LANDSCAPE ECOLOGY IN DISTRICT PLANS

Throughout New Zealand, local authorities are writing District Plans or revising their old District Schemes in accordance with the Resource Management Act. This means, for most, that they have to think about things like ecological processes, habitats and indigenous vegetation in more depth than ever before. It has been interesting to note the different approaches taken by different Councils to ecological matters, ranging from enthusiasm for new ideas to a reluctance to do more than the minimum.

Over the last few months I have been working with staff of Southland District Council and Invercargill City Council on landscape ecology for their new plans. Also involved are Allan Rackham (landscape planner), Christine Vodder (resource planner) and Jeff Weston (landscape architect), all from Boffa Miskell Partners. Our tasks include describing and evaluating the "landscape" and "ecology" of the area, helping to formulate objectives and policies for the District Plan and setting up a system whereby Council staff can continue to use the information we provided.

For both Councils, plan preparation is in the early stages, and a series of background studies are underway. From the start the two Councils decided to work closely in the landscape ecology area. Apart from having cost efficiencies, this also recognised that there are many cross-boundary issues for them which are based on ecological connections rather than politics.

Southland District is huge! From its northern boundary (north of Milford Sound) to the south coast is about the same distance as Auckland to Taupō. Its population is less than 50,000. It completely surrounds Invercargill City, whose population is about 40,000. The District encompasses Fiordland
National Park, Waitutu, the Longwoods, the southern parts of the Eyre and Garvie mountains, parts of the Catlins, Stewart Island and the important coastal wetlands at Waituna and Awarua Bay - over 20 Ecological Districts. It is one of our major pastoral production areas, with recent diversification into deer and an expansion of dairying. Its rivers provide some of the best trout fishing in New Zealand, and the coastal resources are abundant.

Invercargill City spans the important New River Estuary and much of the Awarua Peninsula with its unique vegetation communities. Within 10 minutes of the City centre you can find tomits in forest remnants and fernbirds in salt marsh, while further south, the Bluff and Onaui coast support unusual coastal vegetation.

The approach we have taken to the study is based on the European discipline of landscape ecology. This provides a framework for linking the ecological and cultural processes that have shaped, and continue to shape, the landscape. It does not separate the natural and the modified although it does allow you to put different values on such areas. The basis is simply to deal with areas which are homogeneous in landscape character - they appear similar and have similar ecological processes (eg soils or present vegetation cover). But they are also areas with which people can identify - they reflect settlement patterns for example. In the more "natural" areas, the ecological factors tend to dominate the selection of boundaries, while in the urban area, it is cultural patterns which are given greater emphasis.

This may seem quite obvious to ecologists, but remember that planning in the past has been based on areas which were delineated on the activities that could be carried out there - residential, commercial zones etc., with boundaries quite unrelated to natural patterns. Even the local authority boundaries themselves bear little relationship to natural features, so that land management on either side can vary. This is why it is so valuable to have two authorities working together.

For each landscape character type, we have described some of the ecosystems, (including their relationships with other areas through, for example, rivers), what aspects are important and how they might be threatened. From there we worked through to possible objectives and policies for the Plans. An interesting stage will be when the objectives and policies from all the other studies come together and the balancing act starts. We are working closely with the staff of the Southland Conservancy of DoC, whom we found were taking a similar approach to their Conservation Management Strategy. We have agreed (with very little difficulty) on boundaries of areas, so that the District, City, and Regional Councils and DoC will all be working from the same baseline in future. Duplication of DoC's effort has been avoided and they can feel that many of their concerns will be built into the District Plans.

The final reports have been presented to the two Councils. For Southland District, the next step is to prepare a series of reports for public comment in which all the natural resource study findings are integrated. These will use the landscape character types as a common basis. At that stage our area boundaries will be tested, and objectives for resource management will be commented on by farmers, foresters and conservation groups alike.

Both the District and City are strongly based on rural production; they have a long history of natural resource use and abuse, but still have many of the most important natural areas in the country. As the agricultural and forestry industries change, and recreation and tourism grow, the challenge of the Plans under the Resource Management Act is to ensure that people have enough information to understand the consequences of changes and so make decisions based on sustainability.

Judith Roper-Lindsay

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GONE, NO ADDRESS

Does anyone know the new address of:
Mr R Guest, formerly of Palmerston North;
T.J. Willis, formerly of 13 Boston Tce, Aro Valley, Wellington;
Mr J. W. Warcup, formerly of 1/15 Elizabeth St, Goodwood, South Australia, 5034.

Please advise the Treasurer, NZ Ecological Society, P O Box 25 178, Christchurch, New Zealand

NEW MEMBERS

Welcome to the Society to the following new members:
F.A. Schmechel, Christchurch; B. Rebergen, Twizel; H. Williams; Tauranga; K. Svarasdetir, Lincoln; L. Haines, Auckland; M.A. Kjargaard, Hawaii; D. Palmer, Queenstown.
NEW ZEALAND ECOLOGICAL SOCIETY AWARDS 1993

As Awards Convenor for the Society I am pleased to call for nominations and applications for:

THE NZ ECOLOGICAL SOCIETY AWARD
This award is conferred to recognise excellence and outstanding achievement in the study and application of ecological science. The award consists of an inscribed certificate and the sum of $150.

The award may be made to the person(s) who have published the best original research into the ecology of New Zealand or its dependencies (including the Ross Dependency) in the previous two calendar years, or the person(s) who have made the most outstanding contribution to applied ecology, particularly conservation and management, in New Zealand and its dependencies over the same period. Recipients of the award may be asked to give a presentation on their work at the Society's next annual conference.

Nominations should include a statement of support, referencing any relevant publications, and should be forwarded to the convenor no later than 30 July 1993.

STUDENT TRAVEL GRANTS
Travel grants are awarded annually to encourage student participation in the Society's annual conference. All bona-fide students, not in receipt of a salary, currently enrolled at a secondary or tertiary educational institute are eligible. Membership of the Society is not required.

Students should apply to the Conference Organiser (Dr Neil Mitchell, Environmental Science, Auckland University, Private Bag 92 019, Auckland) before 13 August 1993. This should include a statement of support from an appropriate staff member. The number of grants is limited, so priority is given to students presenting papers and those who have furthest to travel. Grants can be collected from the Conference Organiser during the conference.

STUDENT AWARD FOR BEST PAPER
The Society makes an annual award to the student who is judged to have presented the best oral paper at the Society's annual conference. The award comprises one year's free membership to the Society, a book token for a sum equal to one year's full membership subscription, and a certificate.

All papers given at the main conference (including joint papers) presented solely by students are eligible for consideration. No formal statement of entry is required, but students presenting papers should identify themselves to the Awards Convenor.

Graham Hickling

A REGISTER OF EMAIL ADDRESSES

Email is a wonderful thing but only if you know how to reach the other person. Email addresses are usually not obvious, as they depend on various arbitrary decisions on each site. So it occurred to me it might be useful if we could swap addresses so that New Zealand ecologists could have access to a list of current email addresses for those who are on-line. If anyone wanting access to such a list would send me an email, I will collate these and then send the complete list of responses to each person who responds.

To keep it simple, please send me, in this order:
- Surname, first name/initials
- organisation you work for if appropriate
- email address

Do this for yourself and for anyone you are in contact with whose email you know.

Send this to KELLY@BOTN.CANTERBURY.AC.NZ

Perhaps eventually we can get these included with the address lists circulated by NZ Ecol Soc from time to time, but meantime this will get us going.

Thanks, Dave Kelly

BROCHURE ON THE OUTCOMES OF UNCED

The Ministry for the Environment has published a brochure explaining the outcomes of UNCED. The purpose of the brochure is to inform people about the various outcomes of the Earth Summit held in Rio de Janeiro in June 1992.

If you would like a copy of this free UNCED brochure, please request one from: Public Affairs, Ministry for the Environment, P O Box 10362, Wellington (Fax 04-471 0195). In your request please mention that you belong to the NZ Ecological Society.
OVERVIEW

The interest of the New Zealand Ecological Society has focused largely on the ecology of our indigenous wildlands, their flora and fauna, and the pest and weed problems that beset them - if judged by the subject matters of papers in the New Zealand Journal of Ecology. This is a particularly insular focus not displayed to the same extent by continental ecologists. One reason for this is that there is a particular distinctness between most indigenous landscapes and the land managed for production in New Zealand, and this distinctness is not nearly so obvious on continents - a Taranaki dairy farm has little of pre-human New Zealand left, while the semi-arid pastoral lands of Australia retain a high proportion of their native character.

However, this focus of New Zealand ecologists is going to change, or at least broaden, to include the ecology of our production and urban land for at least two reasons - neither of which has been driven primarily by ecologists. Firstly, the Resource Management Act demands that we use our resources in a sustainable way, and secondly, it is becoming apparent that some (or even most if you are a pessimist) of our past land management has been "mining" the base resources of soil fertility.

Ecologists have a crucial role to play in making the RMA work by defining sustainability (the Society’s statement of last year continues to be widely used), and in defining what parameters are useful to land owners and resource managers as measures of sustainability (the Society will run a workshop at Flock House in July 1993 on bioindicators of sustainability). That we have problems on some (or all) of our production land is obvious on the most fragile parts of it; the semi-arid grasslands in the South Island and the erosion-prone hill country of the North Island. Perhaps we have the same problem on all our productive land, the difference being just one of base fertility and time.

Which brings me to my point. The restructuring of science has continued to impact on ecologists and the Ecological Society and has resulted in the demand that we earn our salt. In my own field, the ecology of pests, society is quite rightly asking how is it that we still have a possum Tb problem (or a feral goat problem to show my lack of bias) given all the millions of dollars allocated to research and control over the past decades. The reason why we have failed is that we cannot solve a pest problem by killing pests, however efficiently, in isolation from the social context in which the pest occurs - what resources is it affecting and who values them.

The whole-system ecological approach adopted to work through the semi-arid land problem (remember it started as a rabbit problem!) could be applied to other ecosystems with resources, people, and threats; and indeed Government is sending such signals to ecologists in its reviews of where it wants to spend its research dollars.

The "good" news is that there are plenty of problems out there that ecologists can solve. We have two choices as individuals and as a Society: we can lie back and think of England as others decide the position of our science in society, or we can attempt to position our ourselves and our science to be one of the key integrative disciplines (along with economics and sociology) in finding better ways to manage our natural and productive lands.

The best way for the Ecological Society to ensure this positioning is to expand its role in organising and facilitating workshops with all the main players involved in a particular problem, and publishing and promoting the results to the wider community. We have the financial and human resources to do this, and have had a couple of "practice runs" on themes chosen according to the interests of particular Councillors. There is every reason to have workshops on any particular ecological interest to all Society members in future efforts.

John Parkes
President

CONFERENCE 1992

Conference was held at the University of Canterbury between 23 and 27 August, and was organised by Colin Burrows and team. It was attended by 148 people who pre-registered and variable numbers who came for shorter sessions. Twelve papers were presented at the pre-conference students-only session organised by Tim Markwell from the Zoology Department at Canterbury, and 36 papers and 24 posters were presented.

The guest speaker at the wine and Cheese evening was John Penney from Massey University who attempted to bridge the gap between ecology and paleoecology using the pollen records in tropical rain forests. The recipient of the 1992 Ecological Society award, Colin Burrows, also talked on paleoecology in a speculative paper on the origin of the first hominid.

Two field trips were planned but were reduced by a blizzard to a tour of some urban ecological problems in Christchurch organised by Judith Roper-Lindsay.
AWARDS
The New Zealand Ecological Society Award is conferred annually to recognise outstanding achievement in the study and application of ecology in New Zealand. The 1992 recipient, Dr Graham White of Lincoln University, was presented the award at Conference for his work on long-term trends in abundance and species composition of moths in a montane tussock grassland.

The award for the best student paper presented at Conference 1992 was presented to Janet Wilmshurst of Canterbury University, for her paper “Effects of Polynesian and European settlement in the Lake Tutira catchment, Hawkes Bay”.

Twenty-one students received grants in support of their travel to the annual conference.

The Society supported Prof. John Craig’s nomination to the Fellowship of the Royal Society.

Graham Hickling

MARINE AND COASTAL SUBCOMMITTEE
Submissions were made on several marine reserve applications, including Firodland and Mayoe Island. There was also some correspondence sent to the Minister of conservation on the need for amendments to the Marine Reserves Act to address some of that Act’s deficiencies.

Submissions were made on discussion documents for the Fisheries Legislation Review. The review is ongoing.

Submissions were not made on marine and coastal research priorities, as this material was received too late to action. It was also very general and difficult to comment on.

Additional members are needed on the marine and coastal working group to help spread the load. In addition, the Society needs to decide where it wants to comment on site-specific proposals or just deal with national policy issues.

Vicky Froude, Working Group Convener

NEW ZEALAND JOURNAL OF ECOLOGY
Volume 16(2) for 1992 is at the proof setting stage, currently about 6 months behind schedule. This delay is largely due to the extremely low rate of submissions to the Journal in 1992, a total of 13; about half the number normally received. This is probably a result of extensive restructuring in many scientific institutions. Printing is now expected to take place in mid June, and the issue should be about 80 pages long. Seven papers are being processed for it, and two more considered, as well as a Forum article, and book reviews.

Setting for Volume 17(1) is not yet commenced, but about five papers are in the late stages of preparation for it; several will be from the Hieracium workshop. It is hoped that this issue will be printed about October.

Submissions for 1993 are not high, but not currently causing concern; 6 papers have been received and are being processed.

Setting for a flyer advertising the Journal is almost completed, and colour proofs should be available soon.

Gill Rapson, Editor

NEWSLETTER
Newsletters were produced in September, December, March and June. During the year we began using a postage paid permit for mailing the Newsletters, and no longer use envelopes. Newsletter layout is now done for the Society by Jeremy Rolfe, and printing is by Madison Printing Co. Duncan Cunningham has until now valiantly produced the address labels from a disk provided by the Treasurer, and Duncan and Mary McEwen organise the mail-out, sending Department of Conservation members’ copies through their internal mail. Duncan has resigned from this position; the Society thanks him for his help over the years. We pay workers at the Wellington HIC Resource Centre to fold the Newsletters and stick on the labels.

Newsletter articles are always welcome. We seem to have either a feast or a famine. Thank you to all contributors, especially Caroline Mason and the regional representatives; Richard Serra, Peter Williams, Judith Roper-Lindsay, Alison Balance, and to Fran Kell (who ceased being the Manawatu rep when she moved to Wellington). Volunteers for regional reps are most welcome, especially from North Island localities.

Mary McEwen

REPORT OF SUSTAINABILITY WORKING GROUP
Most of this year’s work has followed on from the Society’s 1991 public statement on sustainability issues. The statement has been used and cited widely, including incorporation into the Open Polytechnic’s course materials for a course for business degree students on “Environment and Business”. Members of the group met with consultants preparing an issues paper towards the initiation of a National Science Strategy on sustainable land use. The group’s paper on “Defining Sustainability — is it worth it?” was published in the proceedings of the International Conference on Sustainable Land Management held in Napier in November 1991. In July 1992 Ian Payton attended an international conference in Washington DC on the definition and measurement of sustainability and we subsequently made formal contact with the Ecological Society of America offering the possibility of our participation in the International Sustainable Biosphere Initiative. Other activities have been informal, including contributions to other related Society activities described elsewhere in the report.

Paul Blaschke
TREASURER'S REPORT, 1992 -93
At the time this Newsletter went to press the balance sheet for the 1992/93 year had been prepared but had not been audited. This will be done in time to present an audited version for the AGM. However, the unaudited accounts show the Society is in a healthy financial condition with cash assets of over $30,000 at the end of March.

The late production of volume 16(2), for which we have yet to pay, will not alter this fund as the Society was successful in gaining a Lotteries Board grant to fund this issue.

The size of the Treasurer's job (and that of the Secretary) are becoming too large for individual members to manage, especially within the constraints of accountability most members now enjoy in the evolving new regimes. Council first attempted to divide the jobs into smaller units and co-opt other members to help. In this respect, the assistance of Graham White in dealing with Journal enquiries is acknowledged. However, this system does not work partly because the Society does not have a system easily capable of integrating our financial, membership, and subscriber databases. The result is that members and Journal subscribers do not get efficient service. Council has determined to buy or develop a suitable computer package to integrate the systems, and to employ a person to manage it. An exercise to find the best package and job-size the proposed position is underway.

Jenny Brown, Treasurer

NEW ZEALAND ECOLOGICAL SOCIETY: Annual Accounts 1.4.92 to 31.3.93

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Jenny Brown, Treasurer
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## SUBSIDIARY ACCOUNTS

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</table>
NEW ZEALAND JOURNAL OF ECOLOGY

The post-watching members of the Society who have been frantically searching their letter-boxes for their latest edition of the Journal have had to endure a long dry spell between fixes. This lamentable delay in the publication of the long-awaited volume 16 (2) has been much regretted by those concerned with the Journal's management. The second issue for 1992 is currently at the printers and should be in those letter-boxes very shortly. It consists of papers from those recently submitted which enjoyed a smoothly ride through the Journal's editorial system, and those which have finally contributed to clearing some of the backlog of papers in the system by receiving attention from their double-blind editorialists.

Recent changes in the various Government and quasi-Government research organizations have put many scientists under unusual pressure, but hopefully this will soon abate to the point where productivity is restored and the flow of papers to the Journal will resume. Your Journal relies on your support, so please consider publishing any relevant material there.

Feel free to contact the Editor about your ideas for papers, or send in a crude draft for quickie comments. Advice and guidelines for submission are also available from the addresses below. A brief outline talk of publishing requirements and procedures for the Journal is planned at the Auckland conference to assist potential contributors.

The Society has also produced a flyer advertising the Journal, and designed to increase subscriptions. If you have any suggestions of people or institutions to target, then please drop a line to the Editor; targeting is a much more efficient use of these flyers than random drops.

Jill Rapson
Editor
New Zealand of Ecology
C/- Department of Ecology
Massey University
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PALMERSTON NORTH

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WANTED: CONTRIBUTIONS TO AN ECOLOGICAL PUBLICATION

We need your assistance in the production of a forthcoming Biology Course Manual. Approximately 30% of this new publication will cover ecological concepts. We wish to include a major local component (New Zealand and Australia) and, in particular, seek contributions of:

- Illustrative examples for basic ecological concepts
- Data that would be used for interpretation exercises and examples
- Diagrams, charts, figures
- Ideas, comments, and suggestions regarding important local ecological issues and problems

Material with a strong local flavour is particularly sought after, as it is our aim to introduce new, exciting, and locally relevant material to replace some of the older material currently in use. All the material will be compiled and presented to the high standard now expected of our products. All contributors will be fully acknowledged in the text. We hope that this package will promote ecology as an exciting, current and dynamic subject, and that it will generate interest in New Zealand ecology within our school communities.

Interested contributors are welcome to enquire, or send material directly to:

Richard Allan. Tutor Courseware, P.O. Box 13 034, Hamilton, New Zealand. Ph. 0-7-856 8104. Fax 0-7-856 9243

REQUEST FOR SEEDS

Andrew Jackson of Royal Botanic Gardens, Kew, requests seeds of different provenances of New Zealand Nothofagus species and any notable hybrids.

If members are able to help with seed collection, please include the following data:

- Latitude, longitude, description of location (e.g. 1 mile N of ______), altitude, habitat, including associated species, soil type, any particular features of the plant, date of collection and your collectors number.

This information is requested to help future researchers. Seed could be sent directly to:

Andrew Jackson
Royal Botanic Gardens
Wakehurst Place
Ardingly, West Sussex, RH17 6TN
ENGLAND

or to: Mike Bunckenburg, 218 Otipua Rd, Timaru and he will happily forward it.
ECOLOGICAL SOCIETY OF AUSTRALIA

1993 OPEN FORUM AND SYMPOSIUM CONFERENCE
Research School of Biological Sciences
Australian National University
Canberra

26th September – 1st October 1993

OUTLINES OF SPECIAL SYMPOSIA
Full details of individual symposia are given in the March 1993 issue of the Bulletin of the Ecological Society of Australia. Additional copies of these details can be obtained from:
Jill Landsberg or Craig James,
phone (Australia) 06 242 1600,
fax 06 241 4020,
or e-mail CraigJ@cbir.dwe.csiro.au.
- Applications of GIS to the Study and Management of Terrestrial Ecosystems
- Community Ecology: A Litany of Special Cases?
- Disturbance and Maintenance of Biological Diversity
- From the Forest Floor to the Forest Canopy: Interactions of Flora and Fauna in Nutrient Cycles in Eucalypt Forests
- Grazing Ecology
- Landscape Ecology and Conservation
- Science Policy and Research: Can Science and the Bureaucracy Meet?
- Seed Dispersal
- Techniques for Biodiversity Preservation.

EXCURSION
How does science become policy? To help you find out we have planned a hitchhiker’s guide to the acronyms. This will take the form of a full day excursion on Wednesday 29th September to visit some of Canberra’s major ecological institutions, which are eager to organise tours and displays to show the nature of the work they do and the services they provide. The excursion includes lunch at a local picnic venue. Total cost (transport and lunch) is A$20. Places are limited and will be allocated on strictly a first-paid basis.

FOR MORE DETAILS AND THE REGISTRATION FORM PLEASE CONTACT CRAIG JAMES OR JILL LANDSBERG AT THE ABOVE CONTACT NUMBERS

HOARE RESEARCH SOFTWARE
Hoare Research Software is a firm that has recently been formed by Dr Ray Hoare, to provide distribution, sales and support of technical computer programs, too sophisticated and too infrequently used to be of interest to the major software distributions. Dr Hoare has been distributing SYSTAS statistical products for 5 years, and now supplies Mathcad, Mathematica, Lindo, and a selection of market research, forecasting, and other mathematically based programs.

Statistical programs can be used for data presentation and many modelling tasks, and not only for analysis of variance. (For instance, you can do non-linear curve fitting). Mathcad can let you write down mathematical equations or matrices, just as you would on a sheet of paper, and perform algebra on them, solve them, or substitute numeric values for symbolic variables. Much more straightforward and powerful than using a spreadsheet, and easy to check.

Mathematica allows you to do similar things to Mathcad, but because it works with a language based on functions, it can be used to build programs for handling very complex tasks. Lindo is used for linear and quadratic programming, where you want to find an optimum solution to a problem in which many equations constrain the relationships between resources.

There are too many other programs to describe here, in many areas of mathematics and science. Your enquiries will be welcomed by Dr Hoare. Contact HRS at phone 07-856 2675, fax 07-856 2797, or P.O. Box 4153 Hamilton East, if you have been wondering what modern software can do for you.
BUZZ GROUP: INFORMAL MEETINGS OF NZ ECOLOGISTS

South Island Weekend, Cass, 8–10 October 1993

For some years there has been a tradition of informal meetings to facilitate contact, cooperation, and exchange of bright ideas and enthusiasm between local ecologists from different parts on New Zealand. This year it is the South Island’s turn, with a weekend at the University of Canterbury field station at Cass, on the Arthurs Pass road. The meeting will be held on the weekend immediately preceding the symposium to mark Colin Burrows’s retirement (see below) to allow you to cover both events with a single trip.

The weekends involve some time in the field, to give outsiders some idea of the beauty and ecological highlights of the area; some informal presentations of work in progress, by staff and research students; discussions on issues of scientific interest; and socializing. They are open to any interested ecologists of any level, but numbers are strictly limited to about 30 by the available space at the field station. First come, first served. We hope to be able provide minibuses from Christchurch on the Friday evening and back again on Sunday. The only costs will be for the minibuses (around $15 each) and food. We can also hopefully arrange billets in Christchurch on Sunday night for those staying on for the Burrows Symposium.

Anyone interested in attending this meeting should register their interest to stake a place in the queue; more details will be sent to those on the mailing list. Remember, places are allocated on a first-come basis.

SEMINAR TO MARK COLIN BURROWS’S RETIREMENT

“NEW ZEALAND PLANTS AND ENVIRONMENT”

MONDAY 11 OCTOBER 1993, UNIVERSITY OF CANTERBURY

Colin Burrows retired this year after more than three decades in the Botany Department at the University of Canterbury. To mark the occasion we are organizing a one-day seminar on the theme of New Zealand Plants and Environment. During the day there will be about a dozen speakers covering various topics related to work that Colin has done over the years, and in the evening there will be a formal dinner. We hope it will provide an opportunity for New Zealand ecologists to gather, review the progress of the last few years and consider directions for the future, as well as socializing of course. There will be NO CHARGE for attendance (user pays be damned!) but there will be a charge for the symposium dinner.

The seminar will begin at 9:15 am; we can collect travellers from the airport early on Monday and/or arrange some billets in Christchurch for Sunday and Monday nights. Morning and afternoon tea will be provided; lunch will be available for purchase, but we need to know approximate numbers beforehand. Book your tickets now and take advantage of the cheap air fares currently on offer!

If you are interested, please notify your interest to us giving the details below, and we will put you on the mailing list for the complete information when the programme is finalized.

__________________________
REGISTRATION OF INTEREST
(this is indicative, not binding)

I am interested in attending the
WEEKEND BUZZ GROUP .................. Y/N

I am interested in coming to the
BURROWS SYMPOSIUM .................. Y/N

I am interested coming to the
SYMPOSIUM DINNER .................. Y/N

I am interested in a billet on SUNDAY night .... Y/N

I am interested in a billet on MONDAY night .. Y/N

NAME ...........................................

POSTAL ADDRESS ............................

PHONE DAY ................... NIGHT ...........

FAX ............................................

Please either
email to
KELLY@BOTN.CANTERBURY.AC.NZ
or fax to (3) 3642-083,
or post to Dave Kelly, Plant and Microbial Sciences, University of Canterbury, Private Bag, Christchurch 1.
A SELECTION OF ABSTRACTS
FROM THE 1992
CHRISTCHURCH CONFERENCE

RELATIVE EFFICIENCY OF CATS, MYXOMATOSIS, TRADITIONAL CONTROL OR COMPEITION FOR REMOVING RABBITS FROM ISLANDS
The outcome of control on 607 islands of known area around the world was analysed to identify the most efficient way of removing rabbits. More islands have been cleared of rabbits by traditional methods of trapping, shooting and poisoning than by introduced predators, competitors or disease, but the relative efficiency could not be calculated because unsuccessful attempts have not normally been recorded. Where hares were introduced, rabbits subsequently became extinct on 27% of 105 islands; introduction of cats removed rabbits from 11% of 80 islands; myxomatosis from 10% of 119 islands; and cats and myxomatosis together from 3% of 40 islands. All these control techniques were more effective on smaller islands than on large ones, but rabbits have "died out" naturally on 11.2% of the 607 islands, and this factor is not correlated with island area.

Flux, J.E.C.
Land Resources, Lower Hutt

SOCIAL EVENTS FOLLOWING THE INTRODUCTION OF AN UNFAMILIAR GOAT TO A FERAL GOAT HERD (CAPRA HIRCUS L.)
A descriptive and quantitative account is given of agonistic and exploratory behaviour following the introduction of an unfamiliar goat into an established feral herd. Social interactions between herd members and new entrants were classified into three behavioural categories: exploratory, dominant, and submissive behaviour. Exploratory behaviour is the most common action of herd members towards the new entrant. A peak of agonism and exploratory behaviour occurs within the first hour following the introduction of each new entrant then decreases rapidly. The response of the herd may be influenced by the dominance status of the new entrant, and the season of introduction.

Alley, J.C. & Fordham, R.A.
Department of Ecology, Massey University, Palmerston North

VIRAL VECTORED IMMUNOCONTRACEPTION AND THE IMPLICATIONS FOR NEW ZEALAND?
The use of viral vectored immunococounception (VVI) to control vertebrate pests was first proposed in Australia where work to modify the myxoma virus to sterilise rabbits is well advanced. This has profound implications for rabbit control in New Zealand, and the technology is being considered for use against possums. An immunococ contraceptive vaccine stimulates the immune system to attack large molecules vital for reproduction. VVI involves engineering a virus to stimulate the host's immune system as an immunococ contraceptive, and render the host infertile. For pest control, an engineered virus could be introduced into the population at minimum cost and spread without further intervention. This would be humane and avoid all risk to non-target species. The work on the myxoma virus is aimed at a sustained reduction in rabbit numbers, and to achieve this the engineered virus must out-compete field myxoma strains. In NZ, the rabbit population has not been exposed to the myxoma virus and an engineered virus is likely to have a devastating effect. The push to introduce myxomatosis to control rabbits in Central Otago needs careful consideration in the light of the likely availability of VVI in the future. The hasty introduction of myxomatosis will offer a temporary respite, but waiting for VVI may make the difference between a modest reduction in rabbit numbers and almost total eradication.

Jolly, S.
Landcare Research, PO Box 31-011, Christchurch

WASPS FEEDING ON HONEYDEW: COMPETITION FOR A LIMITED RESOURCE
Wasps are a conspicuous component of the honeydew infested beech forest community and reach high densities in late summer - autumn. The main carbohydrate source available to organisms in this community is honeydew excreted by a scale insect that feeds on sap, predominantly of beech trees. Wasp foraging, and rainfall, reduce the standing crop of honeydew. As the standing crop decreases wasp density on trees increases and foragers become less active, feed at a slower rate, and spend more time lapping the tree surface rather than feeding on honeydew drops. Vespuca vulgaris foragers maintain greater activity and harvest more drops at any given standing crop than do V. germanica.

Harris, R.
Landcare Research, Nelson
CAN THE WASP PARASITOID, *SPHECOPHAGA VESPARUM*, REDUCE WASP POPULATIONS

Introduced *Vespula* wasps can build up to high numbers in some parts of New Zealand, particularly honeydew beech forests. In 1987, a parasitoid, *Sphecophaga vesparum* was released in an attempt to control wasps. Nests have been collected from about 40 sites where the parasitoid was released, but so far it has established only at 2 of these sites. One of these sites, Pelorus bridge, has been monitored every year since 1987, and the density of wasps, queen production, and emergence rate from parasitoid cocoons have been measured. In the first four seasons the proportion of wasp nests attacked by the parasitoid remained at between 3% to 5%. However, in 1991/92 the rate of successfully parasitised nests increased to 8%. Wasp population data have been collected annually from 6 sites. Preliminary mathematical models of wasp populations and the parasitoid have been developed to help predict the likely impact of the parasitoid on wasps.

Beggs, J.¹; Barlow, N.² & Moller, H.³

¹ Landcare Research, Nelson
² Pastoral Agricultural Research Institute, Lincoln
³ Zoology Department, University of Otago

THE EFFECT OF PREDATORY BROWN TROUT, *SALMO TRUTTA*, ON THE FORAGING BEHAVIOUR OF THREE CLOSELY RELATED, NATIVE GALAXIID SPECIES

There is increasing evidence, largely circumstantial, that introduced brown trout (*Salmo trutta* L.) have contributed to the decline of several native freshwater fish species in New Zealand. Few studies have addressed the mechanisms underlying these declines or provided experimental evidence for a negative interaction between trout and native fish species. It is known that brown trout are predatory on three closely related galaxiid species (*family Galaxiidae*), and this study investigates the probability that in the presence of trout the natives modify their behaviour (indirect predation). Laboratory based observations of galaxiid behaviour showed that feeding was suppressed significantly when trout were present and that subtle changes in behaviour occurred. The influence of trout on behaviour varied between species. While brown trout seem to pose an indirect predatory threat to certain galaxiid species, further work is required to elucidate the extent of this interaction on the growth and survivorship of galaxiids. Effects of indirect predation, revealed by this work, can be subtle and are therefore likely to be playing only a small role in determining the distribution of brown trout and native galaxiids.

Edge, K.A.¹; Townsend, C.R.¹ & Crowl, T.A.²

¹ Department of Zoology, University of Otago
² Dept. Fisheries & Wildlife, Utah State University, Logan, Utah, USA

PREDATOR-PREY INTERACTIONS AMONG FRESHWATER CRAYFISH, TROUT AND EELS

A comparison was made of anti-predator responses of a New Zealand freshwater crayfish species, *Paranephrops zelandicus*, to two of its predators: the introduced brown trout, *Salmo trutta*, and the native long-finned eel, *Anguilla dieffenbachii*. Crayfish modified their behaviour in the presence of both predators, but made a significantly greater number of defensive chelae displays and swimming responses to eels than to trout. In addition *P. zelandicus* was able to use chemical cues to detect eels but not trout. *P. zelandicus* is therefore able to make appropriate behavioural responses to the introduced brown trout as well as to its native predator, the long-finned eel, but may be at a greater risk due to its inability to detect trout using non-contact chemical cues. This may be a reflection of the different co-evolutionary histories crayfish have had with trout and eels in New Zealand.

Shave, C.R.¹; Townsend, C.R.¹ & Crowl, T.A.²

¹ Department of Zoology, University of Otago
² Dept. of Fisheries & Wildlife, Utah State University, Logan, Utah, USA

FREESTANDING WOODY SPECIES COEXISTENCE ON NEWLY LAID GRAVELS

A study of species coexistence was made on 41 freestanding woody species which had made a near simultaneous invasion of newly laid stream gravels in a mature red beech, kamahi, tawa, miro, rimu forest in Marlborough. Plant height, age, density and quadrat frequency were sampled in 124 quadrats which occurred along a chronosequence of 12 years and a height progression from 0 to 800 cm. Assessments of relative vertical and lateral dominance showed little tendency for any species to predominate in excess of its percent sum of quadrat frequency. Thirty-one species occurred amongst the three tallest individuals or species in at least one quadrat. Most species had an initial mean decline in height predominance as a result of a rapid increase in the numbers of individuals and species which peaked around the 11 to 50 cm quadrat height classes. Subsequently, all species increased their relative height predominance as density decreased and as they approached their maximum potential height.
This period of maximum height predominance was coincident with the steepest part of the height growth curve for all of the most frequent species for which data were available. It is concluded that all the higher frequency species, and probably the less frequent, coexist because their height growth is sufficiently rapid to cope with, or catch up with, competing species or because, at times, they have an exclusive, or near exclusive, lateral space occupancy. Of the traditional coexistence mechanisms, “chance” and “non-random distribution” are probably most important in ensuring interspecific diversity in vertical and lateral use of space.

Bray, R.
PO Box 494, Nelson

ECOLOGY AND CONSERVATION OF DACTYLANTHUS TAYLORII
Dactylanthus taylorii, New Zealand’s only fully parasitic native flowering plant has inflorescences which produce copious amounts of musky-smelling nectar. This nectar has been found to contain strong attractants for pollinators. Using a time-lapse video system with infra-red lighting, circumstantial evidence suggesting pollination by short-tailed bats was confirmed. Ship rats were filmed damaging the male inflorescences in their vigorous efforts to get to the nectar. The more robust female inflorescences however, remained undamaged and were probably pollinated. Using the same equipment the kioro or Polynesian rat was filmed browsing and destroying both male and female inflorescences on Little Barrier Island. Possums also destructively browse the inflorescences. Possum control operations have to reduce numbers to very low levels before significant seed set is possible. The long-term survival of Dactylanthus taylorii will involve expensive possum control, exterminating kioro from Little Barrier Island, or removing plants to other possum-free islands where short-tailed bats or ship rats are present. Recent success in cultivating this unusual plant from seed makes this last option feasible.

Ecury, C.
Forest Research Institute, Rotorua

HONEYDEW STANDING CROP AND PRODUCTION OVER 24-HOURS IN NOTHOFAGUS SOLANDRI FOREST IN CANTERBURY.
The standing crop and daily production of honeydew by Ultracoelostoma assimile on Nothofagus solandri var solandri was measured on 28-29 August 1990 near Oxford, Canterbury. In 64 frames of 125 cm², all 740 active individual insects were mapped by their anal threads and honeydew production recorded every 3 hours over 24 hours. Daily production of honeydew per insect averaged 0.169 ul. Production was higher at night, and standing crop peaked just after dawn. Removing drops every 3 hours and covering the frames to exclude animals had little effect on honeydew production. The effect of aspect was not clear, with an apparent maximum on southerly faces. The greatest variation was between trees, and only 25% of this was explained by trunk diameter, but Ultracoelostoma densities were higher on trees with higher daily honeydew production per insect. The daily production per unit area represented 3.2 to 6.4 times the standing crop, depending on what time of day the latter was measured.

D. Kelly; D.J. Stirling; G.R. Hunt; C.L. Newell & C.E. Jarvis
Plant and Microbial Sciences, University of Canterbury

SOLAR RADIATION – THE SLOPES HAVE IT
Recent climate modelling techniques have allowed ecologists to begin to describe the climate niche of species. These have been successfully applied to interpret the broad geographic distribution of a number of tree species. The problem remained of identifying the more localised conditions that controlled the presence of a species. It has become apparent that quantity of solar radiation is a key feature of tree species distributions. As an environmental variable it is much modified by local terrain conditions. We have now successfully modelled site specific solar radiation (taking into account slope and aspect). When taken in conjunction with temperature and rainfall we have achieved some remarkably precise definitions of suitable sites for species. Results will be presented to illustrate the use of these refined solar radiation estimates, in the context of broader climate - species modelling. If we are correct as to the importance of solar radiation, then there are also implications for understanding species responses to climate change.

N. D. Mitchell & R Jessop
Botany Department, School of Biological Sciences,
Auckland University
LIFE, THE UNIVERSE AND EVERYTHING:
THE ORIGIN OF THE FIRST HOMINID

This paper presents a speculative model for the ape-hominid transformation, based on knowledge of fossils, the known ecological setting and analogies from modern Primate biology. In Africa, in the late Miocene, it is probable that a major mutation occurred in an ape, creating the potential for profound skeletal rearrangements and other features which differentiate hominids from apes. The essential shift from quadrupedalism to bipedalism happened then. Although such a mutation could have been disadvantageous to its possessors, there were, at the time, new and strong selective pressures which permitted it to survive. These were the large carnivores (cats and hyenas) which had evolved in response to the widespread development of savanna, with consequent vast evolutionary radiation of the Bovidae. Erect stance and freed hands (and strong social bonds) were beneficial to the evolving hominids in this environment, for protection of the young, and the group. A cluster of reproductive features present in humans, but not in apes, probably originated at this time also. They include the female lack of an oestrous season, continuous sexual receptivity and potentially rapid breeding rate. Loss of long body hair and shift of the symbols of sexual attraction to prominent secondary sexual characteristics, in both males and females, also are probably linked to these changes.

Burrows, C.J.
Department of Plant & Microbial Sciences,
University of Canterbury

ASPECTS OF THE ECOLOGY OF ASIAN
PAPER WASPS, POLISTES CHINENSIS

The ecology of the recently established Asian paper wasps (Polistes chinensis) was studied in Northland. The relative abundance of wasps in native habitats was assessed by direct counts of wasps seen per minute and malaise trapping. Shrublands and flax swamps had the highest numbers of Asian paper wasps. They were also common in manuka, but were seldom found in dense forests, mangroves and salt marshes. Asian paper wasps were never caught in Puketi forest and seldom in Waipoua. Australian paper wasps (P. humilis) were never caught in either forest, where German wasps (Vespula germanica) reached their highest densities. Asian paper wasps were caught more frequently than German wasps in the shrublands of Lake Ohia. They were not caught in the shrublands or coastal vegetation at Spirits Bay. Diet studies in a rural garden revealed that lepidopteran larvae were the most common prey items. Further studies are needed on the Asian paper wasp in shrublands and flax swamps to determine whether particular lepidopterans are at risk from predation, and to assess the impact of the wasps as competitors of native insectivores and nectarivores.

Clapperton, K.1; Pierce, R.2 & Dugdale, J.3
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2 Department of Conservation, Whangarei
3 Landcare Research, Auckland

THE FATE OF SODIUM
MONOFLUOROACETATE (1080) IN WATER,
INVERTEBRATES, AND MAMMALS.

Sodium monofluoroacetate (1080) has been used in New Zealand for the control of introduced vertebrate pests for nearly 40 years. Despite extensive experience, its use continues to be controversial. To address concerns of the public and wildlife manager alike, laboratory and field studies are being undertaken to more closely examine the fate of 1080 in water, invertebrates, and mammals. In laboratory studies, 80-litre aquaria containing common pond plants and invertebrates were spiked with 0.1 ppm of 1080 (the amount found in three standard possum baits). The concentration of 1080 declined rapidly within 1-3 days. In contrast, in an aquarium containing distilled water spiked with 1080, concentrations remained stable for several months. Water samples were collected from Waipoua Forest Sanctuary and Rangitoto Island for up to 6 months after aerial sowing of 1080 baits in 1990/91, and in 1992 extensive sampling of invertebrates was undertaken at Puketi Forest for 56 days after a similar operation. The presence of 1080 in streams or rivers at Waipoua and in surface or ground water on Rangitoto could not be detected. Analysis of residual toxins in invertebrate samples from Puketi are underway. Rabbits, goats, and sheep have been dosed with sub-lethal amounts of 1080 (0.1 mg/kg). In rabbits, 1080 was eliminated in less than 12 hours; in sheep and goats excretion occurred within 3 days. These results indicate that the risk of secondary poisoning from sub-lethally dosed target and non-target mammal species is low.

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Education Working Group
position vacant

This Newsletter was produced by Mary McEwen and Jeremy Rolfe.

Contributions for the newsletter – news, views, letters, cartoons, etc. – are welcomed. If possible, please send articles for the newsletter both on disk and in hard copy. Disk can be any size; MS Word, Word Perfect or ASCII file text, formatted for Macintosh or MS-DOS. Please do not use complex formatting; capital letters, italics, bold, and hard returns only, no spacing between paragraphs. Send disk and hard copy to:

Mary McEwen
12 Tisdall St
Kelston, Wellington.
Phone/Fax 0-4-476 6163

The deadline for the next issue is 1 September 1993

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

THIS ISSUE IS PRINTED ON 100% RECYCLED PAPER
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 (1993/94)

Full (receive journal and newsletter) .......... $45 per annum
Unwaged (with journal) .................. $20 per annum
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Joint ............................................. $45 per annum
Joint members get one copy of the journal and newsletter to one address.
School ............................................. $12 per annum

Educational institutions may receive the newsletter at the cost of production to stay in touch with Society activities. By application to Council.

There are also Institutional Rates for libraries, government departments etc.

For more details on membership please write to:

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PO Box 25 178,
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