

pauciflora, which open only on hot, still, sunny days. With November having been so dull and cool the flowers had all adopted the back-up strategy of self-pollination without actually opening (cleistogamy). The intended highlight of the day, a good population of *T. tholiformis*, proved to be even more of a disappointment, as the tops of the plants had been chewed off, probably by rabbits. Occasional plants of *T. aemula* were not obvious on the day, and the fourth species, *T. longifolia*, was also sulking. A couple of native sedges in this heathland were *Morelotia affinis* and abundant *Schoenus apogon*, and two native grasses were out in flower; *Rytidosperma biannulare* (with prominent pinkish-margined glumes), and *Dichelachne inaequiglumis*.



Fig. 3. Umbrella moss, *Hypnodendron colensoi*, Torckler property. Photo: MD Wilcox.

Acknowledgements

Thanks to Tim McWhannell and Darryl Torckler for permission to visit their properties.

Watch your Step! Counting *Danhatchia* at Tawharanui Regional Park

Bec Stanley

Our end of year celebration on 5 December 2009 broke with recent tradition by swapping a workshop with a walk, dinner with a lunch, and pot luck with a BBQ. Botanical Society hadn't been to Tawharanui since 1997 (Foster 1997) and so it seemed like a good place to return to especially considering it is now run as an open sanctuary with a predator fence.

Before lunch Maureen led us to a patch of the tiny orchid *Danhatchia australis* (Orchid Tribe Cranichideae) in a taraire (*Beilschmiedia tarairi*) grove on the edge of the park (but outside of the predator barrier fence which cuts off the peninsula) which she'd found the previous year. Despite being slightly early in the flowering season there were a few flowers on display which we all carefully queued to photograph. You have to be quick to see this orchid as by January it has started to wither and then disappear underground (where it spends the greater part of the year). We tiptoed around so as not to

crush any, counting about 30 stems. A week after this trip Maureen returned to Tawharanui and found more *Danhatchia*, this time in Possum Gully. There are low levels of rats outside of the predator barrier fence as it is a buffer area where rats are poisoned. We wondered whether the *Danhatchia* might usually be eaten by rats and this control might be befitting the orchids.

After lunch we moved into the adjoining bush. A fence surrounds the whole block, giving the impression that it is all part of the Rodney District Council administered Albert Dennis Scenic Reserve, but in fact the bulk of it, and by far the best bush land, belongs to the Torcklers. Again it was dominated by kauri and tanekaha, with some hard beech (*Nothofagus truncata*) present. Willow-leaved hakea (*Hakea salicifolia*) has taken hold, the worst of the infestation being in the reserve, where climbing asparagus (*Asparagus scandens*) is also present. Despite this, the bush contained much of interest, from a kauri ridge to broadleaf gullies. Just over the fence we encountered an area of *Gleichenia microphylla* and *Lycopodium deuterodensum* with *Brachyglottis kirkii* var. *angustior*, *Coprosma lucida*, *Toronia toru*, *Astelia trinervia* and plentiful *Mida salicifolia*. The small ferns, *Ctenopteris heterophylla* and *Grammitis ciliata* were common, and it was good to see young plants of *Dracophyllum latifolium* growing near the few adults. On the forest floor were abundant, spectacular cushions of the umbrella moss *Hypnodendron colensoi* (Fig. 3) and terrestrial *Collospermum hastatum* was noted.

A good number of species of filmy ferns grow in the damper gullies. On leaving the bush we checked the inappropriate council plantings on the western edge of the reserve and then departed via the memorial gate.

Although the leader was mortified by the lack of the promised orchid flowers, there was still plenty of botanical interest to keep the party contented.

While our delicious pot luck BBQ was being prepared a small group visited the Tawharanui Open Sanctuary Society (TOSSI) nursery. TOSSI are the community guardians of the park. The revegetation uses local seeds, which are raised in the nursery and the plants are returned to the wetlands, riparian and coastal areas. After lunch we walked the Ecology Trail, counting coastal milk tree (*Streblus banksii*) seedlings as we went, and then continued on the Phoenix Reef to look at the seaweeds. We were very grateful to ARC for providing the volunteer house as our base for

the day, and particularly to resident ranger Maurice Puckett and TOSSI members Steve Harrison and Alison Staines for hosting us.

Present: Enid Asquith, Paul Asquith, Jonathan Boow, Colleen Brewer, Warren Brewer, Lisa Clapperton, Colleen Crampton, Frances Duff, Anne Grace, Leslie Haines, Steve Harrison (TOSSI), Miranda Hutton,

Peter Hutton, Sandra Jones, Anna & Maria Lockyer, Elaine Marshall, Barrie McLeay, Gretta McLeay, Carol McSweeney, Garry McSweeney, Suman Pancha, Helen Preston Jones, Maurice Puckett, Juliet Richmond, Bernie Salmon, Doug Shaw, Gorakh Silvester, Alison Staines (TOSSI), Bec Stanley, Val Tomlinson, Annette Voll, Alison Wesley, Sarah Whitwell, Mike Wilcox, Tony Williams, Maureen Young.

Reference

Foster, C. 1998: Tauwharanui Regional Park, ABS field trip, 15 Nov 1997. *Auckland Botanical Society Journal* 53: 12-14.

Tawharanui Regional Park Vascular Plant Species List

Compiled by Bec Stanley, Maureen Young, Holly Cox (2008-09) and ABS (5 Dec 2009). This list formed the basis for the list on the field trip. Overall 366 vascular plant species, native and exotic, have been recorded for the park

* = naturalised species

(g) = rangers garden (recorded by Holly Cox 2007);

+ = found by Bot Soc in 1997, but not since.

pl = planted?

EC = an addition collected by Ewen Cameron (herbarium voucher in AK)

Ferns & Fern Allies (61)			
<i>Adiantum cunninghamii</i>	maidenhair fern	<i>Lygodium articulatum</i>	mangemange
<i>Adiantum diaphanum</i>	small maidenhair	<i>Microsorium pustulatum</i>	hound's tongue
<i>Adiantum fulvum</i>		<i>Microsorium scandens</i>	fragrant fern
<i>Adiantum hispidulum</i>	rosy maidenhair	<i>Paesia scaberula</i>	yellow fern
<i>Adiantum viridescens</i>		<i>Pellaea rotundifolia</i>	button fern
<i>Arthropteris tenella</i>	jointed fern	<i>Pneumatopteris pennigera</i>	feather fern
<i>Asplenium bulbiferum</i>	hen & chickens fern	<i>Polystichum neozelandicum</i>	
<i>Asplenium flaccidum</i>	hanging spleenwort	<i>Pteridium esculentum</i>	bracken
<i>Asplenium gracillimum</i>		<i>Pteris comans</i> +	
<i>Asplenium haurakiense</i>	coastal spleenwort	<i>Pteris macilenta</i>	
<i>Asplenium lamprophyllum</i>		<i>Pteris saxatilis</i>	
<i>Asplenium northlandicum</i>		<i>Pteris tremula</i>	shaking brake
<i>Asplenium oblongifolium</i>	shining spleenwort	<i>Pyrrosia eleagnifolia</i>	leather fern
<i>Asplenium polyodon</i>	sickle spleenwort	<i>Tmesipteris lanceolata</i>	chain fern
<i>Blechnum minus</i>		<i>Trichomanes endlicherianum</i>	
<i>Blechnum chambersii</i>		<i>Trichomanes reniforme</i>	kidney fern
<i>Blechnum discolor</i> +			
<i>Blechnum filiforme</i>	thread fern	Gymnosperms (8)	
<i>Blechnum fluviatile</i>	creek fern	<i>Agathis australis</i>	kauri
<i>Blechnum membranaceum</i>		<i>Cupressus macrocarpa</i> (g)	macrocarpa
<i>Blechnum novae-zelandiae</i>	kiokio	<i>Dacrycarpus dacrydioides</i>	kahikatea
<i>Cheilanthes distans</i>	woolly cloakfern	<i>Dacrydium cupressinum</i>	rimu
<i>Cyathea dealbata</i>	silver fern, ponga	<i>Phyllocladus trichomanoides</i>	tanekaha
<i>Cyathea medullaris</i>	mamaku	<i>Pinus radiata</i> *	radiata pine
<i>Deparia petersenii</i>		<i>Podocarpus totara</i>	totara
<i>Dicksonia squarrosa</i>	wheki	<i>Prumnopitys ferruginea</i>	miro
<i>Doodia australis</i>	rasp fern		
<i>Doodia mollis</i>	mokimoki	Dicotyledons (194)	
<i>Gleichenia dicarpa</i>	umbrella fern	<i>Acaena anserinifolia</i> +	
<i>Histiopteris incisa</i>	water fern, matata	<i>Acaena novae-zelandiae</i>	bidibid
<i>Huperzia varia</i> +		<i>Acmena smithii</i> * +	(eradicated)
<i>Hymenophyllum demissum</i>	filmy fern	<i>Ageratina adenophora</i> * +	
<i>Hymenophyllum dilatatum</i>	filmy fern	<i>Alectryon excelsus</i>	titoki
<i>Hymenophyllum rarum</i>	filmy fern	<i>Alseuosmia macrophylla</i>	toropapa
<i>Hypolepis ambigua</i>		<i>Alseuosmia quercifolia</i>	
<i>Lastreopsis glabella</i>		<i>Alternanthera philoxeroides</i> *	alligator weed
<i>Lastreopsis hispida</i>	hairy legs	<i>Anagallis arvensis</i> *	scarlet pimpernel
<i>Lastreopsis microsora</i>		<i>Anredera cordifolia</i> * +	madiera vine
<i>Lastreopsis velutina</i>	velvet fern	(eradicated)	
<i>Lindsaea linearis</i> +		<i>Apium prostratum</i>	
<i>Lindsaea trichomanoides</i>		<i>Araujia sericifera</i> *	moth plant
<i>Loxogramme dictyopteris</i>	lance fern	<i>Arctotis stoechadifolia</i> *	South African daisy
<i>Lycopodiella cernua</i>		<i>Aristotelia serrata</i> +	
<i>Lycopodium deuterodensum</i> +		<i>Atriplex prostrata</i> *	orache
<i>Lycopodium volubile</i>	waewaekoukou	<i>Avicennia marina</i>	mangrove
		<i>Beilschmiedia tarairi</i>	taraire

<i>Beilschmiedia ?tawa +</i>	tawa	<i>Hydrocotyle novae-zeelandiae</i>	
<i>Beilschmiedia tawaroa</i>	tawaroa	<i>Hydrocotyle tripartita*</i>	
<i>Brachyglottis repanda</i>	rangiora	<i>Impatiens sodenii</i> (g)	shrub balsam
<i>Cakile maritima*</i>	sea rocket	<i>Knightia excelsa</i>	rewarewa
<i>Callitriche muelleri</i>	starwort	<i>Kunzea ericoides</i>	kanuka
<i>Callitriche stagnalis*</i>	starwort	<i>Lachenalia reflexa*</i>	yellow soldier
<i>Calystegia sepium</i> subsp. <i>roseata</i>		<i>Lactuca serriola*</i>	prickly lettuce
<i>Calystegia soldanella</i>	shore bindweed	<i>Lagenifera pumila +</i>	
<i>Calystegia tuguriorum</i>		<i>Lagunaria patersonia</i> (pl)	Norfolk Island hibiscus
<i>Carmichaelia australis</i>	NZ broom	<i>Laurelia novae-zeelandiae</i>	pukatea
<i>Carpodetus serratus</i>	putaputaweta	<i>Leptecophylla juniperina</i>	prickly mingimingi
<i>Centaurium erythraea* +</i>		<i>Leptospermum scoparium</i>	manuka
<i>Centella uniflora</i>		<i>Leucopogon fasciculatus</i>	mingimingi
<i>Chamaecytisus palmensis*</i> (g)	tree lucerne, tagasaste	<i>Leucopogon fraseri</i>	patotara
<i>Chrysanthemoides monilifera*</i>	boneseed	<i>Ligustrum sinense*</i>	Chinese privet
<i>Cirsium vulgare* +</i>		<i>Linum catharticum*</i>	purging flax
<i>Clematis paniculata</i>	white clematis	<i>Litsea calicaris</i>	mangeao
<i>Conyza sumatrensis*</i>	fleabane	<i>Lobelia anceps</i>	
<i>Coprosma acerosa</i>	sand coprosma	<i>Lophomyrtus bullata +</i>	ramarama
<i>Coprosma arborea</i>	mamangi	<i>Ludwigia palustris*</i>	
<i>Coprosma areolata</i>		<i>Lupinus arboreus*</i>	lupin
<i>Coprosma crassifolia</i> (pl)		<i>Macropiper excelsa</i>	kawakawa
<i>Coprosma lucida +</i>		<i>Medicago arabica*</i>	spotted bur medick
<i>Coprosma macrocarpa</i>		<i>Melicope ternata</i>	wharangi
<i>Coprosma repens</i>	taupata	<i>Melicytus ramiflorus</i>	mahoe
<i>Coprosma rhamnoides</i>		<i>Metrosideros diffusa</i>	
<i>Coprosma robusta</i>	karamu	<i>Metrosideros excelsa</i>	pohutukawa
<i>Coprosma spathulata</i>		<i>Metrosideros fulgens</i>	climbing rata
<i>Corynocarpus laevigatus</i>	karaka	<i>Metrosideros perforata</i>	white climbing rata
<i>Cotoneaster glaucophyllus* +</i>		<i>Mida salicifolia</i>	Willow-leaved maire
<i>Cotula australis</i>		<i>Modiola caroliniana*</i>	creeping mallow
<i>Cotula coronopifolia</i>	batchelor's buttons	<i>Muehlenbeckia australis</i>	pohuehue
<i>Daucus carota* +</i>		<i>Muehlenbeckia complexa</i>	wire vine
<i>Dichondra repens</i>	Mercury Bay weed	<i>Myoporum aff. insulare</i> (pl)	Tasmanian ngaio
<i>Dimorphotheca aurantiaca*</i>	African daisy	<i>Myoporum laetum</i>	ngaio
<i>Disphyma australe</i>	ice plant	<i>Myosotis sp.*. +</i>	
<i>Dodonaea viscosa +</i>		<i>Myrsine australis</i>	mapou
<i>Dracophyllum latifolium</i>	neinei	<i>Myrsine salicina</i>	toro
<i>Drosera auriculata</i>	sundew	<i>Nasturtium officinale*</i>	water cress
<i>Dysoxylum spectabile</i>	kohekohe	<i>Nerium oleander</i> (g)	oleander
<i>Einadia triandra</i>		<i>Nertera depressa +</i>	
<i>Einadia trigonos</i>	salt bush	<i>Nertera dichondrifolia+</i>	
<i>Elaeocarpus dentatus</i>	hinau	<i>Nestegis lanceolata</i>	white maire
<i>Entelea arborescens</i>	whau	<i>Olearia albida</i> (pl)	
<i>Erechtites valerianifolia*</i>	Brazilian fireweed	<i>Olearia furfuracea</i>	akepiro
<i>Euchiton collinus</i>		<i>Olearia rani</i>	heketara
<i>Euonymus japonicus*+ (g)</i>		<i>Orobanche minor*</i>	broomrape
<i>Euphorbia peplus*</i>	milkweed	<i>Oxalis corniculata* +</i>	
<i>Fragaria vesca*</i>	wild strawberry	<i>Oxalis exilis</i>	creeping oxalis
<i>Galium trilobum</i>	native bedstraw	<i>Ozothamnus leptophyllus</i>	tauhinu
<i>Gaultheria antipoda+</i>		<i>Parietaria debilis</i>	NZ pellitory
<i>Gazania rigens*</i>		<i>Parsonsia heterophylla</i>	NZ jasmine
<i>Geniostoma ligustrifolium</i>	hangehange	<i>Passiflora tetrandra</i>	NZ passion vine
<i>Geranium gardneri*</i>		<i>Peperomia urvilleana</i>	
<i>Geranium molle*</i>	dove's foot cranesbill	<i>Persicaria decipiens</i>	swamp willowweed
<i>Geranium potentilloides</i>		<i>Persicaria maculosa*</i>	willow weed
<i>Gonocarpus incanus</i>		<i>Physalis peruviana*</i>	cape gooseberry
<i>Griselinia littoralis</i> (pl)	broadleaf	<i>Phytolacca octandra*</i>	inkweed
<i>Griselinia lucida</i>	puka	<i>Pimelea prostrata</i> subsp. <i>thermalis</i>	
<i>Hakea sp. (g)</i>		<i>Pittosporum cornifolium</i>	
<i>Haloragis erecta</i>		<i>Pittosporum crassifolium</i>	karo
<i>Hebe macrocarpa</i>		<i>Pittosporum eugenioides</i>	lemonwood (pl)
<i>Hebe stricta +</i>		<i>Pittosporum tenuifolium</i>	kohuhu
<i>Hedera helix* +</i>		<i>Plagianthus divaricatus</i>	salt-marsh ribbonwood
<i>Hedycarya arborea</i>	pigeonwood	<i>Planchonella costata</i>	tawapou
<i>Helichrysum lanceolatum</i>		<i>Plantago lanceolata*</i>	plantain
<i>Hoheria populnea</i>	lacebark	<i>Pomaderris amoena</i>	tauhinu
<i>Hydrangea macrophylla</i> (g)		<i>Portulaca oleracea*</i>	purslane

<i>Pseudopanax arboreus</i> +	five finger	<i>Carex pumila</i>	sand sedge
<i>Pseudopanax crassifolius</i> x <i>P. lessonii</i>		<i>Carex solandri</i>	
<i>Pseudopanax crassifolius</i>	lancewood	<i>Carex testacea</i>	
<i>Pseudopanax lessonii</i>	coastal five-finger	<i>Carex virgata</i>	swamp sedge
<i>Ranunculus macropus</i> +		<i>Chlorophytum comosum</i> (g)	spider plant
<i>Ranunculus reflexus</i>	hairy buttercup	<i>Collospermum hastatum</i>	
<i>Rhabdothamnus solandri</i>	taurepo	<i>Cordyline australis</i>	cabbage tree
<i>Rhaphiolepis umbellata</i> (g)	Sexton's bride	<i>Cordyline pumilio</i>	dwarf cabbage tree
<i>Rubus australis</i>	bush lawyer	<i>Cortaderia</i> sp.*	pampas
<i>Rubus cissoides</i>	bush lawyer	<i>Cyperus ustulatus</i>	umbrella sedge
<i>Rumex obtusifolius</i> *	broad leaf dock	<i>Cyrtostylis oblonga</i>	gnat orchid
<i>Sagina procumbens</i> *	pearlwort	<i>Danhatchia australis</i>	
<i>Salvia repens</i> * +		<i>Dianella latissima</i> (EC)	
<i>Samolus repens</i>	sea primrose	<i>Dianella nigra</i>	turutu, ink berry
<i>Sarcocornia quinqueflora</i>	glasswort	<i>Diplodidium alobulum</i>	
<i>Schefflera digitata</i>	pate	<i>Diplodidium trullifolium</i>	trowel-leaved orchid
<i>Selliera radicans</i>		<i>Drymoanthus adversus</i>	fleshy tree orchid
<i>Senecio elegans</i> *	purple groundsel	<i>Earina mucronata</i>	spring orchid
<i>Senecio hispidulus</i>	fireweed	<i>Echinopogon ovatus</i>	hedgehog grass
<i>Senecio lautus</i>	shore groundsel	<i>Eleocharis acuta</i>	sharp spike sedge
<i>Silene gallica</i> *+		<i>Ficinia nodosa</i>	knobby club rush
<i>Solanum nodiflorum</i>	nightshade	<i>Ficinia spiralis</i>	pingao
<i>Solanum linnaeanum</i> *	apple of Sodom	<i>Freesia refracta</i> *	freesia
<i>Solanum mauritianum</i> *	woolly nightshade	<i>Freycinetia banksii</i>	kiekie
<i>Sonchus oleraceus</i> *	puha	<i>Gahnia lacera</i>	cutty grass
<i>Sophora chathamica</i>	kowhai	<i>Gahnia pauciflora</i>	cutty grass
<i>Sophora microphylla</i> +		<i>Gahnia setifolia</i>	cutty grass
<i>Spergularia marina</i> *	sea spurrey	<i>Gahnia xanthocarpa</i>	cutty grass
<i>Streblus banksii</i>	coastal milk tree	<i>Isolepis cernua</i>	slender club rush
<i>Streblus heterophyllus</i>	milk tree	<i>Isolepis prolifera</i>	
<i>Tetragonia implexicoma</i>	beach spinach	<i>Isolepis reticularis</i>	
<i>Toronia toru</i>	toru	<i>Juncus acutus</i> *	sharp rush
<i>Ulex europaeus</i> *	gorse	<i>Juncus articulatus</i> *	jointed rush
<i>Verbena bonariensis</i> * +		<i>Juncus australis</i> +	
<i>Veronica anagallis-aquatica</i>	water speedwell	<i>Juncus edgariae</i>	leafless rush
<i>Veronica plebeia</i>		<i>Juncus effusus</i> *	soft rush
<i>Vicia sativa</i> *	vetch	<i>Juncus flavidus</i> * +	
<i>Vinca major</i> *	periwinkle	<i>Juncus kraussii</i> sea rush	
<i>Vitex lucens</i>	puriri	<i>Juncus procerus</i> * +	
<i>Wahlenbergia littoricola</i>		<i>Juncus sarophorus</i>	
<i>Weinmannia silvicola</i>	towai	<i>Lachnagrostis billardierei</i>	sand wind grass
Monocotyledons (105)			
<i>Acianthus sinclairii</i>	pixie orchid	<i>Lagurus ovatus</i> *	harestalk
<i>Agapanthus praecox</i> *	agapanthus	<i>Lemna minor</i>	duckweed
<i>Agave americana</i> (g)	Century plant	<i>Lepidosperma australe</i>	square sedge
<i>Allium triquetrum</i> * +	onion weed	<i>Lepidosperma laterale</i> +	
<i>Anthoxanthum odoratum</i> *	sweet vernal grass	<i>Libertia ixioides</i>	NZ iris
<i>Apodasmia similis</i>	oioi, jointed rush	<i>Microlaena avenacea</i>	bush rice grass
<i>Arthropodium cirratum</i> +	renga renga	<i>Microlaena stipoides</i>	meadow rice grass
<i>Arum italicum</i> * +		<i>Microtis unifolia</i>	onion orchid
<i>Asparagus scandens</i> *	climbing asparagus	<i>Morelotia affinis</i>	
<i>Astelia banksii</i>	coastal astelia	<i>Nematoceras trilobum</i>	spider orchid
<i>Astelia solandri</i>		<i>Oplismenus hirtellus</i>	
<i>Astelia trinervia</i>	kauri grass	<i>Orthoceras novae-zeelandiae</i> +	
<i>Austrostipa stipoides</i>	needle grass	<i>Paspalum vaginatum</i> *	saltmarsh paspalum
<i>Baumea juncea</i> +		<i>Pennisetum clandestinum</i> *	kikuyu
<i>Bolboschoenus</i> sp.		<i>Petalochilus chlorostylus</i>	
<i>Briza minor</i> *	shivery grass	<i>Petalochilus minor</i>	
<i>Bromus diandrus</i> *	ripgut brome	<i>Phormium tenax</i>	flax, harakeke
<i>Canna indica</i> * (g)	canna lily	<i>Poa anceps</i>	
<i>Carex breviculmis</i>		<i>Poa pusilla</i> (EC)	
<i>Carex dissita</i>		<i>Potamogeton cheesemani</i>	pond weed
<i>Carex flagellifera</i>	trip-me-up	<i>Pterostylis alobula</i> +	
<i>Carex lambertiana</i>	forest sedge	<i>Pterostylis banksii</i>	tutukiwi, greenhood orchid
<i>Carex lessoniana</i>		<i>Pterostylis graminea</i> +	
<i>Carex maorica</i>		<i>Rhopalostylis sapida</i>	nikau
<i>Carex ochrosaccus</i>		<i>Ripogonum scandens</i>	supplejack
		<i>Schoenoplectus tabernaemontani</i>	

Schoenus maschalinus
Schoenus tendo
Spinifex sericeus
*Sporobolus africanus**
*Stenostaphrum secundatum**
Thelymitra longifolia agg.
*Tradescantia fluminensis** +

dwarf bog rush
kauri sedge
silvery sand grass
rat's tail grass
buffalo grass
sun orchid
(eradicated)

Typha orientalis
Uncinia banksii
Uncinia uncinata
*Zantedeschia aethiopicum**
Zostera muelleri
Zoysia pauciflora

raupo
fine hook grass
hook grass
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Central Otago, 9–15 January 2010

Maureen Young (editor)

Introduction

The Auckland Botanical Society (ABS) South Island trip for 2010 was based at Bannockburn, a few kms south of Cromwell, where we stayed at the Abbotsford School Outdoor Education Camp. Four vans were hired to transport most of the North Islanders, and we were joined by several of our South Island friends. We were fortunate to have as our field trip leaders Neill and Barbara Simpson from Queenstown. Neill, formerly Lakes District Conservator for the Department of Conservation (DoC), then Field Centre Manager, later Otago Regional Botanist based in Queenstown, and now a botanical consultant (he was our Lucy Cranwell lecturer in 1998), planned the itinerary, and he and Barbara happily shared their intimate knowledge of the Central Otago flora. It was with pleasure that we welcomed fellow Bot Soccers from the Botanical Society of Otago; their president, David Lyttle, and lichenologist Allison Knight and her husband, John.

Participants: Chris and Noel Ashton, Enid and Paul Asquith, Catherine Beard, Jan Butcher, Lisa Clapperton, Pam Dale, Bev and Geoff Davidson, Gael Donaghy, Anne Fraser, Leslie Haines, Barbara Hammonds, Graeme Jane, Cathy Jones, Sandra and Bryn Jones, Allison and John Knight, David Lyttle, Christine Major, Julie McLintock, John Millett, Helen Preston Jones, Juliet Richmond, Stella and John Rowe, Betty Seddon, Barbara and Neill Simpson (field trip leaders), Val Smith, Claire Stevens, Alison Wesley, Diana Whimp, Anthony Wright, Maureen Young (camp mother), (Fig. 1).

With a very dry climate and having been much modified by human activity, the Central Otago landscape does not appear to be well endowed with indigenous vegetation. Indeed, with vast areas covered by wild thyme (*Thymus vulgaris*), sweet brier (*Rosa rubiginosa*), wilding conifers, and to a lesser extent, the yellow-flowered succulent, *Sedum acre*, we were indeed lucky to have been guided to the sites where the species that have adapted to these harsh conditions have been left largely undisturbed. It was noticeable that there is no tree-line as is usual in the mountains of the South Island, and apart from a half-day in the beech forest on the shores of Lake Wakatipu, we spent our time on hands and knees

admiring the tiny plants of the salt pans and mountain ranges.

Central Otago Geology

Christine Major

Metamorphic schist is the dominant rock in the landscape of Central Otago often out-cropping in the spectacular tors that characterise the region. Igneous rocks are scanty but a wide range of sedimentary rocks are present including siltstone, sandstone, conglomerate, coal and limestone alongside alluvial, glacial and lacustrine deposits. The Pisa Range, Dunstan Mountains and the Old Man Range typify the 'basin and range' topography that has resulted from the action of a series of north-northeast trending compressional faults, most of which are still active. The flat, broad mountain tops are ancient erosion surfaces (peneplain). A feature of the area is natural salt pans which have arisen where salts, derived from the weathering from schist, have been able to accumulate owing to the low rainfall and especially where water is able to pool.



Fig. 1. The Bannockburn bunch. Photo: by Noel Ashton (AW's camera). All photographs taken during the trip by Alison Wesley, Sandra Jones, Geoff Davidson or Christine Major, and acknowledged by their initials.

9 January: Cromwell Chafer Beetle Reserve

Maureen Young

After settling in to our accommodation and dining, the long summer evening allowed us time to head back towards Cromwell to visit the Cromwell Chafer Beetle Reserve. This unprepossessing dry sandy field was enclosed by a rabbit-proof fence to protect the