

## FIELD TRIP TO MAUNGAKAKARAMEA (RAINBOW MOUNTAIN)

Chris Bycroft

On Saturday 10 October 2006 a group of seven Rotorua Botanical Society members visited Maungakakaramea. Maungakakaramea is a small volcanic dome south of Rotorua and contains one of the best quality geothermal sites remaining in New Zealand. On this field trip we decided to go off track and have a look inside the crater instead of repeating what most previous field trips had done and go to the summit (at 743 m).

We started our walk from the car park on State Highway 5. Highlights alongside the track at lower altitudes included a flowering population of the orchid (*Caladenia alata*). There were also good populations of the ferns *Schizaea dichotoma* and *Schizaea* sp. (cf. *S. australis* & *S. fistulosa*). Several plants of *Drosera auriculata* were just coming into flower.

About half way up the track we passed well-known populations of two ferns typical of geothermal habitat, *Dicranopteris linearis* and *Nephrolepis flexuosa*. We searched through other areas of likely habitat on the field trip, but found no other populations.

Later we left the track and made our way into the crater, which contains extensive areas of prostrate kanuka shrubland with abundant fumaroles. We had lunch there with the geothermal activity keeping us warm, and looking south towards Waio tapu. Several hours were spent scrambling around the crater area.

With the ever-changing nature of geothermal activity on Maungakakaramea this geothermal area will continue to be of great interest to botanists. Future trips in November are likely to find the two spectacular orchids *Calochilus paludosus* and *C. robertsonii* in flower.

**INDIGENOUS VASCULAR PLANTS OF RAINBOW MTN\*  
(MT MAUNGAKAKARAMEA), S.S.E. OF ROTORUA, 400-743m**

\* **Grid ref.** (N85 849820); **NZMS 260 U16 063 148 alt 743m**

A.P.Druce (Botany Division, D.S.I.R.) and C. Ogle, June 1975, (based on visit March 1975, and on visits by C. Ogle 1965-8), (revised June 1976, May 1977, Sept 1978, Feb 2001) Various people as noted below and a Rotorua Botanical Society Field trip in October 2006.

(POS) = planted on summit.

**FERN ALLIES**

*Huperzia varia* (including *L. billardieri* & *L. novae-zealandicum*)

*Lycopodiella cernua*

*Lycopodium deuterodensum*

*Lycopodium fastigiatum* (Cockayne 1929)

*Lycopodium scariosum*

*Lycopodium volubile*

*Psilotum nudum* 2

*Tmesipteris elongata* (including *T.e. ssp. robusta*)

*Tmesipteris tannensis* (Chinnock 1975)

**FERNS**

*Asplenium bulbiferum* agg.

*Asplenium bulbiferum* x *A. flaccidum* 1

*Asplenium flaccidum* ssp. *flaccidum*

*Asplenium oblongifolium*

*Asplenium polyodon*

*Blechnum chambersii*

*Blechnum discolor*

*Blechnum filiforme* 7

*Blechnum fluviatile*

*Blechnum membranaceum* 7

*Blechnum novae-zealandiae* (incl *B. minus*)

*Blechnum penna-marina*

*Blechnum procerum*

*Blechnum procerum* x *B. novae-zealandiae*

*Blechnum vulcanicum*

*Ctenopteris heterophylla*

*Cyathea dealbata*

*Cyathea medullaris*

*Cyathea smithii*

*Dicksonia fibrosa* 14/10/2006

<i>Dicksonia squarrosa</i>	
<i>Dicranopteris linearis</i>	
<i>Diplazium australe</i>	
<i>Doodia</i> sp. possibly <i>D. squarrosa</i>	14/10/2006
<i>Gleichenia dicarpa</i>	
<i>Gleichenia microphylla</i>	
<i>Grammitis billardierei</i>	7
<i>Grammitis ciliata</i>	1
<i>Grammitis magellanica</i>	1
<i>Grammitis</i> sp.	(cf. <i>G. ciliata</i> & <i>G. patagonica</i> )
<i>Histiopteris incisa</i>	
<i>Hymenophyllum bivalve</i>	
<i>Hymenophyllum demissum</i>	
<i>Hymenophyllum dilatatum</i>	
<i>Hymenophyllum flabellatum</i>	
<i>Hymenophyllum lyallii</i>	
<i>Hymenophyllum multifidum</i>	
<i>Hymenophyllum rarum</i>	
<i>Hymenophyllum revolutum</i>	
<i>Hymenophyllum sanguinolentum</i>	
<i>Hymenophyllum scabrum</i>	
<i>Hypolepis ambigua</i>	as <i>H. tenuifolia</i>
<i>Hypolepis distans</i>	
<i>Hypolepis rufobarbata</i>	
<i>Lastreopsis glabella</i>	
<i>Lastreopsis hispida</i>	
<i>Lastreopsis velutina</i>	
<i>Leptolepia novae-zelandiae</i>	
<i>Leptopteris hymenophylloides</i>	
<i>Lindsaea linearis</i>	1
<i>Lindsaea trichomanoides</i>	(incl. <i>L. t.</i> var. <i>lessonii</i> ) 1
<i>Microsorium pustulatum</i>	
<i>Nephrolepis flexuosa</i> (2 good patches on track north side of mountain)	
<i>Paesia scaberula</i>	
<i>Pneumatopteris pennigera</i>	
<i>Polystichum vestitum</i>	
<i>Pteridium esculentum</i>	
<i>Pyrrosia eleagnifolia</i>	
<i>Schizaea dichotoma</i>	
<i>Schizaea</i> sp.	(cf. <i>S. australis</i> & <i>S. fistulosa</i> )
<i>Trichomanes reniforme</i>	
<i>Trichomanes strictum</i>	
<i>Trichomanes venosum</i>	

## GYMNOSPERM TREES

<i>Dacrydium cupressinum</i>	
* <i>Larix decidua</i>	
<i>Phyllocladus toatoa</i>	as <i>P. glaucus</i>
* <i>Pinus contorta</i>	5
* <i>Pinus muricata</i>	
* <i>Pinus nigra</i>	
* <i>Pinus pinaster</i>	
* <i>Pinus ponderosa</i>	
* <i>Pinus radiata</i>	
* <i>Pinus strobus</i>	
<i>Podocarpus totara</i>	5
<i>Prumnopitys ferruginea</i>	(Cockayne 1929 as <i>Podocarpus ferrugineus</i> )

## DICOTYLEDONOUS TREES AND SHRUBS

<i>Aristotelia serrata</i>	
* <i>Berberis darwinii</i>	(POS)
* <i>Berberis glaucocarpa</i>	5
* <i>Betula pendula</i>	6
<i>Brachyglottis repanda</i> var. <i>repanda</i>	
* <i>Calluna vulgaris</i>	JFFH 14/2/06 (Plant removed)
* <i>Coprosma</i> ? <i>parviflora</i> cultivar	(POS)
<i>Coprosma foetidissima</i>	
<i>Coprosma grandifolia</i>	
<i>Coprosma lucida</i> ssp.	
<i>Coprosma robusta</i>	
<i>Coriaria arborea</i> var. <i>arborea</i>	
<i>Corokia buddleioides</i> var. <i>linearis</i>	
* <i>Cotoneaster</i> sp.	6 (POS)
<i>Cyathodes empetrifolia</i>	(Cockayne 1929)
* <i>Cytisus scoparius</i>	5
<i>Dracophyllum strictum</i>	
<i>Dracophyllum subulatum</i>	
* <i>Erica lusitanica</i>	5
<i>Fuchsia excorticata</i>	(Cockayne 1929)
<i>Gaultheria antipoda</i>	
<i>Gaultheria antipoda</i> x <i>G. oppositifolia</i>	
<i>Gaultheria antipoda</i> x <i>G. paniculata</i> (?)	
<i>Gaultheria oppositifolia</i>	
<i>Gaultheria oppositifolia</i> x <i>G. paniculata</i> (?)	
<i>Gaultheria paniculata</i>	
<i>Geniostoma ligustrifolium</i> var. <i>ligustrifolium</i>	
<i>Griselinia littoralis</i>	
* <i>Griselinia littoralis</i> variegated cultivar	(POS)

* <i>Hakea salicifolia</i>	
* <i>Hebe</i> “Sutherland”	(POS)
* <i>Hebe albicans</i>	(POS)
* <i>Hebe diosmifolia</i>	(POS)
<i>Hebe stricta</i> var. <i>stricta</i>	(Cockayne 1929 as <i>H. salicifolia</i> )
* <i>Hydrangea macrophylla</i>	5 (Summit)
<i>Ileostylus micranthus</i>	(Cockayne 1929 as <i>Loranthus m.</i> ) 3, 4
<i>Knightsia excelsa</i>	
<i>Kunzea ericoides</i> var. <i>ericoides</i>	
<i>Kunzea ericoides</i> var. <i>microflora</i>	
<i>Leptecophylla juniperina</i> subsp.	
<i>Leptospermum scoparium</i>	
<i>Leucopogon fasciculatus</i>	as <i>Cyathodes fasciculata</i> var. <i>fasciculata</i>
<i>Leucopogon fraseri</i>	(incl. <i>Cyathodes f.</i> var. <i>mucosa</i> )
* <i>Ligustrum sinense</i>	6
* <i>Lupinus arboreus</i>	
<i>Melicytus ramiflorus</i> ssp. <i>ramiflorus</i>	
<i>Metrosideros robusta</i>	
<i>Myrsine australis</i>	
<i>Olearia arborescens</i>	
<i>Olearia furfuracea</i> ssp.	(incl. <i>O.f.</i> var. <i>angustata</i> )
<i>Olearia rani</i>	
<i>Pimelea prostrata</i> var. <i>prostrata</i>	
<i>Pittosporum eugenioides</i>	3
<i>Pittosporum tenuifolium</i> var. <i>colensoi</i>	5
<i>Pittosporum tenuifolium</i> var. <i>tenuifolium</i>	
* <i>Prunus persica</i>	6
<i>Pseudopanax arboreus</i> var. <i>arboreus</i>	
<i>Pseudopanax colensoi</i> s.s.	
<i>Pseudopanax crassifolius</i>	
<i>Pseudowintera colorata</i>	7
<i>Quintinia serrata</i>	(inc. <i>Q. acutifolia</i> & <i>Q. elliptica</i> )
* <i>Salix cinerea</i>	6
* <i>Salix fragilis</i>	
<i>Schefflera digitata</i>	
* <i>Sophora microphylla</i>	(POS)
<i>Toronia toru</i>	
* <i>Ulex europaeus</i>	
<i>Weinmannia racemosa</i> var. <i>racemosa</i>	

## DICOTYLEDONOUS LIANES

<i>Clematis paniculata</i>	
* <i>Hedera helix</i> ssp. <i>helix</i>	5 (POS)
* <i>Lonicera japonica</i>	(POS)

- Metrosideros diffusa*  
*Muehlenbeckia australis* 7  
*Rubus cissoides* (Cockayne 1929 as *R. australis*)  
 \**Rubus fruticosus* agg.

## DICOTYLEDONOUS HERBS

- Acaena anserinifolia* (Cockayne 1929 as *A. sanguisorbae* var. *pusilla*)  
*Acaena novae-zelandiae*  
 \**Achillea millefolium*  
 \**Anagalis arvensis*  
*Calystegia sepium* subsp. (lvs longer than broad; bract. scarcely  
 inflated corolla pink white bands)  
*Celmisia gracilentata* var.  
 \**Centaureum erythraea* 5  
 \**Cerastium glomeratum*  
 \**Cirsium arvense*  
 \**Cirsium vulgare*  
 \**Conyza floribunda*  
*Drosera auriculata*  
*Drosera binata*  
*Epilobium nummulariifolium*  
*Epilobium pedunculare*  
*Epilobium rotundifolium*  
*Euchiton audax* s.s.  
*Euchiton sphaericus*  
 \**Galium aparine*  
*Geranium potentilloides* var. *potentilloides*  
*Gonocarpus micranthus* ssp. *micranthus*  
*Gonocarpus* sp. (cf. *G. incanus* and *G. montanus*)  
*Hydrocotyle moschata* 1  
 \**Hypochoeris radicata*  
*Lagenifera pumila*  
 \**Leucanthemum vulgare*  
*Nertera depressa* (incl. *N. cunninghamii*)  
 \**Ornithopus perpusillus* 14/10/2006  
 \**Oxalis incarnata* 14/10/2006  
*Polygonum* sp. (un-named; *P. decipiens* auct. N.Z.)  
*Pratia angulata*  
*Pseudognaphalium luteoalbum* (*G. luteo-album* agg.)  
 \**Ranunculus flammula*  
*Ranunculus reflexus* as *R. hirtus*  
 \**Ranunculus repens*  
*Raoulia glabra*  
 \**Rumex acetosella* 14/10/2006  
 \**Senecio jacobaea* JFFH 05/07/2006

- \**Soliva sessilis* 14/10/2006  
*Stellaria parviflora* (incl. *S. minuta*)  
 \*Unidentified (Crassulaceae) (POS)  
 \**Veronica arvensis* 14/10/2006  
 \**Viola* sp. (POS)

## MONOCOTYLEDONOUS TREES, SHRUBS AND LIANES

- Cordyline australis*  
 \**Cordyline australis* cultivar (POS)  
*Cordyline banksii*  
*Ripogonum scandens*

## ORCHIDS

- Aporostylis bifolia* (see NZFRI voucher)  
*Caladenia alata* 14/10/2006  
*Caladenia carnea*  
*Caladenia atradenia*  
*Calochilus paludosus*  
*Calochilus robertsonii*  
*Chiloglottis cornuta* 14/10/2006  
*Drymoanthus adversus*  
*Earina autumnalis*  
*Earina mucronata*  
*Gastrodia cunninghamii*  
*Microtis unifolia* (Miss B.R. Dickinson ref 48/0 13/3/79)  
*Orthoceras strictum*  
*Prasophyllum colensoi* B. Molloy & C.E. Ecroyd 8/11/84  
*Pterostylis banksii* 14/10/2006  
*Pterostylis trullifolia*  
*Thelymitra carnea*  
*Thelymitra nervosa* Previously as *T. decora*  
*Thelymitra ixioides*  
*Thelymitra longifolia* (?) (Cockayne 1929)  
*Thelymitra pauciflora*  
*Thelymitra pulchella* Ecroyd & J.B. Irwin 29/11/87  
*Winika cunninghamii*

## GRASSES

- Cortaderia fulvida*  
*Cortaderia toetoe*  
*Deyeuxia avenoides* (incl. *D. a.* var. *brachyantha*)  
*Hierochloe redolens*  
 \**Holcus lanatus* JFFH 05/07/2006  
*Microlaena stipoides*

- \**Miscanthus nepalensis*  
 \**Paspalum dilatatum* 14/10/2006  
*Poa anceps* var. *anceps*  
*Rytidosperma gracile* as *Notodanthonia gracilis*  
*Rytidosperma racemosa*

## SEDGES

- Baumea rubiginosa*  
*Baumea tenax*  
*Carex forsteri*  
*Carex geminata* (broad-leaved form)  
*Carex maorica*  
*Carex solandri*  
*Carex virgata*  
*Cyperus ustulatus*  
*Gahnia pauciflora* 14/10/2006  
*Gahnia setifolia* (Cockayne 1929 as *G. pauciflora*)  
*Isolepis nodosus*  
*Lepidosperma australe*  
*Morelotia affinis*  
*Schoenus tendo* (Cockayne 1929 as *S. brevifolius*) JFFH 05/07/2006  
*Uncinia uncinata* (Miss B.R. Dickinson ref 48/0 13/3/79)

## RUSHES

- Juncus australis*  
*Juncus gregiflorus*  
*Juncus prismatocarpus*  
 \**Juncus tenuis* JFFH 05/07/2006

## OTHER MONOCOT HERBS

- Astelia solandri*  
*Dianella nigra*  
*Phormium tenax*  
*Typha orientalis*

## NOTES

The following records at the end of Ogles list as supplied by CE are headed "RECORDS NOT ACCEPTED"

- Gahnia setifolia* (Cockayne 1929 as *G. pauciflora*) see above  
*Hebe stricta* var. *stricta* (Cockayne 1929 as *H. salicifolia*)  
*Schoenus tendo* (Cockayne 1929 as *S. brevifolius*)

1. additions 17/12/87 by ?
2. additions from other sources

3. Bannister

4. *Ileostylus* was found by Bannister on *Pinus muricata*. It is still present near summit JH 22/2/01 on *Toronia toru* it may also be found at the rest area at Lake Ngahewa, and opposite Lake Rotowhero between SH 5, Old Waiotapu Rd and the Stream on *Pittosporum tenuifolium* var. *tenuifolium* and *Toronia toru* (JH 22/2/01). No plants of this species are now known of in the reserve as of 14/10/2006.

5. JFF Hobbs 22/2/2001

6. P. Cashmore

7. Bev Clarkson 1984. Vegetation of the Rainbow Mountain Forest Crater. *Rotorua Botanical Society Newsletter* 3.

## Field Guide to Rushes, Sedges and Allied plants

Author: Graeme Jane

All species are included except those not seen for a long while or only present on offshore islands. Each species is illustrated with grey tone (digital photo) silhouettes and a brief text description emphasising any distinguishing field features on the opposing page. Quick keys to species are also included.

Intended for field use with A5 format and wire ring binding.

Cost is \$15.

A field guide to ferns and fern allies is available in a similar format for \$10.

Please send reply only to [GTJane@clear.net.nz](mailto:GTJane@clear.net.nz) or ph 07 570 3123