NEW ZEALAND ECOLOGICAL SOCIETY

Newsletter

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Inside

From the Editor

Kia ora koutou,
Welcome to the April 2018 newsletter. In this issue of the newsletter, there is a summary of the recent membership survey results and a great article about the EcoTAS conference in 2017. Thanks for all the contributions to this newsletter. Hope you enjoy the read.

Ngā mihi
Angela Simpson

Newsletter Editor: Angela Simpson. Email: newsletter@nzes.org.nz
Deadline for submissions for the next issue of this newsletter is **Friday 29th June 2018**

Ecotones – New ecological research

Bruce Burns

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

1. How many Jaws are out there?

Most ecosystems we experience in New Zealand are largely devoid of top predators, however, the great white shark (*Carcharodon carcharias*) in our oceans and coastal waters is a predator that still exists. Its size, power, and lethal potential make it respected and fascinating. What are the chances then of encountering this species when we go ocean swimming (what is the population size?), and are populations of white sharks increasing or declining? Though the species is global in distribution, a single effective population of white sharks occupies the waters of eastern Australia and New Zealand. This population suffered appreciable mortality in the mid-20th century but has been protected since the 1990s. Hillary *et al.* (2018) have recently used a range of novel techniques, including close-kin mark-recapture, to estimate adult and juvenile abundances and survival rates. Their results indicate that there are only 280-650 adult white sharks within a total population of 2500-6750 in the east Australian and New Zealand region. Survival probabilities are nevertheless high for both adults (90%) and juveniles (73%). Although their data didn't allow strong conclusions on population trend, it was consistent with a population that was stable or slightly declining. Further collection of non-lethal data over time has great potential for tracking population changes for this iconic and controversial species, and provide the necessary evidence base on which to design effective conservation, fishery management and public safety strategies.

Hillary RM, Bravington MV, Patterson TA, Grewe P, Bradford R, Feutry P, Gunasekera R, Peddemors V, Werry J, Francis MP, Duffy CAJ, Bruce BD 2018. Genetic relatedness reveals total population size of white sharks in eastern Australia and New Zealand. Scientific Reports 8 (1): art. no. 2661.

2. Correlates of possum abundance in New Zealand

Brushtail possums remain one of New Zealand's most widespread and damaging invasive mammals, and control operations to reduce populations of this species have and continue to be major activities for management agencies concerned with conservation and bovine tuberculosis. However, possum populations demonstrate variable abundances across New Zealand, and understanding the main drivers of this variation is needed for prioritising control, and predicting subsequent responses. To do this, Forsyth *et al.* (2018) measured possum abundance at 395 sites across New Zealand, with each site centred on a permanent vegetation plot. They then modelled possum abundance against 27 variables (including biotic, abiotic, control history, trapping method, and spatial variables) to identify those variables that contributed the most to the resultant model of best-fit. Possum control history contributed most to the model and lowest abundances were obtained in those sites subject to aerial 1080 baiting over all other control techniques. Intriguingly, the next most important variable was longitude, with sites in the east having greater possum abundance than the west. Possum abundances were also strongly linked to humidity (higher in lower humidity areas possibly because possums like dry denning locations) and to total vegetative cover in the understorey forest tier (higher abundances in forests with open understories possibly because of enhanced mobility). Other variables had lower but still significant relationships

to abundance, e.g. abundance was predictably lower at higher elevations. These results provide fascinating insights and further hypotheses into what factors control possum populations, but also provide support for proposals to expand aerial 1080 campaigns against possums as a key control tool.

Forsyth DM, Ramsey DSL, Perry M, McKay M, Wright EF 2018. Control history, longitude and multiple abiotic and biotic variables predict the abundances of invasive brushtail possums in New Zealand forests. Biological Invasions, in press.

3. Clues in the poos: Reading moa diets in coprolites

We know that New Zealand ecosystems evolved with a suite of species that were once abundant but are now extinct, e.g. nine species of large herbivorous moa. Such ecologically important herbivores are likely to have had strong effects on the composition and structure of ecosystems and would have coevolved with many species with which they interacted. Current management of natural ecosystems and their component biota is limited without a clear understanding of such impacts and co-evolutionary relationships. One data source that can help to inform us on the past ecology of extinct organisms such as moa are coprolites, i.e. fossil dung, a resource which New Zealand with many cave systems is fortunately wealthy. A recent analysis of DNA occurring within New Zealand coprolites of four moa species and kakapo using high throughput sequencing has provided an unparalleled view into the ancient diet of these probably influential organisms (Boast *et al.* 2018). Results include DNA from a diversity of plants, fungi and parasites. Plant species found in moa coprolites largely confirmed previous analyses of moa diet and included a range of largely forest angiosperm species. Of interest, however, was the common presence of fern and moss species, indicating that moa also browsed on these forest components. For fungal species found, apart from fungi that may have colonised dung during initial decomposition, the analysis picked up several mycorrhizal mushroom-forming species that must have been directly targeted by moa for consumption; strong evidence that fungi were common components of moa diet. Finally, the DNA of a range of parasite taxa were found within the coprolites including several species exclusive to moa and which would have become extinct when moa did. As well as being a fascinating view into prehistoric New Zealand, this study provides cause to look more closely at the ecology of those species that were once eaten by moa, and to examine the impacts on their behaviour by the absence of a key ecological partner.

Boast AP, Weyrich LS, Wood JR, Metcalf JL, Knight R, Cooper A 2018. Coprolites reveal ecological interactions lost with the extinction of New Zealand birds. Proceedings of the National Academy of Sciences of the United States of America 115: 1546-1551.

4. Life and death without tails: skinks in suburban gardens

To my shame, my family cat has recently taken to capturing skinks present in my garden and playing with them on the back concrete. I have managed to rescue several from its clutches, and they invariably don't have tails, but it seems like my local population is seriously under threat. Anecdotally, this scenario is being played out in many New Zealand suburban gardens, but are urban skink populations sustainable under such predation pressure, and how many skinks are out there? Bell *et al.* (2018) provide some of the first data on an urban skink (*Oligosoma aeneum*) population occurring in Lower Hutt which can start to answer these questions. Very few of the approximately 100 New Zealand lizard species live in urban areas, with *O. aeneum* (copper skink) being the most common garden skink in the North Island. The population studied was followed in a Lower Hutt residence from 1971 to 1973 (34 months). Over this period, 169 discrete individuals were captured with only one third having entire tails. Using mark-recapture methods, population size was estimated at between 64-84 skinks on the approx. 0.3 ha site. Annual survival rates were only 38%. This study is one of the first to provide demographic data on skinks surviving in New Zealand cities. The absence of tails and low survival rate documented suggested they were under high predation pressure, but whether populations are sustainable in these habitats long term

is still unclear. Reducing predation pressure would undoubtedly help. The study also is didactic in showing that ecological phenomena occur all around us; there is a Hauturu in everyone's backyard.

Bell BD, Hare KM, Pledger SA 2018. Lizards in the suburbs: a single-garden study of a small endemic New Zealand skink (*Oligosoma aeneum*). New Zealand Journal of Zoology, in press.

5. Accidental insect invasions to New Zealand

Movement of species from their native to introduced ranges continues to challenge natural and managed ecosystems with new invasive taxa despite biosecurity efforts. Many (most?) of the new taxa moving are insects, but characteristics of these insect invasions have not been well studied. Phytophagous insect pests cost approx. $880 million in New Zealand in direct impacts and control costs alone, so finding ways of understanding and stopping new invasions would be useful. Edney-Browne *et al.* (2017) have recently compiled and analysed a dataset on accidentally introduced non-native insect species for New Zealand, using a range of sources. Data for each species included place and time of first arrival, and elements of their ecology such as feeding guild and host range. They found 1477 non-native insect species have accidentally introduced and established, mostly from the Orders Coleoptera, Hemiptera, Hymenoptera and Diptera. The most common origins for these insects were the Australasian and Palearctic biogeographic realms, and most were herbivores, e.g. aphids, scale insects, and thrips. The pattern of establishment within regions in New Zealand was most highly correlated with regional GDP, numbers of international tourists, and percentage of non-native vegetation present; all suggesting more invasions where economic activity is high and transport hubs busy. Interestingly the numbers of introductions have reduced in recent decades, which suggests that current biosecurity measures in New Zealand may well be working. Overall, this study provides guidelines that should allow better targeting of particular insect groups and of historically vulnerable introduction pathways to even further reduce New Zealand's invasion susceptibility.

Edney-Browne E, Brockerhoff EG, Ward D 2017. Establishment patterns of non-native insects in New Zealand. Biological Invasions, in press.

News from NZES council

Cate Macinnis-Ng

We had our first meeting on 1st March at the University of Auckland and it was great to welcome some new faces to council to join some of the more experienced crew.

We have a big year ahead with a revision of the five-year strategic plan and implementation of the equity and diversity action plan. We will be using the member survey as a resource for guiding future directions so thanks again to everyone who took the time to provide feedback. We welcome all feedback so please do get in touch if you have anything you would like to raise with Council.

We will also be looking into strategies for ensuring the long-term sustainability of the journal. New Zealand Journal of Ecology is one of the few remaining society-run journals in Aotearoa. We are proud to produce this publication for our members and the wider community, but it is one of the biggest costs we must cover each year. Our editor, George Perry will be looking into how we can streamline processes while maintaining the high standard of the journal and

keeping it freely accessible. We will be calling for member input on this later in the year so watch out for that. I thank George for his leadership on this.

We will be trialling new ways of using the kauri fund to enhance our outreach and educational impact. We are looking into developing some hot topics in NZ ecology similar to the Australian Hot Topics www.ecolsoc.org.au/groups/hot-topics

Check out the summary of results from the member survey in this newsletter. We've been talking about ways to provide more services for our members and we'll be establishing a mentoring scheme later in the year as one way of doing that.

I hope you've all put the dates for our annual conference in your diaries and keep in touch through social media using our facebook page and twitter.

New Zealand Ecological Society 2017 AGM Minutes

Minutes taken by George Perry

Present: Adrian Patterson, Ben Cranston, Bruce Burns, Bruce Mckinlay, Carol West, Cate Macinnis-Ng, Chris Bycroft, Chris Green, Clayson Howell, Daniel Stouffer, Dave Kelly, David Whitehead, Elizabeth Elliot, Esther Dale, Frederico Thomasetto, George Perry, Guadalupe Peralta, Heidi Kikilaus, James Brock, Jamie Stavert, Josie Galbraith, K. C. Burns, Oliver Ball, Peter Bellingham, Rachel Nepia, Ricki Taylor, Rogini, Roland Eveleens, Susan Timmins, Tim Curran, Yan Bin Deng, Sonya Geange, Katherine Muchna

Apologies: Sandra Anderson, Debra Wotton, Mel Galbraith, Martin Bader, Kiri Wallace, Simon Moore

Minutes
The meeting was held at 1800 on 28th November, 2017 at the Cypress Lakes Conference Centre, Hunter Valley (NSW) as part of EcoTas 17 (the sixth joint meeting of the Ecological Societies of Australia and NZ). There was a short welcome to the AGM from Clayson Howell (outgoing President). There was also some discussion re the quorum requirement as we were just short of 30, but it was agreed that the meeting should proceed in any case. Minutes of the 63rd AGM (2016) were tabled (see appended). Clayson Howell moved they be accepted; George Perry seconded this.

President's report
Clayson Howell presented the President's report. Clayson Howell moved it be accepted. Cate Macinnis-Ng seconded.

"Kia ora koutou, kia ora koutou, katoa, I'm proud to present the New Zealand Ecological Society President's report for 2017, to be honest it feels a bit weird to be doing so in Australia. Yesterday I saw a bearded dragon basking on a footpath, Kangaroos grazing on a golf course, and rainbow lorikeets feeding on a Grevillea. All fascinating, but it feels like a long way from home. I would like to start with an acknowledgement of the local organising committee. Scott (Johnson) and the team including our Cate (Macinnis-Ng) and Chris (Bycroft)

have done a great job of putting together a very stimulating programme. Personally, I enjoy conferences in isolated places, even with patchy cell phone or wireless coverage.

I would like to acknowledge the commitment of NZES members who have attended this conference, despite it being located in Australia. Of course, it is more difficult to attend this year, but I hope that the exposure to other ecologists' work, and the new connections forged will make the trip across the Tasman worthwhile. Once the conference is completed, the council will review the value of the current 4-yearly arrangement. We welcome any perspectives or contributions from NZES members. We understand that not all members can attend the conference every year, so the council has endeavoured to vary conference locations. For those of you unable to attend the 2017 conference I strongly encourage you to attend the 2018 conference that will be held in the most central New Zealand location, Wellington.

In 2017 NZES lost one of its life members, Michael Greenwood (1920 -2017). Michael was made an honorary life member of NZES in 2009, and was one of our original restoration ecologists, but is best remembered for his papers with Ian Atkinson on the moa browsing hypothesis.

The previous year has been a busy time for the council, but a consistent focus has been how we can provide benefit for our members. I would like to thank all 197 members who responded to our survey in 2017. Like a deluge in the desert, your feedback will inform discussions of future councils for several years to come. The current council has been working on an equity and diversity statement with specific action points to enhance opportunities for women, Māori, Pacifica, and other underrepresented minorities. Thank you all for your enduring work on this important subject.

In my term as president, I have really appreciated the support I have received from the full council. However, I would like to make special mention of the contribution that Debra Wotton has made to council over many years. Debra has now completed four years as a councillor and was newsletter editor for three years prior to that. Debra has contributed greatly to all council discussions and has coordinated our annual awards process in a highly professional manner. As Debra is self-employed, I am sure we all appreciate that her time is especially valuable and her contribution to the NZES council will be missed.

Our journal continues to be independently produced to a very high standard, this year with a new Technical Editor. George Perry has done an incredible job of maintaining the high impact factor and supporting all the associate editors to provide feedback to contributing authors in a timely manner. I would also like to thank Angela Simpson for her work producing the newsletter and the members who have contributed material.

Although she was unable to make the conference, our secretary Sandra Anderson has ensured that meetings are run smoothly, and has made our meetings fun – usually through banter with George (Perry). Two further councillors are also stepping down this year, Fleur Maseyk and Jamie Wood. Jamie has quickly become accomplished at handling the website administration with a minimum of fuss and this has been a second term on the council for

Fleur, who loves NZES so much she migrated back from Australia. The vacancies created by these council members moving on provides opportunities for members with fresh ideas to contribute to the society. For any members who are contemplating standing for council, I urge you to contact the council.

I am delighted to see that the society was able to recharge our accounts in the 2016 year. The last few years have been a challenge financially, but Chris Bycroft has done a great job. We are still reliant upon conferences, so I would like to take this opportunity to thank Bruce Clarkson and his team for the successful Waikato conference last year.

I would like to finish by acknowledging the work of our Vice President Cate Macinnis-Ng. Not only has she supported me tirelessly, she has also represented the society with a submission to the Department of Conservation on the threatened species strategy and with some concerns about self-resetting traps. I am very confident of Cate's ability to promote good ecological science. The plenary address yesterday by Steve Morton has reminded me yet again to draw distinctions between conservation and ecology. While good ecological science should underpin conservation, they are not the same thing. A change in the New Zealand government in 2017 will likely bring changes in priorities and funding opportunities but ecology remains of vital importance.

I hope you all enjoy the rest of the conference and have a safe journey home. Tēnā koutou, tēnā koutou, tēnā tātou katoa."

Election of Officers
Nominations for officers were called, and in all cases were passed unopposed:

President: Cate Macinnis-Ng was the sole nominee. Clayson Howell moved, Carol West seconded. Moved unopposed, accepted and carried.

Vice President: Tim Curran was the sole nominee. Chris Bycroft moved and Cate Macinnis-Ng seconded. Moved unopposed, accepted and carried.

Secretary: Kiri Wallace was the sole nominee, Cate Macinnis-Ng moved, Tim Curran seconded. Moved unopposed, accepted and carried.

Treasurer: Chris Bycroft nominated by Clayson Howell, seconded by Susan Timmins. Moved unopposed, accepted and carried.

Councillors (four vacancies):
Simon Moore; moved by Susan Timmins, seconded by Bruce McInlay
Bruce Burns; moved by George Perry, seconded by Susan Timmins
Martin Bader; moved by Tim Curran, seconded by Cate Macinnis-Ng
Rachel Nepia; moved by Cate Macinnis-Ng, seconded by Susan Timmins

Nominations were closed by Bruce McInlay. All nominations were accepted, and nominees will take their place on the council.

Treasurer's report

Chris Bycroft walked the AGM through the tabled documents – note that these are now available on the Charities website (and below). The overall picture is

that funds are slightly lower, for a suite of reasons than they were at a similar time in 2016. There was some brief discussion of ways to recoup or bolster funds (e.g., location of conferences) and a discussion on strategic investments in ethical funds). Questions were raised re the Society's financial liabilities. The Kauri fund had decreased several years ago because the Society was short of funds. Some funds ended being used for ongoing Society activities, particularly website development. As a result no Kauri Fund award was made in 2017. The Barlow fund is used to support awards every two years using interest only, with the aim to allow the fund to continue to increase at slow rate.

The Treasurers report and the Financial Performance Report for the year ending 31 December 2016 be accepted was moved by Chris Bycroft and this was seconded by Dave Kelly.

Chris started by providing an update of accounts comparing 16 November 2017 and 13 November 2017.

Account balances 16/11/2016 NZES Cheque	8,808.65
NZES Savings	3,2053.55
Barlow Fund	5,253.74
Kauri Fund	10,583.20
Westpac *	1,661.73
Barlow Term Deposit	70,136.03 (matures 7 April 2017)
Kauri Term Deposit	66,258.26 (matures 7 April 2017)
Grand Total	**194,755.20**
13/11/17 NZES Cheque	4,445.11
NZES Savings	32,866.13
Barlow Fund	18,971.67
Kauri Fund	20,488.99
Westpac	4,278.88

Barlow Term Deposits(s) 34,567.48 (Matures 10 April 2018); 25,000 (Matures 10 October

2018) Note: 15,000 (Matured 9 October 2017);

Kauri Term Deposit 31,570.48 (Matures 10 April 2018); 25,000 (Matures 10 October

2018); Note: 15,000 (Matured 9 October 2017);

Grand Total 197,188.74

General comments on our current position

While we appear to be in a slightly better position than 12 months ago, our long-term trend has been declining, and the society is still reaping the benefits of a large conference profit in 2015. We are not expecting to receive as much in conference profits in the next financial year, and we can expect a decline in membership revenue in years we do not hold an annual conference in New Zealand. The Society did not provide seed funding for the 2017 conference in Australia, so it likely we will have any significant profit from this conference, or any return on seed funding as other years. Some of the money in the Kauri Fund and Barlow Fund have been invested in term deposits, with a range of different term lengths. We are looking to invest some of the money in these funds into managed funds, but some work is required to organise this.

Financial performance report for year ending 31 December 2016

The main purpose of the Treasurers Report at the 2017 AGM is for the Treasurer to seek approval of Statement of financial performance of the year ending 31 December 2016.

The reporting for the 2016 uses different reporting standards than those used in previous years. Our accountant has used the following reporting standard: PBE SFR-A (NFP) Public Benefit Entity Simple Format Reporting – Accrual (Not-For-Profit) on the basis it does not have public accountability and has total annual expenses of equal to or less than $2,000,000.

The numbers presented in the 2016 column are from the 2016 financial performance statement, while the 2014 and 2015 columns have been applied from the 2015 financial statement. Previous audit reports from the auditor have itemised the previous financial year with the current financial year, but due to the different standards required for reporting this has not been done for the year ending 31 December 2016. I have worked through the current (2016) and previous audit report (2015) and tried my best to put similar or the same aspects for each year line, although be aware the reporting standards are different. If you would like to see these reports, they are publicly available on the Charities website (https://www.charities.govt.nz). This summary I have given below is to give an overview of the current position, but please refer to the actual financial statements for each financial year if would like any further details.

Key items to note are:

- Membership revenue is lower than in 2015, but similar to 2014.
- The higher conference revenue in 2016 (from the 2015 conference in Christchurch).
- We now are using a Technical Editor for the New Zealand Journal of Ecology.
- There has been a decrease in expenditure for the secretariat in 2016 compared with previous years.
- The term deposits for the Barlow Fund and Kauri Fund are itemised differently than the Kauri and Barlow bank accounts of previous years.

New Zealand Ecological Society (Inc.)

Statement of Financial Performance for the Year ended 31 December 2016

	2016	2015	2014
REVENUE ($ values below)			
Membership	31,537	43,819	31,291
Conference	50,435	6,753	0
Interest Received	5,726	5,072	6,275
Journal Subscriptions	5,435	5,403	9,101
Pages Charges	6,653	6,768	6,407
Sundry Income	0	9,891	866
Supporters of Tiritiri Matangi - Journal Contribution	-		(930)
Copyright fee	135		
JSTOR	2,568		
Release of payables to Tiritiri Matangi	930		
Total Income	**103,419**	**77,706**	**53,010**
Less Expenses ($ values below)			
Accountancy Fees	1,400	2,500	2,500
Audit Fees	2,300	2,500	2,500
Awards	9,092	12,345	3,117
Conference	5,397	7,940	11,140
General Expenses	1,371	2,194	1,147
Editor Stipend	8,000	5,000	
Illustrations	650	975	2,079
Interest	1	3	
Journal Promotions	19,427	18,816	27,971
Kauri Grant	0	4,795	3,824
Barlow Grant	0 -	2,500	0
Printing, Stamps & Stationery	0	0	464
Secretariat	1716	10,623	10,651
Subscriptions	1,544	1,500	1,500
Technical Editing	5,700		
Travel - National	787	1,369	3,426
Web Site	2,750	5,424	640
Total Expenses	**58,463**	**81,482**	**75,962**
Net Deficit Before Depreciation	Not worked	(3,776)	(22,952)
Less Depreciation as per Schedule	5097	8,474	7,410
NET SURPLUS/(DEFICIT)	**44,956**	**($12,250)**	**($30,362)**

New Zealand Ecological Society (Inc.)

Statement of Financial Position as at 31 December 2016

CURRENT ASSETS	**2016 $**	**2015 $**	**2014 $**
ANZ Current Account	21,122	12,751	1,156
Westpac Trust Cheque	2,262	3,061	138
ANZ Serious Saver - Barlow Fund	5,316	74,502	74,029
ANZ Serious Saver	22,164	354	106
ANZ Serious Saver - Kauri Fund	7822	75,615	94,225
GST Refund Due 1(b) GST refund	- 1764	1,997	3,368
Accounts Receivable	10,054	1,611	757
Accrued Interest Income	3,622		
Total Current Assets	**58,686**	**169,891**	**173,779**
OTHER CURRENT ASSETS	2016 $	2015 $	2014 $
Term deposit '1000' (Barlow Fund)	70,136	-	-
Term deposit '1001' (Kauri Fund)	66,258	-	-
NON-CURRENT ASSETS Fixed Assets as per Schedule		13,031	21,505
Office Equipment. Plant and Equipment	13,031		
TOTAL ASSETS	208,111	182,922	195,284
CURRENT LIABILITIES Accounts Payable	6,800	16,465	16,577
TOTAL LIABILITIES	7042	16,465	16,577
NET ASSETS	211,413	$166,457	$178,707
Represent ed by; EQUITY Barlow Fund	73,552	74,502	74,079
Kauri Fund	74,080	75,615	94,225
Retained Earnings Surplus/Deficit	? 44,956	16,340	10,403
Transfer from reserves	2,485		
TOTAL EQUITY	**211,413**	**$166,457**	**$178,707**

Journal report

The journal's Scientific Editor, George Perry, presented the annual journal report.

"I am pleased to be able to report on the activities of the NZJE in 2017. The journal remains in good health, and continues to receive a steady number of submissions (51 to the 25th November); of these around two-thirds review. By way of comparison, we received 63 and 45 submissions in 2016 and 2015 respectively. In 2017 two standard issues have been published comprising a total of 31 (13 + 18) articles. Vol. 42 (1) is finalised and currently in press, with four articles already available on-line.

Our journal has experienced some significant changes over the last 18 months. Katherine Russell now provides the technical editing for the journal and in this role she provides excellent support to the authors and myself. This support does, however, come at a financial cost to the Society (as outlined in the Treasurer's report). There have been other changes on the editorial board with Tom Etherington (Kew Gardens) and Jamie Wood (Manaaki Whenua Landcare Research) joining the editorial board. The journal now allocates DoIs to each article, which facilitates citing 'in press' and 'on-line early' articles and citation tracking. Finally, the 2016 impact factor (IF) for the journal was a pleasing 1.704, which represents an increase from 1.247 in 2015 and 1.057 in 2014; by way of comparison *NZ J Botany* has 1.00, *NZ J Zoology* has 0.811 and *Austral Ecology* has 1.706.

Scholarly publishing is changing rapidly as journals move to on-line publication and rolling issues. Currently the NZJE offers open-access, with articles freely available on-line. A major cost to the journal (and hence the Society) is the printing of hard-copy issues (see Treasure's report). According to the publishers (Fisher) the average print run of 230 costs *c.*$6000 and there is a saving of $2000 per issue in going fully on-line. We could use cheaper (but non-sustainable) paper and a different template to reduce printing cost, but savings the would not be significant. Thus, we have increased page charges to $40 per printed page (still less than other local journals such as *Notornis*). We are likely to moving to on-line only publication in the next year. The Council have also discussed an 18 month embargo on articles for non-members (as, for example, *Notornis* do), but the recent member survey was not overly supportive of this. The question of whether we should move to being published by a larger publishing house is a matter of ongoing discussion; such a move would bring both costs (potential loss of autonomy) and benefits (financial return and editorial support) and requires careful consideration. The challenges surrounding scholarly publishing are faced by many society journals and some (e.g., the Ecological Society of America) have recently moved to larger publishing houses, albeit with mixed reception. Again, there are mixed views in our community about whether this is an avenue we should pursue. The NZJE is an important avenue of scientific communication among the NZ ecological community; my view is that decisions about its future should not be made by whoever the current editor or council happen to be, but rather requires the engagement with the society as a whole.

In large part the success of the journal is due to the superb support I receive from the editorial board and the referees. Compared to other (international)

journals I am involved with the standard of the editorial and review process is rigorous but supportive. I remain very grateful to the editorial board, the reviewers, the authors and the Society for their continued support."

George Perry Scientific Editor, NZJE November 2017

Membership report

The membership report was tabled by Clayson Howell on behalf of Gretchen Brownstein.

The overall membership is down 7% from 2016; the greatest loss was in unwaged member category. There has also been a 7% decrease from 2016 in the proportion of members paid up to date.

Membership summary as at 22/11/17

Complimentary	Total 2	Complim 2	Paid to date	Unpaid Due
Full	391		313	78
Honorary Life	14	14		
Overseas	8		6	2
Overseas Unwaged	4		4	
Tasman linkage membership	4		3	1
Unwaged	130		81	49
Total Nov 2017	**553**	**16**	**407**	**130**
Total Nov 2016	595	4	438	154
Total Nov 2015	595		489	92

Newsletter report

A newsletter report was received from Cate Macinnis-Ng on behalf of Angela Simpson. The AGM passed on special thanks to Angela for a fantastic job.

"I have enjoyed editing the newsletter this year after taking over from Cate MacInnis- Ng. There have been four newsletters produced in 2017, with the final newsletter to be produced in December (contributions welcomed before 8 December). There has been a steady variety of contributions this year including four series of Ecotones, book reviews, student profiles and conference reports. We have been working on strengthening the interaction with the Ecological Society of Australia in the "Across the ditch" series and this is something we hope to continue following the joint conference. Contributions for Illustrate Ecology are surprisingly uncommon so are welcomed. These can take range from artwork, to comics, to photographs and are an excellent place for the creative ecologists out there to share their contributions. Minor changes to the format of the newsletter this year include moving the list of additional papers

part of Ecotones towards the back of the newsletter, and changing the layout of the Office Holders details on the back page.

Society Awards

Te Tohu Taiao

The Te Tohu Taiao 2017 award recipient was Graeme Elliott (DoC) who was nominated by John Innes, Susan Walker and James Griffiths.

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

Ecology in Action

The Ecology in Action 2017 award recipient was Richelle Kahui McConnell who was nominated by Mel Galbraith, Dan Blanchard and Nick Waipara. Richelle is the first recipient of the Ecology in Action award to receive the award specifically for her application of mātauranga in ecological restoration. We are delighted to acknowledge and celebrate Richelle's unique contribution to ecology by awarding her the Ecology in Action Award for 2017.

Best publication by a new researcher

This award was presented to Jay Ruffell for his paper: Jay Ruffell and Raphael K. Didham. 2017. Conserving biodiversity in New Zealand's lowland landscapes: Does forest cover or pest control have a greater effect on native birds? NZ Journal of Ecology 41, 21-33.

In this paper the authors evaluate how native bird taxa respond to control of invasive species and native forest loss across nearly 200 sites on mainland northern NZ. They conclude that the benefits of restoring forest cover and controlling invasive species will depend on the context in which they are occurring. Congratulations to Jay for this engaging piece of research!

Concluding Statements

The meeting closed at 1925, with thanks from Clayson Howell as outgoing President to those council members standing down and the members who travelled to Australia to the EcoTas conference and attended the AGM.

2017 NZ Ecological Society membership survey results

Gretchen Brownstein

Last August we ran a membership survey to better understand the needs our members and determine ways we can better serve those involved in ecological sciences in New Zealand. We invited responses from members and non-members of the society and received 196 responses, with 172 from current and past members (which is about 30% of the current membership). There was good response from across all sectors. In terms of the core objectives of the society and how well the society is achieving these there was an immense amount of positive feedback on the quality of the conferences and the high standard of the journal.

The survey highlighted two areas where the society could increase benefits for members in the future (Fig 1). Firstly, more support for early career/emerging ecologists. Much of the feedback suggested people were interested in local events and targeted workshops outside of the conference. Secondly, respondents felt the society should have a greater voice in the policy arena and be doing more to highlight ecological matters in the media. Some good suggestions for how to do this included using the website to alert people to upcoming plans or consents along with providing a space/forum to discuss issues, hosting workshops on interacting with media, and organising fieldtrips to facilitate discussion of issues. The council is currently working on ways of addressing this.

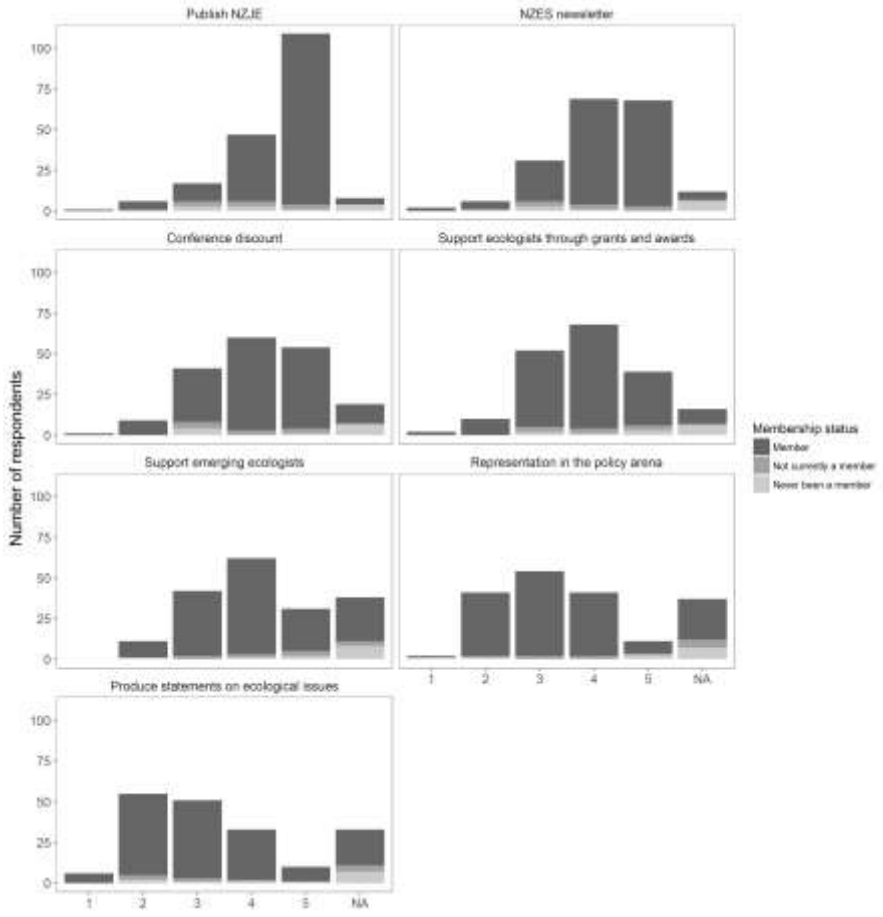

Figure 1. Responses to "How satisfied are you with the NZES member benefits?" 1 = poorly, 5= outstanding, NA = Not aware the NZES did this.

News from across the ditch

The Ecological Society of Australia March bulletin includes articles about community-based estuary monitoring, involving volunteers in fieldwork trips, and a visit of ESA to Parliament House. You can read more online here: www.ecolsoc.org.au/files/bulletins/bulletin_march2018.pdf

EcoTAS 2017 conference report

Rachel Nepia
University of Waikato



Getting there

The annual conference of the New Zealand Ecological Society was combined with the conference of the Ecological Society of Australia for 2017 in a 5 day conference based on 'Ecology in Action'. The conference was convened at the Cypress Lakes Resort near Pokolbin, New South Wales, Australia. Overseas conferences can be difficult for students, like me, to get to, but the New Zealand Ecological Society has a strong tradition of helping students and awarded me a travel grant to help with costs. The Biological Heritage National Science Challenge also made a major contribution to the cost of getting me there.

Presentation Highlights

This conference was the first opportunity that I have had to present my research at an international conference, and that is an exciting milestone for any budding scientist. I was fortunate to be scheduled in the first session on the first day (while energy/attention span/enthusiasm levels are still at a high for conference participants). Nervous doesn't being to describe it, but feedback was extremely positive. It was a great honour to be recognised with the New Zealand Journal of Zoology award for the best student presentation.

There was an inspiring line up of presenters at the NZES/ESA Conference whose research and ideas have since shaped my own. Here are just a few highlights:

Professor Sue Hartley, Director of the York Environmental Sustainability Institute – Food security is a major issue that is getting worse, but putting ecology to work we can find solutions that will save millions of lives. She said

"Get stuck in. Put ecology to work! We can do this." Her optimism and drive to solve some huge issues was inspiring.

Dr Peter Bellingham, 2016 Te Tohu Taiao Award Presentation - A take-home message I got from this talk was the need for long-term coordinated monitoring frameworks in New Zealand if we are ever to really grasp the state of our biodiversity.

Dr Chris Green, 2016 NZ Ecology in Action Award Presentation – This talk fitted his award perfectly, with some stunning examples of ecology in action, particularly focusing on pest eradication and returning lost species to effect successful island restoration.

Dr Manu Saunders, Postdoctoral Research Fellow, University of New England – Ecosystem services should not only be measured on an economic basis – a holistic approach is needed.

Dr Sjerk Geerts, Cape Peninsula University of Technology – This research interested me because the output was more than simply supplying a report or producing a publication, it was putting a solution in action. The problem was the break-down of a pollination mutualism between a sunbird and the candelabra flower. The issue was fragmentation of natural areas, preventing sunbird movement into urbanised areas. They engaged the community for a solution by utilising schools to undertake planting, creating a corridor of available nectar producing plants to link up natural areas to urban green spaces that were previously fragmented. This was more than a conservation effort, it was a meaningful educational tool to teach plant ID and planting practices to students and to help them engage with nature.

Dr Martin Westgate, Postdoctoral Fellow, Australian National University – With 5000 articles being published per day (1 every 0.15 seconds) the tradditional approach to a systematic review is becoming unrealistic. You just can't read that fast! Dr Westgate presented his research and development of a technological solution that can save up to 97% of your time over doing a manual systematic review.

Dr Steve Morton, Honorary Professorial Fellow, Charles Darwin University – After receiving the ESA Gold Medal, Dr Morton presented a thought-provoking review of life lessons from his career of research. He urged for careful, rigorous methodical thinking; treating everyone well and humanely; and remembering that science is fun! He reflected that once you begin acknowledging your debt you realise how deep the debt goes. This was a truly genuine expression of gratitude for those who had had a part in his life as a researcher. "Cherish the people around you."

Dr Jamie Ataria, Co-Deputy Director Centre of Research Excellence – Engagement with indigenous people can be complex, but the key to walking on water is knowing where the rocks are. Dr Ataria explained how engagement involves two parties just like a marriage, however, in the New Zealand case study it seems that one treaty partner knows a lot more about its partner than the other. The solution is not in creating specific few experts, but is in generally spreading awareness and empathy.

Fieldtrip

Putting ecology into action works better when you have real involvement from indigenous people – those who have had a relationship with the land for centuries past. This was a theme of the conference that was shared in presentations and solidified in a fieldtrip. Elders from the Wonnarua Aboriginal Tribe came with us on a journey to visit a site of spiritual significance to the Wonnarua people. In the middle of an agricultural matrix, weathered out of the rocky hillside is a cave that once was a place of teaching, learning and enlightenment for the Wonnarua people. The cave contains drawings dated over 10,000 years back that depict Baiame, the maker of all things, with his long arms outstretched to show the vastness of his creations. The current landowners, though not of Aboriginal descent, became one of the first in Australia to voluntarily put a protection on part of their land to make this sacred site accessible now and for future generations.

The landscape of New South Wales, Australia has changed significantly since Baiame was first painted on that cave – with deep open-cast coal mines scarring the landscape, and agriculture and urbanisation increasing. But 'Ecology in Action' is about taking the understanding that we have grown about the natural world and using it to make the world a better place. After the 2017 NZES/ESA

conference I have more optimism. "Get stuck in. Put ecology to work! We can do this."



Publications in current issue of NZ Journal of Ecology (Volume 42, issue 1)

Review Article

The secret service – analysis of the available knowledge on moths as pollinators in New Zealand
Max N. Buxton, Barbara J. Anderson, Janice M. Lord

Methods for the extraction, storage, amplification and sequencing of DNA from environmental samples
Gavin Lear, Ian Dickie, Jonathan Banks, Stephane Boyer, Hannah L. Buckley, Thomas R. Buckley, Rob Cruickshank, Andrew Dopheide, Kim M. Handley, Syrie Hermans, Janine Kamke, Charles K. Lee, Robin MacDiarmid, Sergio E. Morales, David A. Orlovich, Rob Smissen, Jamie Wood, Robert Holdaway

Visual and taste cues for minimising native bird interactions with toxic 1080 baits – a review of current practices
Phil Cowan, Michelle Crowell

Research Article

Compliance with biodiversity compensation on New Zealand's public conservation lands
Ann Brower, Laurien Heijs, Ruth Kimani, James Ross, Crile Doscher

Pioneer tree ferns influence community assembly in northern New Zealand forests
James M.R. Brock, George L.W. Perry, William G. Lee, Luitgard Schwendenmann, Bruce R. Burns

Growth response of an invasive alien species to climate variations on subantarctic Campbell Island
J.G. Palmer, C.S.M. Turney, C. Fogwill, P. Fenwick, Z. Thomas, M. Lipson, R.T. Jones, B. Beavan, S.J. Richardson, J.M. Wilmshurst

Food plants and foraging distances for the native bee Lasioglossum sordidum in Christchurch Botanic Gardens
Della G. Bennet, Dave Kelly, John Clemens

Preliminary assessment of the foraging behaviour and population dynamics of a cryptic population of the endangered New Zealand sea lion
B. Louise Chilvers

New Zealand falcon prey selection may not be driven by preference based on prey nutritional content
Sara M. Kross, Alice Tait, David Raubenheimer, Ximena J Nelson

Secondary poisoning risk for encapsulated sodium nitrite, a new tool for possum control
Lee Shapiro, Helen Blackie, Donald Arthur, James Ross, Charles Eason

Liberation and spread of stoats (*Mustela erminea*) and weasels (*M. nivalis*) in New Zealand, 1883–1920
Carolyn M. King

Survival of PIT-tagged lesser short-tailed bats (*Mystacina tuberculata*) through an aerial 1080 pest control operation
Hannah Edmonds, Moira Pryde, Colin F. J. O'Donnell

Winter habitat use of New Zealand falcons (*Falco novaeseelandiae ferox*) in an intensively managed pine plantation, central North Island, New Zealand
Chifuyu Horikoshi, Phil F. Battley, Richard Seaton, Edward O. Minot

Kakapo habitat selection on Hauturu-o-toi in relation to plant phenology
Zoe L. Stone, Bruce Burns, Ron Moorhouse, Mick N. Clout

Molecular identification and distribution of native and exotic earthworms in New Zealand human-modified soils
Young-Nam Kim, Nicholas Dickinson, Mike Bowie, Brett Robinson, Stephane Boyer

Seed dispersal but not seed germination facilitated by seabirds: seed ecology of Cook's scurvy grass
Esther Dale, Peter de Lange, Bruce Burns

Aerial glyphosate application reduces grey willow (*Salix cinerea*) canopy cover, increases light availability, and stimulates kahikatea (*Dacrycarpus dacrydioides*) growth
James W. Griffiths, Kate G. McAlpine

Genetic distinctiveness of the Waikawa Island mouse population indicates low rate of dispersal from mainland New Zealand
Ellie Bradley, Steven A. Trewick, Mary Morgan-Richards

Eradicating mammals on New Zealand island reserves: what is left to do?
John P. Parkes, Andrea E. Byrom, Kerri-Anne Edge

Short Communication

Evaluation of remote cameras for monitoring multiple invasive mammals in New Zealand
Victor Anton, Stephen Hartley, Heiko U. Wittmer

Weather and demographics affect *Dactylanthus* flower visitation by New Zealand lesser short-tailed bats
Zenon J. Czenze, Tertia Thurley

Bone stable isotopes indicate a high trophic position for New Zealand's extinct South Island adzebill (*Aptornis defossor*) (Gruiformes: Aptornithidae)
Jamie R. Wood, R. Paul Scofield, Jill Hamel, Chris Lalas, Janet M. Wilmshurst

Forum Article

Using DNA metabarcoding to assess New Zealand's terrestrial biodiversity : 251 -262
Robert J. Holdaway, Jamie R. Wood, Ian A. Dickie, Kate H. Orwin, Peter J. Bellingham, Sarah J. Richardson, Phil O'B. Lyver, Puke Timoti, Thomas R. Buckley

The case for 'bottom-up' pest management : 271 -277
Grant Norbury

Obituary

Ian George Jamieson, 2 March 1957 – 2 February 2015 : 278 -283
Lloyd Spencer Davis

Other recent publications on New Zealand ecology

Bruce Burns

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

Anderson DP, Gormley AM, Bosson M, Livingstone PG, Nugent G 2017. Livestock as sentinels for an infectious disease in a sympatric or adjacent-living wildlife reservoir host. Preventive Veterinary Medicine 148: 106-114.

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Noticeboard and upcoming conferences

NZES conference 2018

The 2018 NZES conference is to be held at Victoria University of Wellington from Sun 25th November to Thurs 29th November.

NZES hasn't been in Wellington since 2006, so there has never been a better time to visit the coolest little Capital in the world. VUW has recently undergone some major renovations and this is a great chance to visit the new Biological Sciences Building.

Keep an eye on the website for updates regarding symposia, plenary speakers, and field trips.

Two fully-funded PhD Scholarships

Investigating native plants derived from whole-genome duplication events and understanding why they are successful

Project description: We are seeking two highly-motivated PhD students for a project that seeks to understand why plants with multiple sets of chromosomes (polyploidy) are so common in New Zealand and elsewhere. The three-year project is part of a new Royal Society of New Zealand Marsden Fund grant. Specifically, we want to determine the relative roles of genetic differentiation, genomic downsizing, trait innovation and novel ecological opportunities in the evolutionary success of many polypoid species. Our prediction is that polyploidy creates both costs and opportunities for plants which limit the type of environments they can occupy. The idea is to investigate plant lineages in New Zealand with well-documented and different levels of chromosome duplication. With the research team, the aim is obtain information on genome size, gene expression, phylogenetic relationships, ecophysiological and trait features, and undertake process-based niche modelling across ploidy levels in six representative lineages (e.g. *Asplenium, Poa, Plantago, Schizeilema, Leptinella, Veronica*).

This is an ideal PhD opportunity in evolutionary ecology and the students will gain experience in genomic analysis, comparative phylogenetics, trait analysis, and species distribution modelling, depending on their interests.

Project Supervisors: Professor Bill Lee, School of Biological Sciences, University of Auckland and Landcare Research, Dunedin, New Zealand; Dr Jen Tate, Massey University, Palmerston North; Dr Heidi Meudt and Dr Patrick Brownsey, Museum of New Zealand Te Papa Tongarewa , Wellington. The PhD students will also gain experience working with Professor Dirk Albach (Carl von Ossietzky-University Oldenburg, Germany) and Dr Andrew Tanentzap (University of Cambridge, UK).

Funding: Funding includes a tax-free stipend, full tuition fees, and operational expenses for travel, conference attendance and research expenses over the 3-year programme. Both international and domestic students are eligible. One PhD (ecophysiology, species distribution modelling) will be run from the University of Auckland but will include time at Landcare Research in Dunedin, while the other (phylogenetics, genomics) will be based at Massey University, Palmerston North.

Requirements: Applicants should have completed a degree with a significant research component (e.g. MSc or BSc Honours), and have an excellent academic record. Applicants need to have a background either in plant ecology, ecophysiology, phylogenetics or computational biology.
Applicants should email their CV, academic transcripts, a cover letter stating why you are interested in the position and how your qualifications and experience make you a good fit for the proposed research, and the contact details for at least two referees to Prof. Bill Lee (wg.lee@auckland.ac.nz or leew@landcareresearch.co.nz). Applications close on 1st April 2018.

NZ Microbial Ecology Consortium Symposium

12th-13th April 2018

A 2 day symposium for microbial ecologists to learn about each other's research, facilitate collaboration and share expertise.

Day 1 features seminars by a number of high-profile microbial ecologists from both overseas and within New Zealand. Plenary speakers include: Tanja Woyke (US Joint Genome Institute), Maureen O'Malley (University of Sydney), Mike Manefield (UNSW) and Mike Taylor (University of Auckland).
There will also be a number of shorter presentations from New Zealand-based grad students and post-docs.

Day 2 will be run as a workshop, focusing on the use of ecological network analyses and related tools for 16S rRNA gene-based microbial community data. In essence, how can people get more out of their 16S rRNA gene data beyond mere cataloguing of what's there? Ecological networks expert Jason Tylianakis (University of Canterbury) is the workshop keynote speaker.

The symposium is free to attend for participants, but registration is required.

Venue: University of Auckland

For more information contact Mike Taylor or Matthew Stott or go to www.biologicalheritage.nz/news/upcoming-events/nz-microbial-ecology-consortium-symposium

National Wetland Trust conference 2018

"Wetland enthusiasts: every two years, the National Wetland Trust of New Zealand organises a gathering for people interested in sharing and learning about wetland restoration. The next symposium is in Napier 26-28 September 2018. The theme is Living Wetlands in the Living Landscape.

We are now calling for abstracts (brief outlines) for consideration. We welcome talks from a range of people involved in wetland management, including iwi, landowners, community groups, as well as students, wetland managers, policy developers, researchers and other wetland professionals. Deadline 30 March 2018. Submit via this link:

www.wetlandtrust.org.nz/Site/Wetland_Events/Restoration_Symposia/Submit_an_abstract"

NZ Institute of Forestry 2018 Awards & Scholarships

APPLICATIONS OPEN FOR NZIF FOUNDATION 2018 AWARDS & SCHOLARSHIPS

Applications are invited for the awards and scholarships offered by the NZIF Foundation for 2018. With the addition of The New Zealand Redwood Company Scholarship and the Invercargill City Forests Awards this year, the total value of awards offered is $44,500.

The awards open for application are:

- Two Future Forest Scholarships for post graduate research of up to $10,000 each
- The New Zealand Redwood Company Scholarship of $5,000 for an undergraduate scholarship at the University of Canterbury School Forestry
- Invercargill City Forests Awards of up to $5,000 to assist a resident of Invercargill with forestry related study, research or travel relevant to forests or forestry
- Chavasse Travel Award of up to $3,500 to assist a mid-career person to travel overseas or to bring an overseas person to NZ
- Jon Dey memorial award of up to $3,500 to assist research projects in the areas of work study or new technology aimed at improving forest engineering and harvest productivity
- Otago Southland Award of up to $3,000 to assist a project of relevance to forestry in the Otago/Southland region
- Mary Sutherland Scholarship of $1,000 for a polytechnic student
- University Undergraduate Scholarship of $1,000
- Frank Hutchinson Postgraduate scholarship of $1,000
- Student Poster prize at NZIF Conference (1st, 2nd and 3rd prizes of $800, $500 and $200)

Applications are now open. Further details on the Foundation web page available through www.nzif.org.nz, (link on right hand side of page)

Applications must be received by the Foundation administrator (foundation@nzif.org.nz) no later than **5pm on Wednesday 20th June 2018**. The awards will be announced at the Awards Dinner of the NZ Institute of Forestry Conference in Nelson on Tuesday 10th July 2018. For details of the conference see www.nzif.org.nz.
Enquires to the Foundation chair am.mcewen@xtra.co.nz or phone +64 274 733 262

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(Effective from December 2017)

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