clarifications for commonly confused species. This provides handy little characteristics that you can remember in the field, such as whether the leaf midrib is sunken or flush for either white maire or black maire. These features and the quality photographs often allow identification at a glance without reading the full species descriptions. The text is clearly written and scientific terminology is kept to a minimum (e.g. flowering trees rather than angiosperms) with descriptions of leaf arrangements illustrated and a glossary included.

This book is a little weighty (approx. 900g) as a field guide and closer inspection reveals there could have been a reduction in photographs and text for a more lightweight guide. Nevertheless, this is such an easy to use and comprehensive guide I recommend it as a quick reference book back at base, in the vehicle or on your bookshelf. The many photographs detailing flowers, fruits, leaves, bark and tree form mean this field guide can certainly hold it's own with online databases, several of which are mentioned in the useful "further reading" section. I have found myself thumbing through the field guide many times while at my desk as a refreshing change from flicking through databases on the computer screen. This book performs well as a field guide, and extends itself to be a compact reference book which I think will appeal to both novice and experienced botanists.

Totara foliage.

References

Dawson, J. and Lucas, R. 2011 New Zealand's Native Trees, Craig Potton Publishing.

NEWS FROM COUNCIL

NZES Strategic Plan

Council recently completed a five year Strategic Plan for the New Zealand Ecological Society. Council identified three key areas of activity required to meet the Society's core objectives: Membership benefits, engagement and communication, and governance. The plan identifies specific actions within the three key areas of activity that are required to ensure the NZES is operating in a manner consistent with its purpose and meeting its objectives.

The Strategic Plan is available on the website at http://www.nzes.org.nz/strategy. The strategy will provide a road map for the next five years that can be passed from the present NZES Council to future councils. The document can also serve as a work plan to help keep progress on track and justify expenditure that it is clearly in line with the strategic direction and/or has been planned for. It is a living document and will be updated as required. Thanks to Fleur Maseyk for all her hard work in driving the development of the Strategic Plan.

New Zealand Journal of Ecology instructions to authors updated

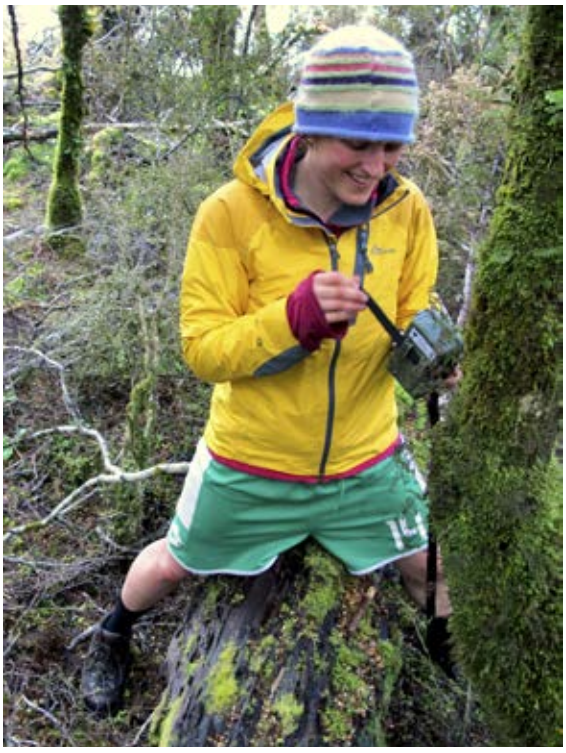
The instructions for authors for the New Zealand Journal of Ecology have been updated and are available at http://www.nzes.org.nz/nzje/submit.php

POSTGRAD PROFILES

OLIVIA BURGE, UNIVERSITY OF CANTERBURY

Olivia is completing her MSc in biology at University of Canterbury and has previously worked as a solicitor in resource management law. She hopes to combine her legal background with further research at the interface between ecology and resource management.

Awarua-Waituna wetland is known for the wrong reasons: its proximity to the troubled Tiwai Aluminium Smelter; repeated fire in drier areas (most recently November 2012); and a freshwater/lagoon component in danger of 'tipping' due to nutrient inputs. Yet Awarua-Waituna is the first RAMSAR wetland recognised in New Zealand and is one of the largest (some 19,500 ha). The wetland includes both open estuarine mudflats that are important for wading birds, and significant areas of swampy vegetation. However, paleoecological data suggest that much of what is now herbaceous wetland vegetation or low manuka scrub (some 10,000 ha) previously supported coastal forest.



Olivia Burge undertaking fieldwork at Awarua-Waituna wetland for her MSc..

Notwithstanding the current threats there is less regeneration of forest species than expected by the Department of Conservation, who consider that restoring some of the former areas of forest would improve the vegetation mosaic, increase habitat diversity and provide more food and shelter for native animals.

Regeneration of native woody plants at Awarua-Waituna could be limited by seed limitation; cryptic herbivory/predation; competition; or environmental conditions. We have found significant effects of canopy shading (expected for young manuka as a nurse crop), and significant seed predation/seedling herbivory effects. The predation effects were unexpected, based on previous pest studies conducted by the Department. I have undertaken vegetation survey and pest surveys to find out where natural regeneration is occurring, whether there are species that may indicate conditions suitable for regeneration and how pest species and densities correlate with this. Canopy height and openness (a product of both age and abiotic conditions) correlates with regeneration; and so controlling fire and the subsequent regeneration of fire-tolerant and fire-encouraging species is key to promoting natural succession and reducing fire risk. Additionally, I have erected bird perches to assess their potential for increasing seed dispersal into the wetland by non-resident birds. However, pest interference with the seed traps is such that increased seed dispersal, whether by direct addition or indirect facilitation, will likely be ineffective without addressing the more proximate effect of seed predation and seedling herbivory.

ECOLOGY ONLINE

NZ molecular ecology website

Stephane Boyer

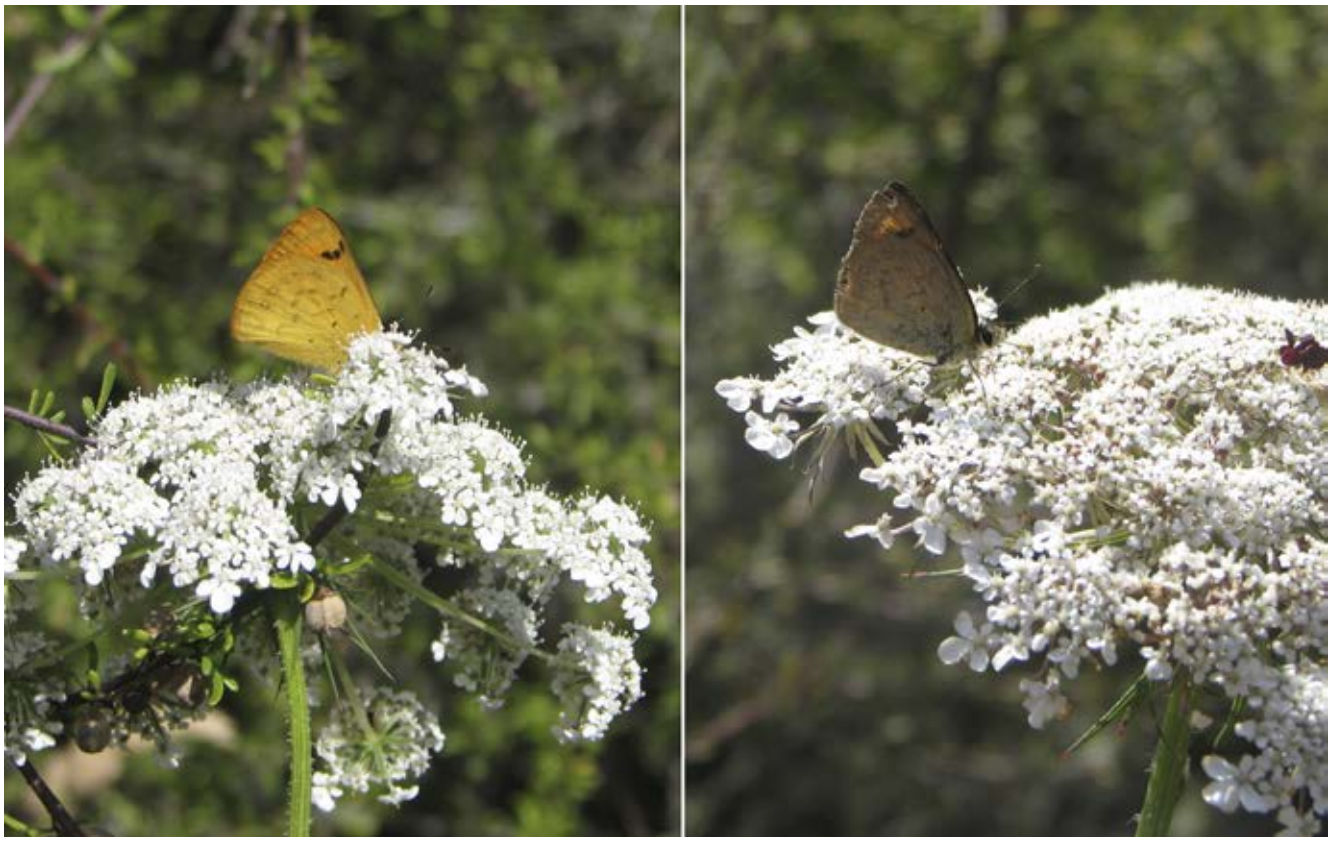
We are pleased to announce the launch of a new website dedicated to Molecular Ecology research in New Zealand. NZ MolEcol aims to bring together news, information and discussions about molecular ecology and evolutionary biology in New Zealand. We also aim at showcasing student work and providing information about scholarships, job offers and opportunities for Molecular Ecology projects in New Zealand. Come and see us at www.NZMolEcol.org

This website is a collaborative project. If you want to contribute to any section or to propose new sections, please contact us through the website.

Encouraging insects in your garden

Nicholas Martin

The Entomological Society of New Zealand now has a web page with guidelines from members of the Auckland Branch to help people encourage insects and other invertebrates in their gardens. See http://ento.org.nz/tools-and-resources-2/garden-insects/ for details.



Copper butterflies on carrot flowers. (Photo: Nicholas Martin)

EcoBloggers — open blog aggregator for ecology

International Network of Next Generation Ecologists

The International Network of Next Generation Ecologists (INNGE) recently launched EcoBloggers, a blog aggregator and accompanying RSS feed devoted to ecology blogs. The aim is to improve the open discussion of ecology by increasing the general readership of most ecology blogs. If you want your blog to be part of EcoBloggers, send us an email with your feed URL. Everyone can be part of the blogging party and we very much hope everyone will. Read Tim Poisot's blog post describing the launch of EcoBloggers, and go to EcoBloggers to start reading.

EcoBloggers currently aggregates more than a dozen ecology blogs, and will hopefully only keep growing.

THE NOTICEBOARD

CONSERVATION INCORPORATED CONFERENCE

What's ahead for community-based conservation in NZ?

Hosted by the Yellow-eyed Penguin Trust

17–18 October 2013
Dunedin

Conservation in this country is on the threshold of fundamental change. Custody of our unique biodiversity is passing progressively to community groups, many of us operating independently with local purpose. The Department of Conservation's new emphasis on community engagement is accelerating this shift. *Conservation Incorporated* offers a formative opportunity to explore the nature of the changes in train and the very significant challenges facing citizen-initiated conservation.

The conference will examine four themes:

1. **Connecting**
   - How can like-minded groups and NGOs connect to make the most of opportunities to collaborate?
2. **Staying viable**
   - What factors will influence the success and vitality of community-based conservation?
   - What will it take to ensure that groups thrive and remain effective as custodians? What works and what doesn't in the way we organise ourselves and our work?
3. **Responding to need**
   - How well will community conservation projects meet biodiversity needs? How do we ensure that they do?
4. **What's feasible?**
   - What has worked so far for community-based conservation in New Zealand? What can we learn from that?

Pre-conference workshops of direct practical relevance to community groups are scheduled for Wednesday 16 October 2013. We plan workshops on how to raise funds, how to market our causes, and how to manage our affairs as voluntary organisations. *Proposals for papers, presentations and posters should be emailed to the conference organisers at conference@yeptrust.org.nz by* ***Thursday 28 March 2013****.*

CHARLES FLEMING FUND — CALL FOR APPLICATIONS

Closing date: 31 March 2013

The Royal Society of NZ is now calling for applications for the following awards:

- Charles Fleming Fund — Publishing Award
- Charles Fleming Fund — Senior Scientist Award

Information on these awards, and application forms are available on the Society's website: http://www.royalsociety.org.nz/programmes/funds/fleming/

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".

INTECOL 2013 DEADLINES & GRANTS

The abstract submission for INTECOL closes 22 March 2013, full details can be found at www.intecol2013.org/. Early bird registration closes 5 May 2013.

The British Ecological Society has a grant scheme to support students and RAs (or their equivalent) who wish to attend the INTECOL Congress. Conditions of the grant are:

- have at least a B.Sc. or equivalent degree
- be working or studying at a university or research institution (including field centres, NGOs, museums, etc.) that provide research facilities
- be working in scientific areas within the remit of the BES (the science of ecology) and of relevance to INTECOL 2013
- be a member of the BES
- be giving a presentation at the conference
- be a student, postgraduate research assistant (RA) or their equivalent.

To apply please visit: www.britishecologicalsociety.org/grants/training_and_travel/index.php

ECOTONES

Bruce Burns, University of Auckland

A selection of newly published research on or relevant to New Zealand ecology (except that published in the New Zealand Journal of Ecology)

Mycorrhizae occur in canopy soil too!

Canopy soil forms from the decomposition of organic matter and other debris accumulating in the forks and boughs of canopy trees, and forms the substrate that many species of epiphytes are rooted into. In the moist temperate rainforests of New Zealand, this canopy soil can build up to substantial quantities and support treetop gardens of vascular and non-vascular epiphytes. Orlovich et al. (2013) have now shown that not only do host trees utilise this canopy soil by growing adventitious roots into it, but they exploit this substrate with the assistance of a diverse range of mycorrhizal fungi. They sampled 74 root tips from canopy soil on three silver beech trees in old-growth forest of southwestern South Island and found 14 phylotypes from nine genera of putative ectomycorrhizal fungi. These included seven genera already known to form mycorrhizae with silver beech, and two genera not previously known to form such associations. It is difficult to know how significant this pathway of nutrition is for the host trees, but it does suggest that tree and epiphytes are in competition for the same resources provided by the canopy soil.

Orlovich DA, Draffin SJ, Daly RA, Stephenson SL 2013. Piracy in the high trees: ectomycorrhizal fungi from an aerial 'canopy soil' microhabitat. Mycologia 105: 52-60. DOI: 10.3852/11-307

The meek shall inherit the earth (or at least Tawharanui)!

Initiatives which target eradication of all species of mammalian pests from certain reserves or islands in recent years have been highly successful. In many cases, all mammals have been removed with the notable exception of house mice which have proved frustratingly persistent. Goldwater et al. (2012) have documented and quantified such an occurrence at Tawharanui Open Sanctuary, in which they compared mice abundance and body size in 2007 (three years after a mammal eradication operation in 2004) with a study carried out in 2001. Mice were at much higher densities in 2007 compared to the 2001 baseline (then almost undetectable in some areas) with peak densities in 2007 higher than any previously recorded in New Zealand. The mice in Tawharanui in 2007 were also significantly heavier than those from 2001. The response of this mouse population seems to be a result of release from the other mammals which acted as competitors and predators. Reserves such as Tawharanui now need to deal with the negative impacts to ecosystems of these high mouse densities. This study highlights how difficult it is to eradicate this species and the urgent need for research to address this conservation issue.

Goldwater N, Perry GLW, Clout MN 2012. Responses of house mice to the removal of mammalian predators and competitors. Austral Ecology 37: 971-979. DOI: 10.1111/j.1442-9993.2011.02356.x

Anti-predator chemical found on skin of native frog

Globally, frogs are known for the production of toxic skin secretions in response to predator attack. The possibility that our native leiopelmid frogs produce such chemicals and that they may influence the behaviour of rodents as current predators is the subject of newly published research (Melzer et al. 2012). Although directly feeding Norway rats with skin secretions of Maud Island frogs had little apparent ill effects on rats (apart from a reduction in investigating behaviour), when given a choice, rats avoided eating secretion-treated food compared to control food. Also, frog skin secretions were successfully able to lyse rat erythrocytes. These results suggest that these secretions might induce aversion behaviour in rats although it is not clear that they would prevent or reduce the rate of rat predation of frogs. What effects, however, would such secretions have had on the original native predators of these frogs is unknown.

Melzer S, Davis LS, Bishop PJ 2012. Cutaneous gland secretions of *Leiopelma pakeka* as a potential mechanism against rat predation. New Zealand Journal of Zoology 39: 329-339. DOI: 10.1080/03014223.2012.665809

Ecosystem service analysis suggests that two million ha of pasture would be more valuable if returned to native forest.

A recent analysis of landuse comparing the trade-offs between agricultural production and environmental benefits provided by ecosystem services in New Zealand has revealed the total area and location of sites in which benefits would be greater than opportunity costs if restored from pasture to native forest. Dymond et al. (2012) overlaid maps estimating gross agricultural production, biodiversity value and carbon sequestration across New Zealand ecosystems, and identified areas where the ratio of potential environmental benefit outweighed the cost of maintaining agriculture. By this method, they identified about two million ha of existing pasture scattered across New Zealand where restoration to indigenous forest would be advantageous (particularly if there were markets for ecosystem services). Such analyses suggest that the pattern of New Zealand's landuse is not optimal and that New Zealand should be looking at

strategically increasing its areas of indigenous forest through restoration of specific areas of retired pasture rather than continuing to allow reduction in forest area. It also suggests that developing more cost-effective methods of restoring pasture to forest will be a research priority in the future.

Dymond JR, Ausseil A-GE, Kirschbaum MUF, Carswell FE, Mason NWH 2012. Opportunities for restoring indigenous forest in New Zealand. Journal of the Royal Society of New Zealand. DOI: 10.1080/03036758.2012.736393

Population size of kokako influences song complexity

The viability of small populations is influenced by a range of factors that change with population size, including behaviour. Understanding such changes becomes particularly important with regard to rare or threatened species. Valderrama et al. (2013) have recently studied the complexity of songs in different sized populations of kōkako in which singing is a critical factor in the social function of populations. They found that a population's song repertoire, song diversity and switching of song phrase types was greater in larger populations, whereas shared phrase types and variation in song syntactical structure was greater in smaller populations. This low song diversity in small populations may inhibit communication in these populations and lead to lower rates of mate formation and inefficiencies in territory establishment and defence, which may also lead to lower population growth rates. This suggests that translocating greater numbers of founder birds or supplementing small populations with new translocated individuals may lead to increased population growth rates through more complex social interactions. Because of the strong relationships encountered in this research, the authors also point out that song parameters could be used as an efficient means of monitoring population size.

Valderrama SV, Molles LE, Waas JR 2013. Effects of population size on singing behaviour of a rare duetting songbird. Conservation Biology 27: 210-218. DOI: 10.1111/j.1523-1739.2012.01917.x

OTHER RECENT PUBLICATIONS ON NEW ZEALAND ECOLOGY

Buckley TR, Leschen RAB 2013. Comparative phylogenetic analysis reveals long-term isolation of lineages on the Three Kings Islands, New Zealand. Biological Journal of the Linnean Society 108: 361-377. DOI: 10.1111/j.1095-8312.2012.02009.x

Cash FBJ, Conn A, Coutts S, Stephen M, Mason NWH, Anderson BJ, Wilson JB 2012. Assembly rules operate only in equilibrium communities: Is it true? Austral Ecology 37: 903-914. DOI: 10.1111/j.1442-9993.2011.02349.x

Chapple DG, Miller KA, Kraus F, Thompson MB 2013. Divergent introduction histories among invasive populations of the delicate skink (*Lampropholis delicata*): has the importance of genetic admixture in the success of biological invasions been overemphasized? Diversity and Distributions 19: 134-146. DOI: 10.1111/j.1472-4642.2012.00919.x

Collins KE, Doscher C, Rennie HG, Ross JG 2013. The effectiveness of riparian 'restoration' on water quality-a case study of lowland streams in Canterbury, New Zealand. Restoration Ecology 21: 40-48. DOI: 10.1111/j.1526-100X.2011.00859.x

Conklin JR, Battley PF, Potter MA 2013. Absolute consistency: individual versus population variation in annual-cycle schedules of a long-distance migrant bird. PLOS ONE 8 (1): Article Number: e54535 DOI: 10.1371/journal.pone.0054535

De Caceres M, Legendre P, Wiser SK, Brotons L 2012. Using species combinations in indicator value analyses. Methods in Ecology and Evolution 3: 973-982. DOI: 10.1111/j.2041-210X.2012.00246.x

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Hare KM, Norbury G, Judd LM, Cree A 2012. Survival of captive-bred skinks following reintroduction to the wild is not explained by variation in speed or body condition index. New Zealand Journal of Zoology 39: 319-328. DOI: 10.1080/03014223.2012.662160

Hewitt A, Forrester G, Fraser S, Hedley C, Lynn I, Payton I 2012. Afforestation effects on soil carbon stocks of low productivity grassland in New Zealand. Soil Use and Management 28: 508-516. DOI: 10.1111/j.1475-2743.2012.00439.x

Hoare JM, Monks, A, O'Donnell CFJ 2013. Do population indicators work? Investigating correlated responses of bird populations in relation to predator management. Ecological Indicators 25: 23-34. DOI: 10.1016/j.ecolind.2012.09.007

Leifso A, MacDougall AS, Husband B, Hierro JL, Koechy M, Paertel M, Peltzer DA 2012. Expansion of a globally pervasive grass occurs without substantial trait differences between home and away populations. Oecologia 170: 1123-1132. DOI: 10.1007/s00442-012-2370-4

Lomas KF, Greenwood DR, Windmill JFC, Jackson JC, Corfield J, Parsons S 2012. Discovery of a lipid synthesising organ in the auditory system of an insect. PLOS ONE 7 (12): Article Number: e51486 DOI: 10.1371/journal.pone.0051486

Mason NWH, Pipenbaher N, Skornik S, Kaligaric M 2013. Does complementarity in leaf phenology and inclination promote co-existence in a species-rich meadow? Evidence from functional groups. Journal of Vegetation Science 24: 94-100. DOI: 10.1111/j.1654-1103.2012.01451.x

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Mitchell A, Li R, Brown JW, Schoenberger I, Wen J 2012. Ancient divergence and biogeography of *Raukaua* (Araliaceae) and close relatives in the southern hemisphere. Australian Systematic Botany 25: 432-446. DOI: 10.1071/SB12020

Niyogi DK, Harding JS, Simon KS 2013. Organic matter breakdown as a measure of stream health in New Zealand streams affected by acid mine drainage. Ecological Indicators 24: 510-517. DOI: 10.1016/j.ecolind.2012.08.003

Parkes SM, Duggan IC 2012. Are zooplankton invasions in constructed waters facilitated by simple communities. Diversity and Distributions 18: 1199-1210. DOI: 10.1111/j.1472-4642.2012.00913.x

Pattemore DE, Anderson SH 2013. Severe pollen limitation in populations of the New Zealand shrub *Alseuosmia macrophylla* (Alseuosmiaceae) can be attributed to the loss of pollinating bird species. Austral Ecology 38: 95-102.

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Phillips CJ, Marden M, Lambie S, Watson A, Ross C, Fraser S 2013. Observations of below-ground characteristics of young redwood trees (*Sequoia sempervirens*) from two sites in New Zealand - implications for erosion control. Plant and Soil 363: 33-48. DOI: 10.1007/s11104-012-1286-4

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Schiel DR, Thompson GA 2012: Demography and population biology of the invasive kelp *Undaria pinnatifida* on shallow reefs in southern New Zealand. Journal of Experimental Marine Biology and Ecology 434: 25-33. DOI: 10.1016/j.jembe.2012.07.023

Stanley MC, Nathan HW, Phillips LK, Knight SJ, Galbraith JA, Winks CJ, Ward DF 2013. Invasive interactions: can Argentine ants indirectly increase the reproductive output of a weed? Arthropod – Plant Interactions 7: 59-67. 10.1007/s11829-012-9215-2

Tomasetto F, Duncan RP, Hulme PE 2013. Environmental gradients shift the direction of the relationship between native and alien plant species richness. Diversity and Distributions 19: 49-59. DOI: 10.1111/j.1472-4642.2012.00939.x

Waite EM, Closs G, Van Heezik Y, Berry C, Dickinson K 2012. Arboreal arthropod sampling methods for urban trees. Journal of Insect Conservation 16: 931-939. DOI: 10.1007/s10841-012-9480-5

Wiser SK, De Caceres M 2013. Updating vegetation classifications: an example with New Zealand's woody vegetation. Journal of Vegetation Science 24: 80-93. DOI: 10.1111/j.1654-1103.2012.01450.x

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NEW YEAR'S HONOURS FOR ECOLOGISTS

Contributed by Murray Williams

Dr John Craig Receives NZ Order of Merit

Dr John Craig, retired Professor from the School of Environment at University of Auckland received the New Zealand Order of Merit (ONZM) in the New Year's Honours list for his work in conservation.

Dr Craig spent 36 years at The University of Auckland beginning in the Department of Zoology before becoming the inaugural head of the School of Environmental and Marine Sciences (SEMS) at the Tamaki campus. With the School's merger with geography and then geology Dr Craig was appointed Professor of Environmental Management.

Dr Craig is widely recognised and respected for his work in conservation and was instrumental in establishing Tiritiri Matangi Island in the Hauraki Gulf as an open conservation sanctuary. He has received many international awards for his work in conservation. Dr Craig's research focus is in the area of sustainable management. Dr Craig retired from The University of Auckland to live in Northland with his partner Dr Ann Stewart, where they run a 300ha family farm, with farmstay accommodation, a honey business and horses. He currently works as a consultant and stays an active researcher in the fields of conservation management, industry attitudes to sustainability, and urban ecosystem management.

This honour is high recognition for Dr Craig's lengthy involvement in New Zealand conservation.

Australian honour for former NZES member

In the Australia Day honours earlier this year, former NZ Ecological Society member Philip Moors received an award in Australia's 2nd highest award category, being made an Officer of the Order of Australia (AO) for 'distinguished service to conservation and the environment through contributions to the botanical and scientific community and the promotion of Australian flora'.

Older NZES members may remember, and have worked alongside, Phil during his time (1975–1987) as a scientist in the Wildlife Service's Research Section. There, most of Phil's research focused on small mammals, and in particular stoats and rats. He also developed a great affection for the subantarctic islands with his work on mice on Antipodes and rockhopper penguins on Campbell. Phil transferred into DOC's Science & Research Unit and after 3–4 years there returned to his native Australia to become Chief Executive of Birds Australia. About 5 years later he became Director of the Royal Botanic Gardens in Melbourne, a post he retired from late last year after 15 years at the helm. During his time at the Gardens he basically transformed the place, established a brand-new Australia Garden, an Institute of Urban Ecology, made the gardens the premier botanical collection in Australia and one of the most well-regarded botanical gardens in the world. For his sins he ended up on many scientific and advisory committees in Australia and beyond, something he continues to do in "retirement".

For those wishing to contact Phil try pjmoors448@gmail.com or 9 Willis St, North Balwyn, Vic 3104, Australia.

UPCOMING MEETINGS

3rd Annual Environmental Law & Regulation Conference
16–17 April 2013
Amora Hotel, Wellington
Planning for natural resource protection and development opportunities

NZPCN Conference 2013
23–26 May 2013
Parnell, Auckland
Are we there yet? 10 years of the Plant Conservation Network
Abstracts due 22 April 2013
www.nzpcn.org.nz/page.aspx?nzpcn_events_conference_2013

21st Annual Hawai'i Conservation Conference
16–18 July 2013
Hawai'i Convention Center, Honolulu, Hawaii
Living Today, Sustaining Tomorrow: Connecting People, Places and Planet
http://hawaiiconservation.org/activities/hawaii_conservation_conference/conferences/2013

NZ Biosecurity Institute: NETS 2013
31 July–2 August 2013
Shantytown, Greymouth
http://biosecurity.org.nz/nets/next-nets/

6th International Symposium on the Biology and Ecology of Galling Arthropods and related Endophytes
4–8 August 2013
O'Reillys Rainforest Retreat, Queensland, Australia
http://6isbegia.org/

INTECOL 11 Congress
18–23 August 2013
London, UK
Ecology—Into the Next 100 Years
http://www.intecol2013.org/

22nd International Grassland Congress
Revitalising grasslands to sustain our communities
15–19 September 2013
Sydney, Australia
Poster abstract submission deadline: 30 November 2012
www.igc2013.com

Conservation Incorporated Conference
What's ahead for community-based conservation in NZ?
17–18 October 2013
Dunedin
Hosted by the Yellow-eyed Penguin Trust

2013 Australasian Wildlife Management Society Conference
20–22 November
Massey University, Palmerston North
Advances in reintroduction of Australisan fauna 1993–2013
Contact: D.P.Armstrong@massey.ac.nz
www.onqconferences.com.au/events/awms2013/index.html

NZ Ecological Society & Ecological Society of Australia joint conference 2013
EcoTas13
24–29 November 2013
Aotea Centre, Auckland
http://ecotas13.org

Australasian Ornithological Conference
4–7 December 2013
Auckland
Abstract deadline: 1 June 2013
Registration opens: 1 May 2013
aoc2013@unitec.ac.nz

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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 files. All contributions and enquiries can be emailed to Debra Wotton, the Newsletter Editor: newsletter@nzes.org.nz

Content for the June 2013 issue of the NZES Newsletter is due by Friday 7 June 2013.

MEMBERSHIP

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

Types of Membership and Subscription Rates (2011)

Full (receive journal and newsletter) .....$80* per annum

Unwaged (with journal) .....$45* per annum
Unwaged membership is available only on application to Council for full-time students, retired persons etc.
Unwaged members may receive the journal but must specifically request it.

Overseas Full ..... $105* per annum

School.....$12 per annum

Institutional (New Zealand) ..... $NZ120* per annum (incl. GST and postage)

Institutional (Australia & South Pacific) ..... $NZ130* per annum (incl. GST and postage)

Institutional (Rest of World) ..... $US80* per annum (incl. air postage)

Overseas members may send personal cheques for their local equivalent of the NZ$ amount at current exchange rates, for most major overseas currencies.

For more details on membership please write to:

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or e-mail: info@nzes.org.nz

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