Wellington Botanical Society

NEWSLETTER September 2002

Last Issue: May 2002 ISSN 1171-9982

2002/2003 committee

At the 63rd Annual General Meeting on 19 August 2002, the following were elected:

President:	Chris Horne[1]	475 7025		
Vice-Presidents:	Rodney Lewington	475 3145	Joyce Wilson[2]	934 2437
Secretary:	Barbara Clark	233 8202		
Treasurer:	Jane Humble	971 6970		
Auditor:	To be advised			
Committee:	Penny Currier	473 9520	Ian Goodwin	475 7248
	Sunita Singh	387 9955	Julia White[3]	938 5102
	Jane Wright	499 7774		
Submissions Co-ordinator:	Barbara Mitcalfe	475 7149		
Bulletin Editor:	John Sawyer	472 5821		

[1] Newsletter Editor [2] From committee meeting 29/8/02 [3] From 1/1/03

Evening meetings

Our evening meetings are now held in the Murphy Building, Lecture Theatre 101. Please see Meetings box on this page. We thank Austen Sinclair, Victoria University, for making this room available to us.

Julia White

WBS Bulletin

We welcome articles for consideration for the next issue of the Bulletin. Members with interesting observations on field trips, and memories of other special occasions, are invited to submit articles.
Please send your article ASAP to John Sawyer, Editor, WBS Bulletin, Department of Conservation, PO Box 5086, Wellington. Ph 04 472 5821, fax 04 499 0077, e-mail: jsawyer@doc.govt.nz

Wellington Botanical Society

President:	**Chris Horne**	**475 7025**	
Secretary:	**Barbara Clark**	**233 8202**	**233 2222 (fax)**
Treasurer:	**Jane Humble**	**971 6970**	
Submissions co-ordinator:	**Barbara Mitcalfe**	**ph/fax 04 475 7149**	
Address:	**PO Box 10-412, Wellington 6036**		
Web site:	www.wellingtonbotsoc.wellington.net.nz		
Bulletin Editor:	**John Sawyer, DOC, PO Box 5086, Wellington**		

Contributions for Newsletter (news, views, information) to: Chris Horne, 28 Kaihuia St, Northland, WN 5. Tel 475 7025
Annual Subscription: ordinary $27; country $22; student $17. Send your subscription to Treasurer, WBS, PO Box 10-412, WN. Please use the subscription form at the back of the newsletter.

Manawa Karioi Society Revegetation Programme

WORK BEES

10.00 am every Wednesday and 2nd Sunday each month. Lunch provided.

Potted locally-sourced native seedlings welcome. Thank you.

Contact:
Morgan Cox ph 383 5168 or
Sally Bowman ph 934 7041

Meetings

BotSoc meetings are usually held at 7.30 pm on the third Monday of each month at Victoria University, W'gton – Lecture Theatre 101, ground floor, Murphy Building, west side of Kelburn Parade. Enter building about 20 m down Kelburn Pde from pedestrian overbridge.

Field trips

Day trips to locations in the Wellington region are usually held on the first Saturday of each month. Extended excursions are usually held at New Year, Wellington Anniversary Weekend and Easter.

Committee meetings

BotSoccers are welcome to attend meetings. If you would like to attend, please contact the Secretary, Barbara Clark, ph 233 8202, to find out the date and place of the next one.

DEADLINE FOR COPY FOR NEXT ISSUE – 1 November 2002

ATTENDING FIELD TRIPS AND MEETINGS

Ideas please

We welcome your ideas about:
- places to visit on field trips
- topics for evening meetings
- speakers at evening meetings.

Please send ideas to our secretary, Barbara Clark – address on page 1.

Field trips

If you intend to join a trip, **PLEASE** phone the leader at least **TWO DAYS** beforehand. This will enable him/her to arrange for a copy of the species list for you, and to let you know of any changes and/or particular requirements. If you cannot ring so far in advance, you are still welcome to join on the day.

Clothing for field trips

Sun hat, balaclava[1] or hat[1], waterproof/windproof parka, long-sleeved cotton shirt, singlet[1], bushshirt[1], 1 or 2 jerseys[1], waterproof/windproof overtrousers, nylon shorts, longjohns[1], longs[1], underclothes, swimming togs, 4pr socks[1], hut shoes, boots, gaiters, mittens[1], handkerchief.

Day trip gear

First aid kit, compass[2], map[2], insect repellant, whistle, matches in waterproof container, water purification tablets, water bottle, thermos, pocket knife, camera[2], binoculars[2], hand lens[2], note book[2], pen and pencil[2], sunblock, sunglasses, large plastic survival bag to line pack.

Overnight trip gear and food

As well as the day trip gear listed above, bring torch, spare bulb and batteries, candle, mug, plate, knife, fork, spoon, small towel, soap, tooth brush, tent, fly, poles and pegs, groundsheet, sleeping mat, sleeping bag, liner and stuff bag. Bring bread, butter/margarine, biscuits, fresh fruit and scroggin. SCROGGIN = Sultanas, Chocolate or Carob, Raisins, Orange peel, Glucose[3], Ginger, Including Nuts.

[1] = wool, polypropylene or polarfleece as applicable.

[2] Optional

[3] Dried apricots are recommended instead of glucose but would spoil the acronym!!

BotSoc equipment

In addition to the gas stoves, billies, kitchen utensils, flies etc., used on our long field trips, we have the following for use on any field trip:
- a first aid kit
- ten NZMS 260 Sheet R27, Pt.Q27 maps
- ten Silva Type 3 compasses

If you are leading a BotSoc trip, and would like to take these items, please ring Chris Horne ph 04 475 7025, or Barbara Mitcalfe ph 04 475 7149.

Fitness and experience

Our field trips vary considerably in the level of fitness and tramping experience required. Although our main focus is botanical, our programme sometimes offers trips which, in the pursuit of our botanical aims, are more strenuous than others. Although leaders take care to minimise risks, everyone participates at their own risk. If you have any questions about whether you are fit enough for a particular trip, please contact the leader well beforehand.

Reimbursement of drivers

If you travel on a trip in someone else's vehicle, please pay your share of the running costs to your driver. If a trip on the inter-island ferry is involved, please pay your driver your share of the ferry fare.

Meetings

Public transport to meetings

You may find the following bus services useful. They stop on Kelburn Parade, about 50 m from Lecture Theatre M101 in the Murphy Building, Victoria University:

TO MEETINGS

No. 23 Mairangi–6.30 pm from Houghton Bay, 6.40 Zoo, 6.50 Courtenay Place, 6.57 Pastoral House, 7.02 University.

No. 23 Mairangi–6.55 pm from Southgate, 7.05 Hospital, 7.15 Courtenay Place, 7.22 Pastoral House, 7.27 University.

No. 22 Southgate–6.55 pm from Mairangi, 7.10 University.

No. 23 Houghton Bay–7.25 pm from Mairangi, 7.40 University.

No. 17 Railway Station – 6.35 pm from Karori Park, 6.52 University.

Cable Car at 00, 10, 20, 30, 40, 50 min past each hour from Lambton Quay terminus. Alight at Salamanca Station.

FROM MEETINGS

No. 23 Southgate – 9.10 from University.

No. 23 Southgate – 10.10 from University.

Cable Car at approx. 01, 11, 21, 31, 41, 51 minutes past each hour from Salamanca Station. Last service 10.01 pm.

For further information ring Ridewell Enquiry Service 801-7000.

Help the Editor

Compiling this newsletter takes several days. If you can help by word-processing your own material and sending it on disk, preferably in Microsoft Word, it would be much appreciated.

The following programme IS SUBJECT TO CHANGE. If you wish to go on a field trip, PLEASE help with planning by giving the leader 2 days' notice before a day trip, MORE notice before weekend trips, and SEVERAL WEEKS' notice before the New Year's trip.

Monday 16 September: Evening Meeting **Evolution of mirror-image flowers**

Speaker: Dr Linley Jesson, Lecturer in Ecology, School of Biological Sciences, Victoria University
Linley will review the distribution, evolution, and adaptive significance of plants in which the sex organs are deflected either to the left or the right of the floral axis.

Saturday 5 October: Field Trip **Strathmore revelations**

See matagouri on Airways Corporation land, look for more of this shrub which is rare in Wellington Conservancy, and see *Pimelea prostrata, Aciphylla squarrosa,* and taupata forest in the WCC Rangitatau Reserve. Bring gloves and secateurs to help with weeding around the matagouri plants. After botanising this coastal land, we will botanise in Beacon Hill Reserve, which includes the large-leaved milk tree, ewekuri.
Co-leaders: Julia White ph 938 5102; Gary James ph 938 6751
Meet at 9.30am at gate at end of Ahuriri St, Strathmore. Map R27 and Wellington street map.
Catch no. 43 Strathmore bus 8.50am Khandallah, 9.23am Lambton Interchange, 8.50 Kilbirnie; alight at stop at end of Ahuriri St. near gate.

Saturday 19 October: Field Trip **Te Marua Bush Workbee**

PLEASE NOTE THIS EXTRA FIELD TRIP IN YOUR DIARY NOW.
BotSoc has been committed since 1989 to weed control and revegetation work in this important totara/maire remnant in Kaitoke Regional Park. With a grant from Wellington Regional Council, we hired a contractor to speed the task of weed control, but our biennial workbees must continue so that we keep ahead of reinvasion by weeds, particularly around the plantings. So please come to help with this important work. We will continue with pest plant removal in the forest remnant, and releasing our existing plantings from weeds. There are tasks for everyone!
Bring: gloves, kneeler, weed bag, and your favourite weeding tools e.g. trowel, hand fork, loppers, pruning saw, pinch bar.
Catch 8.05am train on Hutt Line from Wellington Station.
Meet 9am at Upper Hutt Station carpark, or 9.30 am at Te Marua Bush, 250 m north of Te Marua Store, and 50m off SH2 along the road to Te Marua Lakes, Kaitoke Regional Park. Maps R26 and Upper Hutt street map.
Leader: Barbara Mitcalfe, ph 475 7149; deputy leader: Sunita Singh, ph 387 9955.

Monday 21 October: Evening Meeting **Beyond the native garden**

Speaker: Isobel Gabites, landscape ecologist with Boffa Miskell
Isobel is the author of three books: The Native Garden – design themes from wild NZ; Wellington's Living Cloak – a guide to the natural plant communities; Roots of Fire, and of several design guides for the Kapiti Coast, exploring ways that gardeners can create a "sense of place". But what is *that* "sense of place" in ecological terms, and are gardeners really contributing?

Sunday 3 November: Field Trip **Kapiti Island**

NOTE CHANGE OF DATE!
See for yourself the results of removing all possums, rats and other pest animals from 1965 ha Kapiti Island. Plant communities, invertebrates and birds are thriving.
Co-Leaders: Jane Humble ph 971 6970, 16 Izard Rd, Khandallah,WN 6004, and Lynne Pomare, ph 04 905 1187.
SEND JANE YOUR $25 DEPOSIT A.S.A.P. TO ENSURE YOU HAVE A PLACE ON THIS SPECIAL TRIP – make cheque out to J Humble. Bookings opened on 1 August , so keep your fingers crossed! If you have to cancel your booking, please either find someone to take your place, or, if the leaders cannot find a substitute, be prepared to forfeit your deposit.

Monday 18 November: Evening Meeting **Ecological monitoring in Wellington Conservancy**

Speaker: Dr Steve Urlich, Forest Ecologist, Department of Conservation.
Steve is reviewing previous monitoring work, including that done in the late 1950s by J Holloway and P Wardle, L Pracey's work with exclosure plots from 1951, and work done in the Orongorongo Valley since the 1960s. He is evaluating progress so far, and planning future monitoring.
He says that "Wellington is lucky to have long-established permanent plots to monitor vegetation change—a treasure-trove of good ecological information".

Help raise funds for BotSoc's Jubilee Award Fund – bring named seedlings/cuttings for sale at each evening meeting

Saturday 7–Sunday 8 December: Field Trip **South Wairarapa**

Botanise forest remnants on private land near Whangaimoana, Ruakokoputuna, and Pirinoa.
Sat.7 Dec: combined trip with Wairarapa Branch, Forest and Bird, private forest at Moikau, near Whangaimoana.
Sun.8 Dec. Pirinoa and Ruakokoputuna areas.
Accommodation: Jim and Marilyn Law's woolshed, near 'Burnside', Pirinoa.
Pot-luck dinner Saturday night.
Meet 9am at Dorset Square Native Reserve, cnr SH2 and Moore St (which becomes Western Lake Road) Featherston. The reserve is an excellent example of the horticultural use of native plants. Get there early and enjoy it!
Co-Leaders: Jenny and Geoff Doring ph 021 619 599.
Ring Wellington contact re car-pooling, arranging lifts etc: Bev Abbott 475 8468.

2–12 January 2003: Field trip **Bay of Plenty**

NB: The later than usual start is to minimise accommodation difficulties associated with this popular location.
It is a very stimulating area for botanists to explore!
The Kaimai Range and Northern Ureweras mark the transition from kauri forests to beech forests. Red and silver beeches reach their northern limits in the Kaimai Range and kauri and many of its associated species their southern limits. The fog forests of the Kaimai Range also carry their own unique plant communities and are rich in ferns and bryophytes. The thermal floras of Rotorua also contain lower plants otherwise found only in Northland.
Field trips will visit Mount Te Aroha and several other places along the Kaimai Range; coastal pohutukawa, puriri and kohekohe forests; coastal wetlands, dunelands and mangroves; the thermal areas of Rotorua, pohutukawa/hard beech forests and the dense podocarp forests of the Urewera fringes.

Venue 1: Thursday 2–Sunday 5 January 2003

Rocky Camp (Christian Camp), Rea Rd, Katikati, (30 min north of Tauranga), is situated just south of Katikati on the western side of the highway, along a stream, among orchards and close to hot springs. This site has plenty of indoor and outdoor accommodation. Camping: $7. Bunk rooms holding up to 9: $90.
(Web site: http:homepages.maxnet.co.nz/map)

Venue 2: Monday 6 – Sunday 12 January 2003 (depart Sunday 12)

Murphy's Motor Camp, Matata (23 km NW of Whakatane). "Absolute beachfront along 1.5 km of coastline"! There are caravan sites, some permanent, a few cabins and tent sites. **Only tent sites are available here**. Though a cabin has been booked for BotSoc use, no other cabins are available. (See Registration Form for a suggestion for those needing indoor accommodation—approx 9 km south of Matata).

NB: The following may help you find your own accommodation if you have to be indoors. Approximately 9 km from Matata, *en route* to Whakatane, is **Thornton Beach Motor Camp. Phone/Fax: 07 304 8296**. They have cabins which sleep 4, cost: $35 double, each extra adult $10 and tourist flats (include bathrooms) sleep up to 8, cost $65 double, each extra adult $12.

*To be assured of accommodation you will need to book by **30 October***. (We will try and help people who want to share to contact like-minded others on request)

Mayor Island: an optional extra visit. Accessible from either venue. Cost up to $100.

Maps: Kaimai Mamaku Forest Park, interim revision. 2000. DOC. $10.
Parkmap Kaimai Mamaku, scale 1: 50000 Infomap. $14.95

Booklet: Tramping and walking in Kaimai Mamaku Forest Park. 1994. DOC.

Pamphlets: Walks in the Rotorua Lakes area. $2.50. DOC. Box 281, Rotorua
Walks around the Whakatane Area. $2. ditto
Guide to the Waitawheta Valley. $2. ditto
Tracks Through Time – Moments in history of Kaimai Mamaku Forest Park. $2. ditto
Whirinaki Forest Park – short walks and tracks. $1.50. ditto
Whirinaki Forest Park. $1. ditto
Short Walks of the Western Bay of Plenty. $1. DOC, Box 9003, Tauranga
Kaimai Mamaku Forest Park Long Walks. $1. ditto
Kaimai Mamaku Forest Park Day Walks. $1. ditto
Guide to the Waiorongomai Valley. $2. ditto
Te Aroha and Waiorongomai Walks. $1. ditto.
Karangahake Gorge Historic Walkway. $1. DOC, PBag 3072, Hamilton
What to see & do: The Coromandel–Bay of Plenty–Eastland–Hawke's Bay. Automobile Association.

EVENTS

1. Protecting our high country heritage. Speaker: Prof Alan Mark, ecologist. Talks organised by Royal Forest and Bird Protection Society.

5.30pm, **11 September**. Hutt Valley Tramping Club Hall, Birch St, Waterloo.

8pm, **11 September**. Tararua Tramping Club Hall, Moncrieff St, Mt Victoria.

2. Otari/Wilton's Bush Open Day**, 15 September** – native plant sale from 9.30am.

3. Native Week - begins **15 September** with guided walks starting at 11am, 12 noon, 1pm and 2pm. Meet at Te Marae o Tane/Otari-Wilton's Bush Information Centre. Ph 499 1400 to book. See Spring Festival pamphlet for more details about Native Week – available at all WCC libraries, recreation centres, service centres, Otari/Wilton's Bush Information Centre and the Botanic Garden Tree House.

PUBLICATIONS

1. Make a difference – Help bring the forest back to life. **A copy is enclosed with this Newsletter.** *The National Wildlife Centre Trust, Mount Bruce, RD 1, Masterton.*

2. The restoration of Mount Bruce forest. *Wairarapa Area Office, Dept. of Conservation, Box 191, Masterton.*

3a. **FOOT**notes. Issue 17, 5/02. Taputeranga Marine Reserve proposal; Castlepoint daisy; restoration of Mt Bruce forest; Pukaha – A conservation partnership; planting at Mt Bruce; hornwort infests Wairarapa wetlands; weed fact sheets; native plant species reclaim Matiu/Somes Island; Mana Island planting programme; Wellington Plant Conservation Network achievements; etc.

3b. Have you seen these aquatic plants? Leaflet. **A Copy is enclosed with this Newsletter.**

3c. Wellington Conservation Board – Annual Report to the NZ Conservation Authority 1/7/01 – 30/6/02.

3d. Help protect NZ's offshore islands from pest animals, plants and insects. Pamphlet.

Dept of Conservation, Box 5086, WN.

4a. Conservation Action/Te Ngangahau ki te Kura Taiao – DOC at work. 7/01–6/02.

4b. Keeping up-to-date with conservation science. Leaflet describing series and reports published.

4c. Edge effects in a lowland temperate NZ rainforest. DA Norton 2002. DOC Science Internal Series 27. 33p. $10.00.

4d. Potential impact of the Argentine ant in NZ and options for its control. RJ Harris 2002. Science for Conservation 193. 28p. $25.00.

4e. Changes in numbers of woody plant seedlings on Kapiti Island after rat eradication. DJ Campbell 2002. Science for Conservation 193. 28p. $15.00.

4f. Monitoring vegetation changes at Treble Cone Ski Field, NZ. K Wardle, B Fahey 2002. Science for Conservation 192. 50p. $30.00.

4g. Managing public conservation lands by the Beneficial Outcomes Approach with emphasis on social outcomes. KL Booth, BL Driver, SR Espiner, RJ Kapelle 2002. DOC Science Internal Series 52. 57p. $15.00.

4h. Assessing the response of forest understoreys to feral goat control with and without possum control. PJ Sweetapple, BR Burns 2002. Science for Conservation 201. 33p. $25.00.

4i. Biological control options for invasive weeds in NZ protected areas. V Froude 2002. Science for Conservation 199. 68p. $30.00. See abstract in this Newsletter.

4j. Recommendations for vegetation monitoring of Redbank Conservation Area, Otago. S Walker 2002. DOC Science Internal Series 53. 14p. $6.00.

4k. ConScience No.44 28/6/02. Books described: "Braided River Field Guide"; "Weed Risk Assessment", the latter by R Groves, D Panetta, J Virtue.

4l. Keystone species: the concept and its relevance for conservation amnagement in NZ. IJ Pyton, M Fenner, WG Lee. 2002. Science for Conservation 202. 29p. $15.

4m. Measuring conservation achievement: concepts and their application over the Twizel area. T Stephens, D Brown, N Thornley. 2002. Science for Conservation 200. 114p. $40.

4n. Assessing the prospects for the biological control of *Lagarosiphon* (*Lagarosiphon major*). PG McGregor, H Gourlay. 2002. DOC Science Internal Series 57. 14p. $6.

Add $2.00/item for p&p. *DOC Science Publishing, Box 10 420, WN, fax 04 496 1929, e-mail science.publications@doc.govt.nz*

5. Studies of the NZ root-parasite *Dactylanthus taylorii (Balanophoraceae)*. S Holzapfel 2001. Veroffentlichungen aus dem Botanischen Garten und Museum Berlin. *Englera 22*, 176p.

6a. Pakuratahi Valley Riparian Recovery. 6/2001.

6b. Queen Elizabeth Park - Rehabilitation of native forest remnant. 12/2001.

6c. Cannons Creek restoration and development. 10/2001

6d. Queen Elizabeth Park coastal dunes management. 6/2001

Wellington Regional Council, Box 11 646, WN. Ph 04 384 5708. All available at www.wrc.govt.nz

7. Leaflets describing pest plants, their means of dispersal, their impacts and distribution, and methods of control:

a. Bathurst bur b. Boneseed c. Darwin's barberry d. Nodding thistle e. Smilax f. Snakefeather

Biosecurity Dept (Plants Section), Wellington Regional Council

- *Upper Hutt ph 04 526 5325, fax 04 526 4171;*
- *Masterton ph 06 378 2484, fax 06 378 7994.*

8. Need a hand..? managing or protecting your wetland, bush, stream or other native habitat? Leaflet.

Tim Porteous, Biodiversity Co-ordinator, Wellington Regional Council, Freepost 3156, Box 11 646, WN. Freephone 0800 496 734, fax 04 385 6960, e-mail Tim.Porteous@wrc.govt.nz

OR David Cameron, Senior Soil Conservator, WRC, Box 41, Masterton. Freephone 0800 496 734, fax 378 2146, e-mail Dave.Cameron@wrc.govt.nz

9a. Branch Out. Vol. 6, Winter 2002. Profiles: Sally Bowman/Manawa Karioi Society; Tony Williams/Manager, Wellington Botanic Garden; updates on groups active in Wellington city, including BotSoc; weed control; possum control; ecological monitoring; Wellington Wet and Wild – Bush and Streams Regeneration Plan; Outer Green Belt Draft Management Plan; South Coast Management Plan; etc.

9b. Wellington Botanic Garden and Otari/Wilton's Bush Guidebook. $13.50. Available at Begonia House, Otari Information Centre, and Te Papa shop.

9c. Spring Festival – pamphlet. Available at all WCC libraries, recreation centres, service centres, Otari/Wilton's Bush Information Centre, and the Botanic Garden Tree House.

9d. Ecological condition and health of the Kaiwharawhara Stream, Wellington. Prepared by Kingett Mitchell Ltd for WCC.

Curator, Town Belt and Reserves, Wellington City Council, Box 2199, WN, ph 801 3607, or 801 3615.

10a. Botany of Auckland. Lucy Cranwell 1981. $9.00 incl p&p.

10b. A Dictionary of Maori Plant Names. J Beever 1991. $7.50 incl p&p.

10c. Food Is Where You Find It. Cranwell, Green and Powell 1943. $3.00 incl p&p.

Cheques payable to Auckland Botanical Society, c/o Kerry Bodmin, 24 Laingholm Drive, Laingholm, AK. Ph 09 816 8291.

11a. Creating Our Future – Sustainable Development for NZ.

11b. Summary of Findings of 10a.

Free. Parliamentary Commissioner for the Environment, Box 10 241, WN Ph 04 471 1699.

12. Wgton Botanical Society Bulletin – back issues – numerous editions available. $2.00 each including p&p. Contact: *Pat Enright, 19 Gaya Grove, Ngaio, Wellington 6004. Ph 04 938 7537 to find out what editions are available.*

13. NZ Botanical Society Newsletter. Quarterly, Subscription: ordinary - $18; full-time students - $9. *C/o Canterbury Museum, Rolleston Ave, CH.*

14. NZ Seed Ecology – a series on the germination behaviour of seeds of the NZ indigenous flora.

14a. Five species of Coprosma. 17p. 10/99.

14b. *Astelia fragrans, Dianella nigra, Gahnia rigida, G.setifolia, Libertia ixioides.* 18p. 10/99.

14c. *Entelea arborescens, Knightia excelsa, Laurelia novae-zelandiae, Pseudowintera axillaris, Syzygium maire*. 17p. 4/00.

14d. Six species of Metrosideros. 20p. 4/00

14e. *Dacrycarpus dacrydioides, Podocarpus totara, Prumnopitys ferruginea, P.taxifolia.* 27p. 11/01.

14f. *Myrsine salicina, Myrtus pedunculatus, Pittosporum colensoi, Plagianthus divaricatus, Pseudopanax ferox, Quintinnia acutifolia*. 22p. 5/02.

Rebus Publications, 17 Colina St, CH 4. $6 each - $5 for NZ Botanical Society members.

15. Controlling Key Environmental Weed Species Using Non-spray Techniques. $33.75 incl p&p. *M.Oates, Manager, Botanic Gardens and Natural Areas, Wellington City Council, Box 2199, WN. Ph 801 3627.*

16a. Seeds of NZ Gymnosperms & Dicotyledons. CJ Webb, MJA Simpson. 2001. 428p, > 1750 illustrations. Hardback. $90 incl p&p.

16b. Flora of NZ Series. 5 volume set. $100 incl p&p.

Manaaki Whenua Press, Box 40, Lincoln 8152.

17. Korapuki Island as a case study for restoration of insular ecosystems in NZ. DR Towns. 2002. *Journal of Biogeography 29: 593-607*.

18. Yippee! We're being swamped with new reserves! Can you help us ensure their protection forever? *NZ Native Forests Restoration Trust, Box 80 007, Green Bay, AK 1007.* **A copy is enclosed with this Newsletter.**

SYNOPSES OF SUBMISSIONS

TO HARRISON-GRIERSON CONSULTANTS LTD, AUGUST, RE PROPOSED DEVELOPMENT OF AOTEA BLOCK, PORIRUA

Supported 6 points under the heading "aspects of the land that have been taken into account", and the construction of a walkways network as proposed; **recommended that** all existing areas of native vegetation and regenerating native vegetation be protected under the Reserves Act 1977, making special mention of the remnant totara trees and their associated native vegetation on the True Right of Kenepuru Stream, north of Champion St; **that** all street, landscape and revegetation plantings be of locally-sourced, regionally-appropriate indigenous species, noting that this *excludes* pohutukawa and karo; **that** consideration be given to planting median strips and roundabouts, with local native species of threatened conservation status as has been done in Lower Hutt; **that** the entire tributary of Kenepuru Stream which flows from near Whitford Brown Drive, be kept as a natural feature, i.e. not culverted, and **that** its banks be cleared of pest plants and other weed species and replanted with regionally-appropriate, indigenous, species; **that** no sidecastings be disposed of in native vegetation or streams; **asked** to be informed of the landscaping plans when available.

TO DEPARTMENT OF CONSERVATION WELLINGTON CONSERVANCY, re ACCESS TO KAPITI ISLAND NORTHERN PUBLIC LAND: Discussion Document, JUNE

Recommended that: permits be issued to recognised, organised groups only; group leaders and deputies be specified by name; visitors be accompanied by guide/s/interpreter/s; guides/interpreters be certified DOC-trained; on landing, visitors attend an introductory talk such as is delivered to existing visitors to the Nature Reserve; maximum number of visitors per day, 30, plus two guides per group; visitors be supervised while emptying their packs to check for e.g. mice, in a purpose-built shed at Paraparaumu beach or at Waiorua, or both; the vessels used by the approved operators must be approved and certified by DOC; overnight ventures not be permitted, only full daylight operations; smoking be not be permitted; the permitting of visits to the north end shall be given a one-year trial, then reviewed.

TO OPERATIONS AND COMPLIANCE COMMITTEE, AND APPROVALS CTTEE, HUTT CITY COUNCIL: APPLICATION FOR LICENCE TO OPERATE COMMERCIAL ABSEILING AT PERCY STREAM WATERFALL, JUNE

Opposed the application by Top Adventures, on the grounds that the proposed activity is an inappropriate, unsustainable and exploitative use of a significant, natural feature, for commercial gain; **pointed out** that there are plenty of quarry faces further uproad which would offer satisfactory abseiling opportunities and leave undisturbed this peaceful, fragile, natural site; **appended** a list of 36 moss species in the immediate vicinity, compiled by Peter Beveridge; **cited** evidence (measured and photographed) such as debarked, calloused, distorted roots of trees used by people climbing around the waterfall; **asked** Council to decline to issue the licence. **(Note:** We have now been advised that the licensing process has been suspended because HCC is not authorised to run it, since the Reserve does not have a management plan. Instead, DOC is to conduct the process).

TO WCC RE SALE OF PAVAN PROPERTY, CROFTON DOWNS, JULY

Urged Council to consider buying the property because it is contiguous with Huntleigh Park and the former farm of Brian Kilmister, providing easier access to this extensive catchment; **described** the well-advanced indigenous regeneration, mostly tauhinu, manuka and mahoe and further upslope, pole rimu; **noted** that the property would contribute significantly to the eventual completion and indigenous biodiversity of the Outer Green Belt, with Huntleigh Park as an ideal seed source. **(Note:**The property has since been withdrawn from sale)

TO WELLINGTON REGIONAL COUNCIL, RE "TOWARDS A GREATER WELLINGTON – INVESTING IN THE FUTURE", TEN YEAR PLAN 2000–2010; 2002 UPDATE, INCORPORATING THE 2002–2003 ANNUAL PLAN: re Involving the Community In Environment Management

Reported on a 5-year trial of selected native species in riparian edge protection, at three Hutt River sites; (see Trip Report in this issue); this project is just one example of Council involving the community, another being the Environmental Reference Groups which were set up this year, and the many Care Groups operating in various spheres; re **Enforcing Compliance with Resource Consents, asked** for greater vigilance by Council, especially in cases where the risk is of adverse effects on indigenous ecosystems; re **Regional Water Supply: asked** for continuing pest control in the Wainuiomata/Orongorongo catchments at a rate no less than at present, and for the Wainuiomata catchment to be fenced on its north and west side to keep out pigs and ungulates; **suggested** that managing the two catchments as a "Mainland Island" would be entirely appropriate and a means of not only protecting the water quality but also ensuring the restoration of species diversity and sustainability of these magnificent tracts of forest; re **Promoting Sustainable Land Management, questioned** why no consideration appeared to have been given to using native species in soil conservation roles; **commended** Council on their decision to establish a Hutt River Ranger Service to provide "public safety, surveillance, education and environmental enhancement services", and for allocating resources for much-needed weed control and revegetation in Queen Elizabeth Park; **suggested** areas which would be ideal additions to the existing Regional Parks network: Makara/Terawhiti, Wairarapa Taipos/Rocky Hills and Waikanae/Otaki dunelands.

TO PORIRUA CITY COUNCIL DRAFT ANNUAL PLAN 2002–2003, May

Complimented Council for using bi-cultural headings in the plan; re **The Natural Environment**: **expressed** disappointment that there was virtually no mention of Poririua's natural environment, let alone any mention of funding for monitoring the health and sustainability of the city's ecosystems; **strongly supported** the Titahi Bay restoration group's request for funding for 300 locally-sourced native plants per year, and some on-site, interpretive signage; re **Propagation of Locally-sourced Native Plants: suggested** that significant, ongoing funding be allocated to the production of bulk quantities of locally-appropriate *NZ native* plants in Council's nursery for use in local, ecological restoration projects such as the above; **mentioned** the regrettable prolification of the Australian shrub *Myoporum insulare*, boobialla or "Tasmanian ngaio", which has been extensively propagated, sold, and planted by local authorities in the region including PCC, who seem to have mistaken it for the NZ native tree *Myoporum laetum*, ngaio; **cautioned** that there is a risk of hybridisatiion — (see article in this issue); **commended** the excellent restoration work done by Friends of Maararoa and **asked** that funding be allocated to support their endeavours; **commended** Council for increasing funding to extend the walkways network and maintain tracks; **strongly supported** the Boffa Miskell recommendations to PCC to ensure the health of existing ecological sites rather than acquire more at present; **asked** that significant funding be allocated to a monitoring programme before more degradation occurs; **suggested** Council consider offering assistance in the form of rates relief to property owners who agree to covenant ecological sites on their property. (**Note:** Unfortunately PCC failed to let BotSoc know the dates for the hearings on the Annual Plan, so we were not heard).

TO WELLINGTON CITY COUNCIL, June

This was a submission in the form of a letter in response to their publicised selection of massed (2000) pohutukawa for part of the Town Belt on Mt Victoria; **asked** why pohutukawa was chosen when (1) it is not a Wellington species, (2) it has become an ecological weed, (3) it has colonised sites where Wellington's own northern rata belongs, (4) it is known to hybridise with northern rata and may therefore put at risk northern rata as a species, and (5) it secretes toxins in its leaves and bark, inhibiting the growth of other plants underneath; **Note:** They replied that as a result of our representation, they had resolved to reduce the numbers of pohutukawa, substitute some other (Wellington) native species, and plant as many northern rata as could be locally sourced (unfortunately very few).

TO "KEEP PORIRUA BEAUTIFUL", August

A similar submission in the form of a letter asking why they were planting pohutukawa in their beautification programme. **Note:** We received a very courteous reply from the chairman who explained that *they had been advised by their consultants Boffa Miskell Ltd. to plant pohutukawa.*

THE REGISTRAR, ENVIRONMENT COURT, AUGUST

Formal notice of our request to be heard in support of DOC in their appeal against Hutt City Council's decision to revoke after 1-1-04, the protection offered in their (current) transitional district plan, for significant ecological, archaeological and cultural sites; this case may go to the Environment Court and may involve BotSoc in providing evidence and calling witnesses.

Barbara Mitcalfe

SUBMISSIONS CALLED FOR—URGENT !!!

1. Draft Wetland Action Plan for the Wellington Region. Document from and submissions to: Melanie Dixon, Wellington Regional Council, PO Box 11 646, Wellington, melanie.dixon@wrc.govt.nz, or 0800 496 734, by **27 September.**

BotSoc's new display board

A second generous donation from Wellington Conservancy, Department of Conservation, has enabled us to cover the rest of the cost of the display board and carrying case, and the laminating and mounting of a fine series of photographs with captions. (See article on page 5 of May 2002 Newsletter)

The new theme of the display is Nga maunga korero/ The voice of the mountains, the theme of Conservation Week. It features photographs of alpine plants, mountain scenes, and BotSoccers in their element.

The display was mounted in the Wellington Anglican Cathedral during Conservation Week, except for the evening of Wednesday 7 August, when Conservancy staff moved it, and other groups' displays, to Parliament's Legislative Chamber for the presentation of Conservation Awards. It has received numerous compliments!

The display will be mounted at Otari/Wilton's Bush Te Marae o Tane Information Centre on Sunday 15 September. Come to see it, and buy some of Otari's wonderful selection of native plants, at the same time.

Please see the Events section of this Newsletter.

We thank Wellington Conservancy for their support, Barbara Mitcalfe for preparing the display, Barbara, Olaf John and Barbara Clark for supplying photographs, and Jeremy Rolfe for the eye-catching heading.

The committee

President's Annual Report August 2002

It has been another busy year for the Society. I would like to thank all those members who have contributed in so many ways to the running of the Society, as well as contributing towards the study of botany and the protection and management of important botanical features and areas.

Trips

There has been a successful trip programme with good attendances. Thank you to all the trip leaders for your assistance.

The New Year trip from 27 December '01 to 8 January '02 in southwest Canterbury, Mount Cook and associated lakes areas was enjoyed by 33 participants.

Speakers

The evening meetings have been characterised by some excellent speakers. Thank you to all our speakers who took the time to prepare presentations and deliver them to one of the Society's monthly Monday evening meetings, as well as prepare a short summary for the Newsletter. Thank you to Victoria University for providing the venue.

Awards

Congratulations to Robyn Smith on receiving a Conservation Merit Award for her work on rare and threatened plants. The Society was nominated for one of these awards.

Display boards

The Society has used grants from the Department of Conservation to buy new display boards and carry-bag, and to develop a new display (photos, captions etc). Thank you to Barbara Mitcalfe for organising the new display and to those (especially Olaf John) who provided photographs for the display.

Restoration

Society members were involved in many restoration activities. They included:

- Wellington Branch of the New Zealand Ecological Restoration Network field days (e.g. presenters at the Battle Hill field day)
- Undertaking trials with Wellington Regional Council using native plants instead of willows as part of river management. This project is located on the lower Hutt River banks. It provides an opportunity to observe how native plants can be used as part of large-scale flood plain management programmes as well as catchment management generally.
- Various planting programmes around the region, e.g. Titahi Bay, Mana Island, Otari-Wilton's Bush.
- The Te Marua Bush project

Te Marua Bush

This is a long-standing restoration project of the Society. There were two workbees this year. The Wellington Regional Council grant for 2001–2003 is being used for plant pest control work (especially *Tradescantia*), and for paying Upper Hutt Branch of the Royal Forest and Bird Protection Society for potting mix used in raising seedlings used for the restoration work.

Thank you

Thank you to the committee for all their help during this year. Thank you especially to Chris Horne for taking on the presidential role from time to time during the year while I was away; to Barbara Clark for managing the secretarial role effectively; to Jane Humble our treasurer; to Julia White for publicising our meetings via her e-mail contact; and Penny Currier for establishing our web site. Darryl Kee and I will both step down from the committee due to the pressures from other projects/ commitments.

Thank you to Barbara Mitcalfe for co-ordinating the Society's submissions on the many agency plans, policies and activities affecting botanical values. This is a useful way for the Society to share its expertise with management agencies. Thank you to Barbara Mitcalfe and Chris Horne for compiling the Newsletter three times a year. The Newsletter is extremely comprehensive and a credit to the Society. Thank you to Jeremy Rolfe for formatting the Newsletter and Bulletin and for contributing to the new display board layout; New Zealand Print for their prompt and good quality printing; and the members who help with newsletter distribution.

Finally, thank you to the Department of Conservation Wellington Conservancy for their assistance and in particular for their $1000 donation recognising the Society's contribution to botany especially in the Wellington Region.

Victoria Froude, President

Articles for web site

We welcome articles for consideration for inclusion on our web site: www.wellingtonbotsoc.wellington.net.nz

Please send your article to pennyc@clear.net.nz,

OR post it to Wellington Botanical Society, PO Box 10 412, Wellington, attention: Penny Currier and Julia White;

OR fax it to Barbara Mitcalfe 04 475 7149.

Newsletter by e-mail

If you would like to receive your Newsletter by e-mail, in pdf format, please send your e-mail address to Penny Currier: pennyc@clear.net.nz

Wellington Botanical Society Inc

Income and Expenditure for the year ended 30 June 2002

2001	Expenditure	2002	2001	Income	2002
2188	Printing and Stationery	1299	4144	Ordinary	3251
125	PO Box fees	125	833	Country	761
656	Postage	1032	166	Student	60
350	Meeting Expenses	485	–	Group	445
307	Sundry Expenses & Float	702	162	Arrears	
–	Provision for Bulletin	1000	5305	Total Subs	4517
–	Summer Camp Prepayments	537			
–	Map purchases	88			
	Purchase of Living Cloak	550			
248	Advertising Brochure	–			
450	Dancing Leaves	–	1714	Interest on investment	1840
165	Donations	–	–	Wgton. Conservancy grant	1000
155	ECO Sub		427	Sale Dancing Leaves	–
481	Depreciation on equip.	271		Sale Living Cloak	31
2322	Surplus for year	1299			
7446		7388	7446		7388

Jubilee Award Fund

2001	Expenditure	2002	2001	Income	2002
100	Science Fair Award	100	26221	Opening Balance	27855
–	Jubilee Award	–	233	Donations	818
			184	Plant Sales	91
27855	Closing Balance	29765	1337	Interest on Investment	1101
27955		29865	27955		29865

Student Field Grant

2001	Expenditure	2002	2001	Income	2002
			7168	Opening Balance	7533
7533	Closing Balance	7831	365	Interest on Investment	298
7533		7831	7533		7831

Provision for Bulletin

2001	Expenditure	2002	2001	Income	2002
			10437	Opening Balance	10437
10437	Closing Balance	11437		Transfer from General A/c	1000
10437		11437	10437		11437

Balance Sheet as at 30 June 2002

2001	Expenditure	2002	2001	Income	2002
2010	Life Membership Fund	2010	11423	BNZ Current Account	14191
			1035	Computer less depreciation	828
27855	Jubilee Award Fund	29765	319	Fax less depreciation	255
			–	New display unit	1771
7533	Student Field Grant Fund	7831	30	Projector	30
			16	Stock of Bulletins	16
10437	Provision for Bulletins	11437	24	Camping Equipment	24
			45	Sundry Debtors	–
33950	Accumulated fund as at 30 June 2001				
	Add surplus for year			Investments	
	1299	35249	8800	Tower	8800
145	Sundry creditors (unpresented cheque)	71	10279	National Bank	10279
			26915	BNZ Finance	26915
			9617	Westpac Call Account	9829
			13426	Westpac Term	13426
81930		86364	81930		86364

I have examined the accounting records of Wellington Botanical Society Inc and have received all the explanations requested. I believe the accounts and balance sheet to be a true fair record of the Society's operation and its financial position at the close of the financial year.
Rodney Lewington
14 August 2002.

TRIP REPORT

Saturday 8 June 2002: Te Marua Bush Workbee

It was in brilliant sunshine and light winds that we assembled to continue the restoration of this valuable area of remnant bush. With an accompanying tui also enjoying the late autumn morning we began planting, and with all hands working flat out, the 84 plants were planted quickly. We then cleared out some piles of rubbish and release previous plantings. This rubbish was deposited over the fence to be collected by the WRC ranger. After a mid-morning cuppa we went to the other end to look at the bush and wander back, clearing out small pockets of weeds trying to establish themselves. It was good to see how previous plantings are now to a stage where the ground is shaded out, reducing the chances of weeds germinating, and a good number of native seedlings establishing themselves.

Participants: Bev Abbott, Stan Butcher, Barbara Clark, Penny Currier, Helen Druce, Bart Hogan, Dave Holey, Darryl Kee (leader), Janet McCallum, Sue Millar (deputy leader), Allan Sheppard, Glennis Sheppard (deputy leader), Julia White. Apologies: Chris Horne and Barbara Mitcalfe.

Darryl Kee.

TRIP REPORT

Field trip: Saturday 6 July 2002 1. Industrial Research Ltd., Gracefield 2. Rare *Leptinella* hunt 3. Petone Esplanade native plantings

Photo: Barbara Mitcalfe.

Les Roberts is the site manager of Industrial Research Limited in Gracefield. We met him for a tour of the site and hardly got our feet wet despite it being mid-winter.

Les welcomed us and gave us an extensive history of the area. IRL inherited the 11 ha from DSIR in 1992. Roughly half of its funding comes from the government and the other from private sources. On one boundary is the heavily-polluted Waiwhetu Stream. Les is a member of the Waiwhetu Stream Working Group which also includes representatives of Hutt City Council, Wellington Regional Council, Te Atiawa and other interest groups.

Les then showed us an area of hillside that he has had cleared of gorse, fennel and blackberry and replanted with appropriate native species. This has been done over 8 years, and his contractors, Excell Corporation, have put in a track. This has proved popular and has resulted in extra funds being made available for the project.

At the end of this walkway is a garden dedicated to Sister Aubert. This Catholic nun arrived in the Hokianga with Bishop Pompallier and later went to Hawke's Bay, the Whanganui River and then the Home of Compassion in Island Bay, Wellington. Sister Aubert is noted for her medicines made from native plants. Although her recipes were destroyed, bottles of medicine, said to be over 100 years old, are being analysed by Max Kennedy and his team of scientists at IRL. This project runs in conjunction with Ngati Kotahi from Napier and Ngati Ruaka from Whanganui, and negotiations are underway with a tribe from the Bay of Islands. The Sister Aubert garden contains all plants known to be used in the medicines and each has a plaque with their botanical, Maori and common names.

We returned to the banks of Waiwhetu Stream. This area was a dumping ground for rubbish and was covered in willow, blackberry and many other weeds. Over the past three years Les has had rubbish and weeds removed and 5000 plants have been planted including *Carex secta, C. dipsacea, Phormium tenax, Cordyline australis, Dacrycarpus dacrydioides, Griselinia littoralis* and *Carex litorosa*. Les plans to remove from the stream, the flag iris which is infamous for being the largest infestation in the country!

We made our way back via many plantings on site, seeing an impressive garden with *Cordyline indivisa* and *Colensoa physaloides* with its bright purple seed capsules.

Before lunch we visited the banks of Waiwhetu Stream near Hutt Park camping ground to see *Leptinella dioica* ssp. *monoica* which is hanging on, probably only because the stream is tidal and the exotic grasses are unable to cope with the salt. It has been suggested that this population may have been planted by Tom Moss.

We went to Petone Esplanade for lunch and were about to examine the plantings there when it began to rain, so we decided to call it a day.

Trip participants: Claire Basham, Sally Bowman, Barbara Clark, Penny Currier, Corraldo Fougère, Matilda Halley, Chris Hopkins, Chris Horne, Diane Lowe, Sister Loyola, Barbara Mitcalfe, Kaaren Mitcalfe, Tanya Mitcalfe, Darea Sherrett, Les Roberts (co-leader), Robyn Smith (co-leader), and Julia Stace.

Robyn Smith

TRIP REPORT

Field trip: Saturday 3 August 2002 Private forest, Western Hutt hills

The chance to be in the first group to botanise this forest attracted nineteen members and friends, despite early rain. Sheltering indoors, while we enjoyed hot drinks, Tony O'Rourke and Marlen Schmieg described the property and its history. Their 3.9ha property is believed to have been cut-over 80-100 yeas ago. It is listed in the Hutt City Council District Plan as part of Significant Natural Area no.23, which describes the remnant as "A regionally representative example of relatively unmodified lowland mahoe forest, with large numbers of bird species, including the NZ pigeon".

Before the briefing ended, the rain stopped, and we began a fascinating exploration of the bush along the upper part of the drive, and tall forest and shrublands to the west, and in a gully to the south. We compiled lists of about 105 species of indigenous vascular plants and 19 species of non-vascular indigenous plants, and 50 adventive species. Among the species we saw were kahikatea, rimu, miro, nikau, titoki, tawa, karaka, hinau, pukatea, ramarama, kamahi, kiekie, 4 species of climbing rata, 29 species of ferns, including an unusual-looking *Blechnum* which Dr Patrick Brownsey believes may be a hybrid between *B. chambersii* and *B.membranaceum*, and the orchid *Drymoanthus adversus*.

We thank Marlen and Tony for their hospitality, and permission to visit their forest. We will send them a copy of the species list.

Participants: Rae Collins, Penny Currier, Kathleen George, Chris Hopkins, Chris Horne, Lorraine Iremonger, Darryl Kee, Gordon Leary, Sheelagh Leary, Rodney Lewington, Diane Lowe, Cath Mathews, Barbara Mitcalfe, Tony O'Rourke, Emil Schmieg, Marlen Schmieg, Darea Sherratt, Patricia Tankersley, Julia White.

Chris Horne

TRIP REPORT

31 August 2002: The first monitoring of the Hutt River riparian plantings

BotSoccers may remember reading in the May issue of the Newsletter, about the joint Wellington Regional Council and BotSoc planting trials of selected native species alongside the Hutt River. BotSoc is very appreciative that Council bought the plants recommended by us, and Council staff did most of the planting.

One of the four proposed sites, a rockline, was withdrawn from the trials as being unsuitable, leaving one opposite Maoribank, one at Taita Gorge and one at Avalon. Two hundred and fifty plants per site were put in during July and August.

This workbee was an "extra" on our BotSoc programme. Seventeen BotSoccers and WRC Operations Support Engineer Steve Murphy spent 4 hours measuring and assessing the condition of the 750 plants. This data-collecting exercise will be repeated at the same time every year till 2006, when the overall results will be analysed.

At each site, 50 plants of five different riparian species were planted, on a 1 metre grid pattern. At the site opposite Maoribank, the line nearest the river was *Phormium tenax*, next line back, *Phormium cookianum*, next line, *Cortaderia fulvida*, then *Podocarpus totara*, and lastly *Plagianthus regius*. At the Taita Gorge site, the front line was *Dicksonia squarrosa*, then *Pittosporum tenuifolium*, then *Pittosporum eugenioides*, then *Plagianthus regius*, then *Podocarpus totara*. At the Avalon site, the first three rows were as for Taita, but the last two rows were reversed. Half of this site had 2-year pole willows already planted over half of it, so it will be interesting to see how well the natives fare in that matrix. All three sites are susceptible to scouring, flooding, and regrettably, theft.

The party worked efficiently in pairs. Special thanks to Steve Murphy for attending our workbee.

Participants: Ian Atkinson (co-leader), Stan Butcher, Barbara Clark, Rae Collins, Jenny Dolton, Peter Dunstan, Jill Goodwin, Chris Horne, Gordon Leary, Sheelagh Leary, Rodney Lewington, Brett Lindsay, Barbara Mitcalfe (co-leader), Darea Sherrat,Steve Murphy, Patricia Tankersley, Diane Wallis, Julia White, Jane Wright, (Apology: Sunita Singh)

P.S. One of the party left behind a clipboard with the name Dave on it. Owner please ring me on 04-475 7149 to arrange collection.

Barbara Mitcalfe

Steve Murphy and ecologist Ian Atkinson. Photo: Barbara Mitcalfe.

EVENING MEETING

20 May 2002: Julia Stace – Extreme weeding on Raoul Island

Julia gave us a fascinating and beautifully illustrated talk about her four months working as a volunteer for DOC on weed eradication on Raoul Island, about 920 km northeast of North Cape.

Raoul Island, the largest in the Kermadec archipelago, is about 10 km long, up to 7 km across, and covers 2938 ha. The island is a complex volcano which has erupted three times since its discovery by the French in 1793, the last time in 1964. The highest point is Moumoukai, 516 m. The island is steep with dry ravines and a dense forest.

It is a Nature Reserve under the Reserves Act 1977, and the coastal waters are a Marine Reserve. Raoul contains all of the approximately 20 species of plants endemic to the Kermadecs, but introductions of alien plants and animals have resulted in drastic modifications to the island's ecosystem. Goats which were present from at least 1836 have been eliminated, and this winter, DOC has attempted to eliminate Norway rats, kiore, and cats.

Over the last 150 years, introduced plants have flourished in the subtropical climate and encroached on the native bush.

Among the pest plants the team were destroying were Mysore thorn, purple and yellow guava, grape, black passionfruit, peach, Brazilian buttercup, African olive, and madiera vine. They combed the ravines, systematically removing the invaders, and recording each of the sites cleared of them. It is painstaking, rugged work, in steep, dark ravines, in hot weather or heavy rain.

After years of work by DOC and the former Department of Lands and Survey, Julia said that great progress had been made in destroying pest plants. However, weed seeds may continue to germinate for the next 80 years. With goats eliminated, and if successful, rats and cats all killed by the recent poisoning operations, Raoul will be able to start the long path to ecological restoration and become a haven for seabirds.

Editor

Julia Stace Raoul-bound … again!

We congratulate Julia who has been chosen to be one of the party of five who will spend a year on Raoul Island in the Kermadec Archipelago. The group comprises the leader, a mechanic, and three rangers. Please refer to the report in this Newsletter of her talk "Extreme weeding on Raoul" which she gave to BotSoc on 20 May 2002. Julia and the other rangers will continue the intensive weed eradication programme. We look forward to reports from the island for publication in future Newsletters.

Editor

Matiu matters

May 2002 set off the twenty-second year of planting on Matiu/Somes Island by the Lower Hutt Branch of Forest and Bird. Pioneer species are being planted in the Quarantine Paddock, the last grassed area available for revegetation. Successional species are being planted through the well-grown forested areas. These include *Myrsine australis, Dysoxylum spectabile, Rhopalostylis sapida, Hedycarya arborea, Beilschmiedia tawa, Alectryon excelsus, Metrosideros robusta,* and *Melicope ternata.* "Light wells" in the closed canopy are being opened by thinning and pruning the trees through which the successionals can grow. Experience shows that interplanting should begin when the pioneers reach 2–4 metres with open space still among them. In the older forest the trees are of such size that considerable work is required to take some out, prune back and stack the trash. This season has been blessed with abundant rain so there is hope that there will not be the losses of the last three years.

DOC is considering the introduction of red-crowned parakeet (*Cyanoramphus novaezelandiae*). Food supply for any bird introduction must be ensured. Kakariki feed on fruits, seeds, leaves and buds. The planting programme includes the species that supply them.

Stan Butcher

Conservation Awards

We congratulate the winners of this year's awards, in particular:

- Fensham Group, Wairarapa Branch, Forest and Bird, which looks after Fensham Reserve near Carterton
- Rangitaane o Wairarapa, which is promoting the Mt Bruce restoration project with a CD – Pukaha, Songs of the Forest
- Waitohu Stream Care Group, Otaki
- Paparangi School, Newlands, for promoting environmental awareness
- Island Bay Marine Education Centre

We also congratulate those awarded certificates of merit, including:

- Robyn Smith, for her work with endangered native plants at Percy Scenic Reserve, Petone
- John Bell and Jack Cox, for their work on the revegetation of Matiu/Somes Island.

The awards were presented by the then Minister of Conservation, Sandra Lee, in the Legislative Chamber, Parliament, on 7 August 2002.

Source: DOC news release

EVENING MEETING

15 July 2002: Graeme Jane: Some aspects of Bay of Plenty vegetation

Graeme's comprehensive and well-illustrated talk whetted our appetites for our 2–12 January 2003 field trip, when he will take us on field trips to the Kaimai Range, Waimangu, Rotorua, Minginui in the Urewera, Matata and the Whakatane/Ohope area. Please refer to the programme section of this Newsletter for more information, and the field trip registration form on the back page!

He began by defining the Bay of Plenty as the coastal area and hinterland parts of the Coromandel, Northern Volcanic Plateau, and Whakatane Ecological Regions. It ranges from Karangahake Gorge to Ohiwa, and inland to the fringes of the Urewera.

Graeme told us how the flora of the region had been determined by geology, landscape, climate, altitude, disturbance, volcanism, climate, people and wild animals. Rocks range from greywacke in the Urewera, to volcanic rocks in the Kaimai/Coromandel, and Rotorua areas, with a heavy overlay of ash, mostly from the Rotorua centre. The Northern Volcanic Plateau features a sloping plateau descending from about 900m at Rotorua caldera to the coast, and is cut by very young, deeply entrenched streams and rivers with flat, smooth, rocky bottoms. The plateau is deeply overlain by pumice ash which produces quick-draining, highly fertile soils. The Urewera has a greywacke basement with an overlay of Rotorua or Taupo pumice or clayey ash towards East Cape, probably from White Island. The result is fertile soils on ridges, and low fertility stony greywacke on steep slopes. Areas within 20 km of the 1886 Tarawera eruption have a deep ash like a scoria, and a rugged terrain.

The longshore tropical current, coupled with lots of sand derived from the pumice and siliceous ash from the volcanoes leads to shallow bays with sandy shores, and barrier islands such as Matakana, and peninsulas such as Maunganui/ Papamoa Beach. Most of the formerly extensive coastal wetlands and swamps have gone. or have been heavily modified.

The area marks the southern limit of warm currents, and this, with the volcanic activity further south, creates a demarcation point for species distributions. The Bay also often marks the limits of both warm tropical cyclones and the cold southerly snow storms.

Although it may seem an insignificant fact, the maximum altitude of 1000m at Mt Te Aroha, combined with the climate, means that alpine species are largely absent from the area, except for a gentian at its northern limit, because there are no open tops. All the beeches, except hard beech, reach their northern limits in the area, as the result of a wedging out of species.

There are four main vegetation zones:

- lowland pohutukawa forest, mostly highly modified
- northern mid-altitude kauri forest
- southern mid-altitude tawa forest
- high altitude beech forest – pure red beech or silver beech

In the thermal areas, tropical species have established, yielding significant southern records for species, especially ferns and Psilotum.

Disturbance by continuing volcanic activity, e.g. the massive Taupo eruption in about 100AD, has had a major influence in creating the dense podocarp forests in the Urewera at Minginui. It largely displaced the beeches from that area—a few pockets remain.

Tropical cyclones periodically cause windthrow, often over large areas, such as in the Urewera in 1984, and lead to extensive landslides in the shallow, impervious soils in the Kaimai Range.

Europeans soon began to clear the forests and drain the swamps for pasture, and later for exotic forestry. Trees were felled for timber for housing, butter boxes etc. Much of the logging was by tramways. These provide some of the better tracks in the Kaimai Range, where logging continued until the 1970s. Gold mining, which peaked in the 1920s, also resulted in loss of forests. Goats have had severe impacts on the forests. Hunting began in 1948 and intensified in the 1970s until they were virtually exterminated. Deer were liberated near Te Aroha about 1917, and in the Urewera about the same time—here their impact remains severe. Possums have spread slowly. In the Urewera, their impact has been insidious, often removing kamahi from tawa/kamahi forest, but in the Kaimai Range the wetter climate seems to have kept numbers relatively low.

Recently, 50,000 ha in the northern Urewera (Waimana) has been set up as a mainland island, and is achieving impressive results. At Kaharoa, a private initiative has had a local impact.

The lowlands are largely cleared, and apart from waterworks areas within 1km of the coast, are almost devoid of forest or shrubland. The shore wetlands have only been protected for the last decade or so. Consequently short manuka shrubland may be the only woody native vegetation. Tauranga City Council is active in restoration of the coastal estuaries, and providing recreational access.

Editor

EVENING MEETING

19 August 2002: Dr Brian Molloy – Tony Druce, field botanist extraordinaire

When Tony Druce died on 15 March 1999, Wellington Botanical Society and the New Zealand botanical community at large lost an esteemed friend and colleague. Also, as Ian Atkinson, perhaps his closest friend and colleague said, "we lost one of the greatest contributors to the botanical exploration and discovery of New Zealand this country has seen". However, while we lost the man and the botanist, we inherited from him a rich botanical legacy of inestimable value; most noteworthy being his immense collection of carefully annotated specimens in the Allan Herbarium (CHR) at Lincoln; his collection of live plants at Percy Scenic Reserve, Petone; his checklists of plants from numerous localities throughout New Zealand; and his draft national list of native vascular plants. To these we could also add the numerous fresh specimens he supplied to Audrey Eagle and now illustrated in her *Trees and Shrubs of New Zealand*. Few if any taxonomic treatments of our native flowering plants and ferns can be written today without reference to the specimens or entities provided by Tony Druce.

I first came into contact with Tony Druce, who was ten years my senior, when I transferred from the Department of Agriculture to Botany Division, DSIR, in 1970. From time to time when he visited Lincoln, or I visited Wellington, we would spend a few hours in the field together sharing information on plants of mutual interest such as orchids, conifers, mistletoes, grasses, coprosmas, and others. At that time I was associated with Peel Forest Park in South Canterbury and was especially interested in the unnamed edelweiss there. After some discussion with Tony, he suggested that we visit some of his haunts in the North Island and in Nelson/Marlborough to examine other edelweiss species and populations. And so began an annual fruitful field excursion to different parts of the country which continued until 1994. At times we travelled and explored together; on other occasions we were joined by colleagues and friends eager to profit from Tony's unique mastery of our native flora. Some field visits were centred on particular species; others were designed to compile species lists for particular localities. Some sites, because of their botanical interest, were visited several times. All the while we added to his herbarium and live plant collections, his checklists and national list of species, and kept Audrey Eagle busy and happy with fresh material to illustrate.

It is not possible here to recount all the field visits and discoveries we experienced together over about 15 years. What I propose to do now is to share with you my experiences in the field with Tony Druce during our edelweiss survey; visits to special places such as Tapuaeoenuku, Mt Somers and the Havelock River; our mutual interest in special habitats such as certain wetlands, limestone and other rock types; with a *Coprosma* and *Melicytus* species or two thrown in for good measure.

Tony Druce was first and foremost a gifted field botanist of extraordinary ability. It has been a great privilege to have known and worked with him. We are unlikely to see his equal in the future.

Brian Molloy

North Island edelweiss. Photo: Jeremy Rolfe.

Forest & Bird magazine

The August 2002 issue contains the following articles of particular interest to readers in the southern North Island:

- Rare Plants in Wairarapa Have Links With Taihape – p. 9
- Mt Bruce Groups Team Up To Fight Forest Invaders: p. 11
- Plants that kill to survive: pp. 14–17
- Restoring the Forest in Suburban Upper Hutt – p. 36
- Eastbourne – 'The Working Man's Mainland Island': p. 37

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Editor

Biological control options for invasive weeds of New Zealand protected areas

Reprinted here is the abstract of a report by Vicky Froude, published by the Department of Conservation in *Science for Conservation* 199. The 68-page report can be purchased for $30 plus $2 post and packaging from Science Publishing, Department of Conservation, PO Box 10-420, Wellington.

Abstract

More than 240 invasive weed species adversely affect indigenous biota and ecosystems of lands and waterbodies managed by the New Zealand Department of Conservation. Potentially high establishment costs limit biological control programmes to a few species of concern, although there may be opportunities for joint programmes with other agencies.

Biological control may be most useful ecologically where relatively few invasive species proliferate and their removal would bring significant conservation gains (e.g. *Salix cinerea*, *S. fragilis*, *Pinus contorta*). It may, however, be difficult to pursue biological control programmes for species that are valued in other contexts such as soil conservation.

Programme outcomes cannot be reliably predicted and it may take many years before these are known. Biological control works best as part of a comprehensive weed management programme. If successful it may eventually reduce or remove the need for conventional control.

This review of the potential contribution of biological control to the Department's weed management strategy addresses: weed impacts; benefits, risks and measuring biological control outcomes; international programmes and their outcomes for biological control of weeds in natural areas; New Zealand investigations for each invasive weed species affecting New Zealand protected areas; and an assessment process for prioritising biological control investigations.

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Over the hill

Finding new locations for plants is, often as not, just a matter of putting a piece in a jigsaw—it takes a bit of doing at the time, but in hindsight, it was all perfectly obvious and quite easy! Mind you, a few pointers do help.

Among many other gems, the 1976 *Wellington Botanical Society Bulletin* has the following from Tony Druce: 'A point worth mentioning is that one does not go into an area as a passive observer just noting down what one happens to see. At the back of one's mind there is a vague *New Zealand Flora*, a set of possibilities, and one can actively search for plants that should be there.'

As only the best advice can, it becomes ingrained and many have heard me mutter over the years that something or other might or should be growing somewhere around here, if only we could come across it. Sometimes the key is experience with a particular plant, its habitat and associates so that, for example, the slender branches sprouting from a *Collospermum* high up in a rimu can readily be identified as *Pittosporum cornifolium*, and the binoculars come out only for confirmation.

On some occasions, knowledge of habitat can make up for a lack of experience with the plant, as happened a short time ago in a small remnant of eastern Wairarapa podocarp forest. I had just crossed to a gentle ridge when the thought came that this looked like just the sort of place to find *Dactylanthus taylorii*, so it was eyes down and within five minutes or so I was sitting beside the latest addition to the Wairarapa flora. A search over the area near the first plant revealed ten plants in total, with more of the remnant left to search later in the year.

Finding this plant so far north and east of the closest historical record at Kaitoke also means that there is now every likelihood that it will turn up in other places.

Another recent find was predicted by Colin Ogle in the *New Zealand Botanical Society Newsletter* (No. 40, 1995), and also perfectly illustrates another point made by Tony Druce in the 1976 writing when he also said: 'And even if species X does not show itself, well one can always use a little serendipity, and maybe species Y will be there instead.'

Those who have been to Paengaroa Reserve, near Taihape, will be well aware of the divaricate flora of the river flat, and also that many of the same species also grow in the eastern Wairarapa.

Among the rarest is *Olearia gardnerii*, and it was during a search for this that *Coprosma obconica* made its appearance. In hindsight, the two grow together at Taihape, so there was no reason that they should not do so in the Wairarapa, and that is exactly how it turned out. All we need now is another good location for *Olearia gardnerii* to test the theory!

In this case X + Y certainly equalled happiness.

So, if your knowledge of the species, its habits, associates and ecology doesn't rule it out from the place you are going through, then it's always worth doing just a bit more than keeping an eye open for it.

Tony Silbery

QE II National Trust Open Space Covenants

The Trust has recently registered the following Open Space Covenants in the Wellington Region:

- 6.3 ha of upland hardwood forest off Whitemans Valley Rd, Upper Hutt
- 9ha of coastal dunelands off Te Hapua Road, near Pekapeka
- 3.7 ha of lowland modified primary forest remnants with some senescent pukatea, in Tinui Valley, Wairarapa

As at 14 August 2002, these contribute to a total of 4494 ha protected by 122 covenants in the Wellington Region, and 1633 covenants protecting 55910 ha nationwide. A further 17950 ha have been approved for protection, and are progressing towards registration.

If you know of any landowners whose land has important open space or ecological values, and who might be interested in having discussions with the Trust, please contact us.

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News from the Pest Plants Section, Wellington Regional Council

After months of delays, the objections which have been delaying the new Regional Pest Management Strategy (RPMS) have been withdrawn, and the Strategy will take effect in a few weeks. It will mean a few changes to the Pest Plant Programme in Wellington.

One new species is banana passionfruit (*Passiflora tripartita* varieties, *P. tarminiana, P.mixta*) which will be classed as a Suppression Pest. This means that occupiers will be responsible for controlling any banana passionfruit infestation occurring on their property.

Banana passionfruit is a popular vine with attractive pink flowers and three-lobed, soft, downy leaves. The yellow fruits are favoured by gardeners, but unfortunately are attractive to birds as well, which assist in spreading the seed. It is an aggressive climber with the ability to overtop and smother trees, and is thought to be a significant threat to the Wellington Region. The Regional Council will undertake a publicity campaign to raise awareness about this species and to advise occupiers of their obligations. Enforcement will not begin until July 2003.

Another species now appearing in the RPMS is sweet pea shrub (*Polygala myrtifolia*). This perennial shrub can grow 2 m high, and has sweet pea like flowers. It can drastically alter the ecology of coastal areas, as well as invading forest margins and preventing regeneration of native seedlings.

Sweet pea shrub can be distinguished from the permitted sterile variety (*Polygala myrtifolia* var. *grandifolia*) by its less vivid flowers—the outer petals of *P. myrtifolia* are pale green as opposed to bright crimson. Also the leaves of *P. myrtifolia* are oval and leathery, not long and narrow.

Under the new RPMS the Regional Council will take responsibility for controlling all sweet pea shrub in the region. We are currently collating all known sites in preparation for the new Strategy. If you would like further information on either of these species, please contact the Pest Plants section of the Regional Council.

Rachael Bell
Pest Plants, Biosecurity,
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An Australian immigrant: the Boobialla Story.

Boobialla is the correct, common name for an Australian shrub *Myoporum insulare*, sometimes called Tasmanian ngaio or Australian ngaio. It looks very like our NZ ngaio *Myoporum laetum* and regrettably it is often propagated, sold and planted by mistake, as ngaio, which it isn't. It is particularly prevalent on the Kapiti Coast where great numbers have been planted in some Council amenity plantings (e.g. Pukerua Bay beach) and even in some restoration projects.

For a precise description of boobialla and a drawing of its flower compared with ngaio, see pages 845 and 846 of Flora of New Zealand, Volume IV. See also page 958 of Flora of New Zealand, Volume I for the description of *Myoporum laetum.* As the descriptions reveal, to the naked eye, the morphological differences between the two species are subtle. Unfortunately too, in nature, the differences between the flowers are not nearly so marked as the Flora IV drawing indicates, and the flowering seasons of each are very nearly identical.

So how *does* one distinguish between these two species? Probably the best field character is the *dark, brown-black, sticky leaf buds* of our NZ ngaio, compared with the almost universally green, sticky leaf buds of boobialla. NZ ngaio leaves *tend* to have more obvious oil glands than boobialla, but this is not universal. After a while one also gets to notice subtle differences in the bark and the shape and stature of the plants. Boobialla does not attain the height and spread of NZ ngaio—it remains a shrub.

That's all I can offer I'm afraid. Good luck with the sleuthing, and *please* prevail on your local plant shop and/or nursery and/or Council to ensure they plant NZ ngaio, *Myoporum laetum* not boobialla, because hybridisation is already happening around Wellington. (Pers. comm. Helen Braithwaite).

Barbara Mitcalfe

The case for 1080

It's that time of year again when the choppers take to the skies with their cargoes of 1080—and opponents take to the media channels with their increasingly vociferous complaints against the forest "carpet bombing".

Amidst the claims and counter-claims being made by the various groups involved with the issue, it has become difficult to separate fact from fantasy. Little wonder, when headlines shout warnings about 1080 poisoning water supplies or causing foetal abnormalities, that some thinking New Zealanders have become uneasy about the use of the toxin.

Matters will come to a head next year (2003) when the Environmental Risk Assessment Authority intends to re-evaluate the use of 1080. The hearings will become the focal point for opposition but also provide the Department of Conservation (DOC) and the Animal Health Board (AHB) with a public forum to state their case for continued use.

Both agencies have compelling evidence that 1080 is producing results, not only in halting the decline in biodiversity but also in checking the spread of bovine Tb.

Why aerial 1080 works

One faction of the opposition to 1080—hunters—is not in fact hostile to the poison itself but the way in which it is applied. When 1080 is dropped from the air, not only possums die but so do deer. The hunters argue that the poison should be used by teams on the ground, which would place it out of reach of deer, or that possums should be trapped.

Against that, DOC and AHB argue that in about one week a helicopter can cover the same area as hunters take in a year, thus avoiding problems of possums re-infesting areas that have been dealt with. Not only is it a cheaper option (up to 10 times in some areas), but aerial 1080 kill rates are as high as 95 percent. A successful aerial operation allows a conservation manager to quickly get on with other jobs.

The by-kill that comes from a poison operation is another plus. Rats, mice, hedgehogs, feral cats and stoats either eat 1080 directly or feed on possum carcasses that are infected. Since deer, goats and pigs are pests, their incidental kill is a conservation benefit.

Despite the rhetoric about how trappers should be used to catch possums, in practice they are not always up to the job. Not only can they not access many of the remote, difficult-to-reach spots in the country, nor are there always the people available to do the work in, say, deepest South Westland.

Flourishing forests

One of the complaints from 1080 advocates has been that, while there has been a lot of anecdotal evidence that 1080 works, there have been too few scientific studies to back this up. Says Cam Speedy, an animal control expert from the Tongariro/Taupo conservancy: "We can certainly show results visually. If we fly over areas of forest that we have been managing for eight or nine years, the bits of it that we couldn't afford to get to are dead."

But in the last few years, that lack of hard proof has changed as robust studies have documented a transformation in 1080-treated areas.

Tui and bellbirds find mistletoe a valuable source of nectar, and in fact play a vital role in pollination. Coincidentally, one of the possum's favourite foods is the mistletoe, which has steadily disappeared from throughout New Zealand. Since the mid-90s, when aerial 1080 possum control operations began in the Tararuas, various mistletoe species have increased radically. Similarly in the Landsborough Valley of the West Coast, there has been a three-fold jump in the amount of foliage on mistletoe plants since 1080 operations began in 1993. Before an aerial 1080 operation in the Waihaha catchment in Pureora Forest in 1994, scientists had searched for signs of mistletoe plants but found nothing. A year after the operation, the first plants were observed, most likely sprouting from leafless haustoria (gall-like growths).[1]

At Motatau, near Whangarei, half of 50 kohekohe trees surveyed in 1997 were almost totally stripped of their vegetation. But by 1999, after 1080 and brodifacoum were used to kill 90 percent of the possums, only one tree had died and most of the rest had foliage cover in the normal range. Landcare Research scientist Graham Nugent said this was a "spectacular recovery" and showed the value of possum control. In an adjacent area, Okaroro, with no control, the increase in the kohekohe canopy was only 6 percent.

Northern rata, a favourite possum food, has improved in areas treated with 1080 in Tararua Forest. Northern rata trees growing in sites that had received possum control two growing seasons before assessment were in better condition than those that were located in areas that had not received possum control.[2] A 30-year possum control programme in the Otira Gorge using 1080 has shown spectacular results. Giant southern rata, once threatened through defoliation, now flower regularly and possum-vulnerable fuchsia trees, along with other native plants, are thriving.

In 1999 the Department of Conservation carried out an aerial 1080 operation on a 5086-hectare area in the Pembroke Ranges, north of Milford Sound. At risk was the rata/kamahi/totara forest from possum browsing. Using "foliar browse index scores" (the amount of vegetation browsed in a specific study area), conservation staff recorded lush new growth on Hall's totara the year after the operation, with some trees increasing their foliar cover by 40–50 percent.[3]

The birds are back

As forests have been restored, the positive effects on native bird species have been remarkable. Kapiti Island provides one of the best examples. There, possums were finally eradicated in the mid-80s with the help of 1080 dropped on the steep western cliffs. In the six years between 1982 and 1988 the density of birds doubled, from about 15 per hectare to about 30. This happened even while rats (now also eradicated) were still present.

1080 has been applied aerially in the Waipapa Ecological Area, part of Pureora Forest Park, in 1984, 1991, 1995, 1996 and 2001. In two of these operations (1991, 2001) the entire Ecological Area was treated aerially. It is no coincidence that the Waipapa Block contains the largest population of kaka on mainland New Zealand. The estimated kaka population at Waipapa at October 2001 was 729 (with a confidence interval of between 533–999); by March 2002 this had jumped to 975 (confidence interval 717–1324). Of 20 female kaka monitored at Waipapa until 2001, none had died. However, at nearby Waimanoa Forest, at least five of nine nesting females were killed by stoats. Without a doubt, these figures show the benefits of pest control, both through aerial 1080 and poison baits in bait stations.[4]

At Mapara Reserve in the King Country, there were only five breeding pairs of the North Island kokako in 1989 when conservation managers began a programme of intensive poisoning using aerial 1080 and other toxins in bait stations. By 1997 the number of breeding pairs had increased markedly from five to 44, and during those years 180 chicks were fledged. Nesting success at Mapara during this period was 40 percent, whereas by contrast in Rotoehu Forest, where no 1080 was applied, nesting success was only 15 percent.[5]

Following a 1080 operation in Pureora Forest in 1996, 72 percent of North Island robin nests in the area treated with 1080 were successful. This compares with 11 percent nesting success in an adjacent area where 1080 was not used. One year after the 1996 poison operation, the robin population in the area that received 1080 control had increased by 28 percent, in contrast to the area that did not receive 1080 where the increase in numbers was only 3 percent.[6]

Although significant numbers of tomtits died during a 1080 operation at Pureora Forest, the overall tomtit population had recovered a year later to 75 percent of its pre-poison level. They were able to rear two broods in a season, and even three on occasions.[7]

Like a number of toxins in the environment, the active ingredients of 1080 (sodium fluoroacetate) occur naturally. Around 40 plants in Australia, South Africa and South America contain the compound in their leaves, some of them at levels considered hazardous. The toxin is produced by the plants to deter browsing animals.

In essence, then, 1080 can be summed up as:

- an "organic" herbal extract—although, for reasons of cost, an artificially synthesised version with the same chemical molecule as the herbal active ingredient;
- something which is regularly consumed in trace amounts by a large proportion of the community in a "herbal infusion" form (namely tea), so accepted as being safe at low concentrations and not "inherently evil";
- a water soluble product but of very low toxicity in its diluted form when found in water and the general environment;
- something which biodegrades within days in soils and water;
- is readily metabolised and excreted in sub-lethal doses, so
- non-accumulative in the food chain and general environment.
- able to be delivered in ways that selectively kills high proportions of pest animals, but very low proportions of native animals, and the selective removal of pests enables native species to thrive as a consequence.

Gerard Hutching
Freelance writer

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[1] Sweetapple et al. 2002: Mistletoe (*Tupeia antarctica*) recovery and decline following possum control in a New Zealand forest. *New Zealand Journal of Ecology* Vol 26, No 2.

[2] Phil Brady, TSO DOC, pers comm.

[3] Pembroke possum control programme Stage 2 – John O'Groats River to Kaipo River.

[4] Terry Greene (in press)

[5] Williams, Des, from article Microscope on Mapara

[6] Powlesland et al (1999), 'Costs and benefits of Aerial 1080 Possum Control Operations using carrot baits to North Island Robins (*Petroica australis longipes*), Pureora Forest Park in New Zealand Journal of Ecology, Vol 23, No 2.

[7] ibid

Native plants for streamsides in Wellington Conservancy

This fact sheet will be a useful guide for anyone planning to restore a stream or wetland. Sixty-six species are listed: 25 trees/shrubs, 5 ferns, 3 grasses, 24 sedges, 5 rushes and 4 herbaceous plants recommended for a wide variety of riparian sites. Some are treated as pioneer species, others as suitable for later planting. All are characteristically riparian and naturally-occurring in the Wellington region.

If our Wellington streamsides were restored to healthy functioning as ecological corridors, this would increase the region's indigenous biodiversity and amenity, while filtering out pollution, providing habitat for aquatic wildlife and reducing flood peaks.

The fact sheet is available free, from the Wellington Conservancy, DOC, Phone 472 5821, Fax 499 0077, Box 5086, Wellington.

Editor

Restoration of Owhiro Bay Quarry

In early 2000 Wellington City Council took ownership of Owhiro Bay Quarry from Milburn New Zealand. The site had been quarried for 80 years and on closure comprised:

- A number of old quarry workings now sheared and faulted with pockets of weak rock and soil / overburden above
- Over 40,000 cubic metres of overburden that needed to be stabilised and relocated on site
- Several bunds on site made from overburden and sludge

Most of the site was devoid of vegetation because of quarrying and the harshness of extreme southerly storms.

The restoration of the site started in 2001 following major recontouring of the site and stabilisation of the overburden into a series of batters. Initially major plantings of coastal natives such as *Phormium cookianum, Acaena pallida*, *Coprosma acerosa* "Red Rocks", *Coprosma propinqua*, *Disphyma australe*, *Isolepsis nodosa*, *Olearia solandri*, *Poa cita*, *Sophora microphylla* 'South Coast form' took place on some of the least modified sites. However, the size of the site and the need to revegetate large areas of overburden required a method that could restore large areas cost effectively and stabilise the slopes to prevent erosion and water run-off.

Rural Supply Technologies were commissioned in late 2001 to develop a rehabilitation plan for the site using hydroseeding technology. This Palmerston North based company has been involved in mine site restoration, and has worked closely with Landcare Research to develop methods to revegetate difficult sites.

The project will take place is three phases:.

1. Stabilising the site using quick-growing exotic species
2. Trial hydroseeding techniques using native coastal species
3. Replacing the exotics by hydroseeding natives on the stabilised slopes

The batters comprise a mixture of small rock particles with no organic matter. Initially (in 2000) they had a very high pH of about 8, however more soil tests taken in early 2002 showed the pH was down to 7.1, similar to the existing coastal vegetation at the base of the cliffs. The tests also showed that the fertility of the batters was becoming similar to that of the surrounding vegetation. This is good news as little adjustment was required to enable plants to establish. The most important thing was to establish the bacteria and fungi that are present in the natural soils, on the new batters.

The first stage took place in autumn 2002 and involved hydroseeding two hectares of re-contoured batters with a seed mix comprising an annual grass and clover. The annual ryegrass will die off after a year. Some will reseed but because of the site it is expected that it will not be a problem during stage three (establishing natives). The other species established was white clover. This will fix some nitrogen into the system and help the grass to survive. As the plants die the nutrients in them will be recycled back onto the site. The seed was applied in a slurry consisting of a mixture of New Zealand wood fibre, glue, starter fertiliser, starter bacteria and fungi. The aim was to establish 100 seeds per square metre on the site. Of these only 40% are likely to survive to maturity.

In June 2002 grass and clover had established well in spite of the extreme conditions, and gave the batters a green tinge when seen from a distance.

The second stage will begin in September on a sloping fan of quarry waste rock about 70 m long (across the slope) by 18 m wide (down the slope). The area has a scattering of self-seeded plants, mostly flat weeds, ground herbs, and some succulents.

A trial will be established to find out the best way of establishing natives on the site. Treatments will include:

1. **Surface Condition**
   Half of the trial area will be scarified by machine to improve surface conditions for seed germination and seedling establishment. This scarifying will have the effect of 'pitting' the surface of the substrate, thus presenting a diversity of niches in which vegetation may establish. The other half will be left smooth.
2. **Two Hydroseeding Treatments**
   a. A low fertility hydroseeding mix, including some local topsoil/ leaf litter as an inoculum for mycorrhizae, with native seeds and vegetative material only, applied to half of the plots.
      Seeds of local provenance adapted to the coastal conditions will be used especially Flax (*Phormium cookianium*) Other plants used will include Taupata (*Coprosma repens*), tauhinu (*Ozothamnus leptophyllus*), Manuka (*Leptospermum scoparium*), kanuka (*Kunzea ericoides*),and *Carex* sp.
   b. The native seed mix plus the mix of low fertility exotic grasses and legumes, as used for stage one.

The trial will start in September and will be monitored over the summer months with a final assessment of vegetation cover in February/March 2003.

Stage three will begin in autumn 2003 with hydroseeding of the existing batters using the technique found to be most successful in stage two. The aim will be to establish 2 to 3 plants per square metre.

For more information on the project please contact the Project Manager, Jonathan Bussell , Berhampore Nursery Manager. Jonathan.bussell@wcc.govt.nz

Mike Oates
Manager Natural and Botanic Areas
Parks and Gardens Business Unit
Wellington City Council

EVENING MEETING

10 June 2002: Philip Simpson: Protecting nature on private land in Marlborough

The presentation was concerned with the place, the project and the people. The ecology of the region is distinctive, diverse and damaged.

A distincitve range nad pattern of plant species and communities has been generated *location* of the South Marlborough region. *Central* in New Zealand (Lat. 41.30–42) the region has many nationwide native species (mahoe, tree fuchsia, rimu) but also many near their southern limit or limited to the Cook Strait area (tawa, taupata, tree hebe). Located at the *top* of the South Island the region draws on a wide range of geological, topographical and climatic landscapes, with the clear, sunny skies an important factor. The *eastern* location means a dry climate overall, especially in summer, but exposure to the south also brings cold winter weather.

A complex core of Jurassic sandstone, associated in places with uplifted blocks of Paleocene limestone, is surrounded by a discontinuous skirt of soft Miocene–Pliocene mudstone. Active faulting has created a landscape with many bluffs, gorges, scarps, riverbeds and gravel coastlines. On thse sites the distinctive drought-tolerant Marlborough plants have evolved (for instance, pink brooms, rock daisy and lilac hebe). A second feature is the rarity of otherwise common forest species (such as nikau, miro, rangiora, kawakawa) in the dry zone between the more mesic Marlborough sounds and Kaikoura coast. The rocky habitats have often remained protected from human impact (fire, grazing, wild animals and weeds), which has otherwise been substantial across the region.

Except for the most rugged areas, the land has been farmed, and the natural vegetation has been fragmented. Hence, a survey of the remaining natural areas on private land is a priority, given the unusual range of species charcteristic of the region. The survey is being undertaken only on properties with full owner support. Each property is surveyed and significant sites identified and described in a way intended to be meaningful to the owner. A copy of each report is provided to the landowner by Marlbourgh District Council, and the survey team solicits responses from the owners, in particular concerning their interest in implementing any recommendations, with council assistance. A property management plan has been suggested for some areas as a tool to protect landscape while maintaining farm production. Simply informing the landowners about the natural features of their land is regarded as the first important step. There is a high level of appreciation of the natural values of the properties by the owners and a desire to see them protected. however, a general concern by the owners is a possible loss of economic and management opportunities if significant sites were to be identified within the District Plan.

Landscape complexity, endemic species, range limits and rarity induced by climate or human impact, together make surveying the region an exciting undertaking. Among the highlights, mention can be made of the joy of finding a specimen of otherwise common species, such as kowhai high on a dry, open hillside, the fascination of species on limestone bluffs (like *Wahlenbergia matthewsii*), observing the ecological significance of all native species of *Muehlenbeckia*, including the rare *M. debilis*, identifying the northern coastal limit of rock daisy, and finding the single surviving nikau in the extreme NE South Island. The co-operation between landowners, Council and the surveyors also makes the exercise a rewarding experience for all. There is a real prospect for significant conservation. This largely rests on sufficient resources being available for fencing, alternative water supplies, the restoration of species and places, and wild animal and weed control. As well, continuing discussion with landowners is a key to the success of the project.

Rock daisy. Photo: Geoff Walls.

Philip Simpson

New protected areas

- a 2.27 ha wetland with saltmarsh ribbonwood on the south side of Pauatahanui Stream has been added to Pauatahanui Reserve
- a 1.86ha addition to Pauatahanui Wildlife Management Reserve has been acquired as a government purpose reserve
- Te Matarae Conservation Covenant – 12.3ha. Landowners: P&W Smith Family Trust.
- Matakatau Creek Conservation Covenant – 28 ha. Landowners: Denis Prenderville and Debra Whittaker-Prenderville

David Bishop
Wellington Conservancy, Department of Conservation
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Wellington Botanical Society Jubilee Award

Wellington Botanical Society invites applications for an Award of up to $1000 to encourage and assist applicants to further knowledge of the New Zealand indigenous flora, and to commemorate the 50th Jubilee of the Society.

Purpose of the Award

The Award is open to anyone working in New Zealand and will be granted for: field work; artistic endeavour; publication; research; propagation or cultivation of NZ native plants for educational purposes and/or other studies which promote the better understanding of the NZ indigenous flora and vegetation.

The interpretation of these conditions will be flexible, except that the main criterion will be the furtherance of knowledge or promotion of the intrinsic value of the indigenous NZ flora and vegetation.

The Award may be used to defray costs such as travel, accommodation, materials or publication.

Applications for the Award

Applications should be made in typescript to: Secretary, Wellington Botanical Society, PO Box 10-412, Wellington, by 9 November 2002.

There is no prescribed application form, but the following must be provided:

- the applicant's name, postal address, telephone number, any relevant position held;
- a summary statement of the applicant's accomplishments in the field of botany (no more than one page);
- an outline and timetable for the proposed project for which the Award is sought;
- a proposed budget for the project.

Selection

The award will be made to one or more applicants selected by a subcommittee nominated by the general committee of Wellington Botanical Society. Award(s) will be made, and applicants informed of the results in writing, by 24 December 2002.

Successful applicants will be required to provide, at an agreed time, a short report on what they have achieved and an account of their expenditure of Award funds.

The names of Award recipients, the value of the Award(s), and a synopsis of the project(s) will be published in the Annual Report of Wellington Botanical Society.

Barbara Clark,
Secretary

N.I.W.A. Science Fair

We regret that were no projects on NZ botany entered in this year's Science Fair, so Wellington Botanical Society's Science Fair Award was not awarded.

We will alert the Heads of Science at Wellington region secondary schools about the award, and the aims BotSoc. We will urge the teachers to encourage pupils to do projects on some aspect of NZ botany for the 2003 N.I.W.A. Science Fair.

We thank Barbara Polly and Darea Sherratt for preparing to be judges of botanical entries at this year's fair, and for their advice on promoting the BotSoc award to teachers.

The Committee

Plant sales

We thank Arnold Dench, Ruth Dench, and Robyn Smith for donating native plants for sale at our evening meetings. Proceeds of the sales go to our Jubilee Award Fund. Please see the call for applications for the award in this Newsletter.

Jane Humble, Treasurer

BotSoc Songbook

Copies are still available. Donations of $6 or more (plus $1 p&p) will be welcome to cover the cost of production. Please send your donation to:

Chris Horne,
28 Kaihuia St,
Wellington 5.

Thank you!

Wellington Botanical Society membership form

Our membership year is 1 July – 30 June. Dues received after 1 May will be credited the following year.

I wish to join the Society ☐

My name is ..... (please print clearly)

My address is .....

.....

.....

Telephone (……)..... (home) (……) ..... (work)

I enclose my subscription: ☐ ordinary $27

(tick one) ☐ country $22

☐ student $17 Subscription $……

I wish to make a donation of to the WBS Jubilee Award Fund,
to help support research into NZ native plants. Donation $……

I enclose a cheque payable to:
WELLINGTON BOTANICAL SOCIETY for TOTAL $……

Please send this form and your cheque to:

The Treasurer
Wellington Botanical Society
PO Box 10-412
WELLINGTON 6036

Thank you.

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WELLINGTON 6036

Thank you.

WELLINGTON BOTANICAL SOCIETY JANUARY 2003 FIELD TRIP REGISTRATION

Please complete the registration form below.
Send it, together with a cheque for $150 as a deposit, made out to Wellington Botanical Society Inc. to reach Joyce by ***30 October 2002*** (to allow us to make definite bookings before the camps fill up).
Post to: **Joyce Wilson, 7 Ravi St, Khandallah, Wellington 6004.**
Phone: 04 934 2437. Fax: 04 233 2222. E-mail: kevin.clark@clear.net.nz

REGISTRATION FORM

Name: .....

Address: .....

.....

.....

Phone: …….. Fax: ……

E-mail: ……

Preferred accommodation

Venue 1: Rocky Camp, Katikati – Tuesday 2 January to Saturday 5 January 2003

I would like to sleep inside @ $15 a night for …… nights, from ……/……/…… to ……/……/……

OR I would like to camp in my own tent @ $7 per night, for …… nights, from……/……/…… to ……/……/……

Venue 2: Murphy's Camp, Matata – Sunday 6 to (morning of) Sunday 12 January 2003)

I will camp in my own tent @ $9 a night for …… nights, from ……/……/…… to ……/……/……

OR I will find my own accommodation (nr Matata) and attend field trips from ……/……/…… to ……/……/……

OR I will provide my own food and accommodation (near Matata) and attend field trips, from ……/……/…… to

……/……/……

I would/would not like to visit Mayor Island – as a day trip/overnight (delete one).

A species list for the Kaimai Range will be available, if requested, before the camp. That list as well as other lists for specific areas will be available, on the day.

Special Requirements: Please indicate any special food/health/other requirements.

……

TRANSPORT

- I can provide transport for …… extra people from camp to trip sites for …… days.
- I have arranged my own transport with ……
- I would like transport from base camp to trip sites for …… days.
- I can provide shared transport to/from the Summer Camp for ……people.
- I do not have transport. I would like to share transport to/from the Summer Camp.