

## **TWENTY X TWENTY METRE PLOTTING ON MT NGONGOTAHA - ONE DOWN, TWENTY-FOUR TO GO**

Richard Gillies

This was a field trip with a difference, with systematic ID and measurement of vegetation in a defined area replacing the 'purposeful wandering' that usually characterises Botanical Society outings. And it marked a beginning in the long journey to restore the indigenous ecology of Ngongotaha, Rotorua's iconic, ever-present mountain...but more on that later.

Fittingly, eleven souls turned out for the day on 11 June 2006, possibly the first time a cricket team has been fielded for the job of 20 x 20m forest plotting. Grant Milligan, Peter Richardson, Gael Donaghy, Graeme Jane, John Hobbs (Pres.) represented RBS; David O'Connor, Peter McKellar, Jenny Lux (our organiser, leader and general plot wrangler) turned out for the Friends of Mt Ngongotaha, Mark Tiedt and Richard Gillies, Mt Ngongotaha Bush Restoration Trustees, Chris Ecroyd there on behalf of Forest & Bird. Some have feet in two, or all, of the above camps.

Rendezvous at the gate next to a thoroughly plundered old Mercedes sedan caused all present to be relieved that a kindly loaned key ensured secure parking at the summit. There was time enough to divvy out the gear and pose for the group photo before the miserable southerly sent us scurrying down the Jubilee Track towards our destination. It was here that Peter McKellar's combination of GPS and wearable antenna came into its own, guiding us unerringly through the worst of the supplejack to a predetermined point two hundred or so metres off the track.

Following a quick tutorial, those with a talent for straight lines laid out a series of tapes into a neat 20 x 20m square, and subdivided it further into sixteen 5 x 5m squares.

Lunch followed with Mark's impromptu lecture on the flora, fauna and back-country banditry of South Africa commanding much attention. Then plotting began in earnest.

Chris and John took on the understorey plots, counting individuals of species present to the magic height of 1.35m in 24 plots of 50cm radius. Peter R and Grant took on the supplejack as part of counting individuals of species present of each and every sapling taller than 1.35m but less than 3cm dbh (diameter at breast height). Moving up the tiers, Gael, Peter McK and Mark tagged and measured the diameter of all stems over 3cm dbh. Graeme and Richard made the most of the numbers on the ground and took it easy, wandering around while compiling a species list, site description and assessing tier composition. Jenny and David patrolled the perimeter, taking photos, whacking up permolat to aid re-location, and generally making sure no one tried to make a break for it.

By 2:30pm it was all over, the story of a tiny piece of Mt Ngongotaha forest writ large on the data sheets – tawa forest with occasional mahoe, porokaiwhiri (pigeonwood), and *Cyathea smithii*, a couple of patches more or less occupied by supplejack, plenty of large dead trees around (including rata), mangeao outside the plot but not inside, and an ancient rimu looming overhead.

Acknowledgements are owed to Jenny Lux, who developed the vegetation monitoring plan for Ngongotaha and put it into action on the day and to Rebecca Lander from the DOC Rotorua Lakes Area Office who gave advice to ensure compatibility with DOC's 20 x 20m methods for the Bay of Plenty, and provided much of the plotting gear.

Here follows the current Mt Ngongotaha vascular plant list compiled by Graeme Jane.

**VASCULAR PLANT SPECIES LIST FOR  
MOUNT NGONGOTAHA SCENIC RESERVE  
AND PROTECTED PRIVATE LAND**

B. D. Clarkson & D. R. King 1987 (DSIR Botany Division Botanical Surveys)

Grid Ref U16 895 378

Some additions from Rotorua Botanical Society trips June 2002, June 2006

Ngongotaha Bush Restoration Trust trip October 2005

BC - Bruce Clarkson et al 1987, GJ - Graeme Jane, CE - Chris Ecroyd, JH - John Hobbs, JL – Jenny Lux

\* = exotic

**FERN ALLIES**

<i>Huperzia varia</i>	BC	Hanging clubmoss
<i>Lycopodiella cernua</i>	BC	Arching clubmoss
<i>Lycopodium deuterodensum</i>	BC	Puakarimu
<i>Lycopodium scariosum</i>	GJ	
<i>Lycopodium volubile</i>	BC	Climbing clubmoss
<i>Tmesipteris elongata</i>	BC	Fork fern
<i>Tmesipteris tannensis</i>	GJ	Fork fern

**FERNS**

<i>Adiantum cunninghamii</i>	BC	Common maidenhair fern
<i>Anarthropteris lanceolata</i>	BC	Lance fern
<i>Asplenium bulbiferum</i> s.s. x <i>A. flaccidum</i>	BC	
<i>Asplenium bulbiferum</i> s.s.	BC	Hen and chicken fern
<i>Asplenium flaccidum</i> s.s.	BC	
<i>Asplenium gracillimum</i>	BC	Spleenwort
<i>Asplenium hookerianum</i>	BC	Hooker's
<i>Asplenium oblongifolium</i>	BC	Shining
<i>Asplenium polyodon</i>	BC	Sickle
<i>Blechnum chambersii</i>	BC	Nini
<i>Blechnum colensoi</i>	BC	Peretao
<i>Blechnum discolor</i>	BC	Crown fern
<i>Blechnum filiforme</i>	BC	Thread fern
<i>Blechnum fluviatile</i> agg.	BC	Kiwakiwa
<i>Blechnum membranaceum</i>	BC	
<i>Blechnum nigrum</i>	BC	Black hard fern

<i>Blechnum novae-zelandiae</i>	BC	Kiokio
<i>Blechnum penna-marina</i> var. <i>alpina</i>	BC	Little hard fern
<i>Blechnum vulcanicum</i>	GJ	
<i>Botrychium bifforme</i>	GJ	Fine-leaved parsley fern
<i>Cardiomanes reniforme</i>	BC	Kidney fern
<i>Ctenopteris heterophylla</i>	BC	
<i>Cyathea cunninghamii</i>	BC	Gully tree fern
<i>Cyathea dealbata</i>	BC	Silver fern
<i>Cyathea medullaris</i>	BC	Mamaku
<i>Cyathea smithii</i>	BC	Soft tree fern
<i>Dicksonia fibrosa</i>	BC	Wheki-ponga
<i>Dicksonia squarrosa</i>	BC	Wheki
<i>Grammitis billardierei</i>	BC	Common finger fern
<i>Histiopteris incisa</i>	BC	Water fern
<i>Hymenophyllum bivalve</i> (11/6/06)	GD	Two-valved filmy fern
<i>Hymenophyllum demissum</i>	BC	Irirangi
<i>Hymenophyllum dilatatum</i>	BC	Filmy fern
<i>Hymenophyllum ferrugineum</i>	BC	Rusty filmy fern
<i>Hymenophyllum flabellatum</i>	BC	Filmy fern
<i>Hymenophyllum flexuosum</i>	BC	Filmy fern
<i>Hymenophyllum multifidum</i>	BC	Filmy fern
<i>Hymenophyllum rarum</i>	GJ	Wire-stemmed filmy fern
<i>Hymenophyllum revolutum</i>	GJ	Filmy fern
<i>Hymenophyllum sanguinolentum</i>	BC	Piripiri
<i>Hymenophyllum scabrum</i>	BC	Filmy fern
<i>Hypolepis ambigua</i>	GJ	Pig fern
<i>Hypolepis distans</i>	BC	Brown hypolepis
<i>Hypolepis rufobarbata</i>	BC	Sticky pig fern
<i>Lastreopsis glabella</i>	BC	Felted fern
<i>Lastreopsis hispida</i>	BC	Hairy fern
<i>Lastreopsis microsora</i> subsp. <i>pentangularis</i>	BC	
<i>Leptolepia novae-zelandiae</i>	BC	Hare's foot fern
<i>Leptopteris hymenophylloides</i>	BC	Heruheru
<i>Lindsaea trichomanoides</i>	BC	
<i>Microsorium novae-zelandiae</i> ?	BC	
<i>Microsorium pustulatum</i>	BC	Hound's tongue
<i>Microsorium scandens</i>	BC	Fragrant fern
<i>Paesia scaberula</i>	BC	Lace fern
<i>Pneumatopteris pennigera</i>	BC	Gully fern
<i>Polystichum richardii</i>	BC	Common shield fern
<i>Polystichum silvaticum</i>	BC	Shield fern
<i>Polystichum vestitum</i>	BC	Prickly shield fern
<i>Pteridium esculentum</i>	BC	Bracken
<i>Pteris macilenta</i>	BC	Sweet fern

<i>Pteris tremula</i>	BC	Shaking brake
<i>Pyrrhosia eleagnifolia</i>	BC	Leather-leaf fern
<i>Rumohra adiantiformis</i>	JH	Climbing shield fern (11/6/06)
<i>Schizaea dichotoma</i>	CE	Comb fern
<i>Trichomanes endlicherianum</i>	BC	
<i>Trichomanes venosum</i>	BC	Veined filmy fern

### GYMNOSPERMS

<i>Dacrycarpus dacrydioides</i>	BC	Kahikatea
<i>Dacrydium cupressinum</i>	BC	Rimu
<i>Podocarpus hallii</i>	BC	Hall's totara
<i>Stachypitys ferruginea</i>	BC	Miro

### DICOTYLEDONOUS TREES AND SHRUBS

<i>Alectryon excelsus</i> var. <i>excelsus</i>	BC	Titoki
<i>Alseuosmia macrophylla</i>	BC	Karapapa
<i>Aristotelia serrata</i>	BC	Wineberry
* <i>Berberis darwinii</i>	BC	Darwin's barberry
* <i>Berberis glaucocarpa</i>	GJ	Barberry
<i>Brachyglottis repanda</i> s.s.	BC	Rangiora
* <i>Buddleja davidii</i>	JH	Buddleia (2005)
<i>Carpodetus serratus</i>	BC	Putaputaweta
<i>Coprosma acerosa</i> x <i>C. repens</i> (Planted)	BC	
<i>Coprosma grandifolia</i>	BC	Kanono
<i>Coprosma lucida</i>	BC	Glossy karamu
<i>Coprosma robusta</i>	BC	Karamu
<i>Coriaria arborea</i> var. <i>arborea</i>	BC	Tutu
<i>Corynocarpus laevigatus</i>	BC	Karaka
* <i>Cotoneaster</i> sp.	BC	Cotoneaster
* <i>Cytisus scoparius</i>	BC	Broom
<i>Dracophyllum strictum</i>	BC	Totorowhiti
<i>Dracophyllum subulatum</i>	BC	Monoao
<i>Elaeocarpus dentatus</i>	BC	Hinau
* <i>Erica lusitanica</i>	BC	Spanish heath
<i>Fuchsia excorticata</i>	BC	Kotukutuku
<i>Gaultheria antipoda</i>	BC	Snowberry
<i>Gaultheria paniculata</i>	BC	Snowberry
<i>Geniostoma ligustrifolium</i>	BC	Hangehange
<i>Griselinia littoralis</i>	BC	Broadleaf
<i>Griselinia lucida</i>	BC	Puka
* <i>Hakea salicifolia</i>	BC	Willow-leaved hakea
<i>Hebe stricta</i> var. <i>stricta</i>	BC	Koromiko
<i>Hedycarya arborea</i>	BC	Pigeonwood
* <i>Juglans ailantifolia</i>	GJ	Japanese walnut

<i>Knightia excelsa</i>	BC	Rewarewa
<i>Laurelia novae-zelandiae</i>	BC	Pukatea
<i>Leptospermum scoparium</i>	BC	Manuka
<i>Leucopogon fasciculatus</i>	BC	Mingimingi
<i>Leucopogon fraseri</i>	BC	Patotara
* <i>Ligustrum sinense</i>	BC	Privet
<i>Litsea calicaris</i>	BC	Mangeao
<i>Lophomyrtus bullata</i>	BC	Ramarama
<i>Macropiper excelsum</i> var. <i>excelsum</i>	BC	Kawakawa
<i>Meliccytus lanceolatus</i>	BC	Narrow-leaved mahoe
<i>Meliccytus ramiflorus</i> subsp. <i>ramiflorus</i>	BC	Mahoe
<i>Metrosideros robusta</i>	BC	Rata
<i>Myrsine australis</i>	BC	Mapou
<i>Myrsine salicina</i>	BC	Toro
<i>Nestegis cunninghamii</i>	BC	Black maire
<i>Nestegis lanceolata</i>	BC	White maire
<i>Pimelea prostrata</i>	BC	Pinatoro
<i>Pittosporum cornifolium</i>	GJ	Perching kohuhu
<i>Pittosporum eugenioides</i>	BC	Tarata
<i>Pittosporum tenuifolium</i> subsp. <i>tenuifolium</i>	BC	Kohuhu
* <i>Prunus serrulata</i>	GJ	Japanese hill cherry
<i>Pseudopanax arboreus</i>	BC	Five-finger
<i>Pseudopanax crassifolius</i>	BC	Lancewood
<i>Pseudowintera axillaris</i>	BC	Lowland horopito
<i>Pseudowintera colorata</i>	BC	Mountain horopito
<i>Raukawa edgerleyi</i>	BC	Raukawa
* <i>Salix cinerea</i>	BC	Grey willow
<i>Schefflera digitata</i>	BC	Pate
<i>Solanum aviculare</i>	BC	Poroporo
<i>Streblus heterophyllus</i>	BC	Turepo
* <i>Teline monspessulana</i>	BC	Montpelier broom
* <i>Ulex europaeus</i>	BC	Gorse
<i>Weinmannia racemosa</i> var. <i>racemosa</i>	BC	Kamahi

## DICOTYLEDONOUS LIANES

<i>Clematis paniculata</i>	BC	Clematis
* <i>Lonicera japonica</i>	BC	Japanese honeysuckle
<i>Metrosideros colensoi</i>	BC	Hairy climbing rata
<i>Metrosideros diffusa</i>	BC	White rata vine
<i>Metrosideros fulgens</i>	BC	Rata vine
<i>Metrosideros perforata</i>	BC	Rata vine
<i>Muehlenbeckia australis</i>	BC	Pohuehue
<i>Parsonsia capsularis</i>	BC	New Zealand jasmine
<i>Parsonsia heterophylla</i>	GJ	New Zealand jasmine

<i>Rubus australis</i>	BC	Swamp lawyer
<i>Rubus cissoides</i>	BC	Bush lawyer
* <i>Rubus fruticosus</i> agg.	BC	Blackberry
<i>Rubus schmidelioides</i>	BC	White-backed lawyer

## DICOTYLEDONOUS HERBS

<i>Acaena anserinifolia</i>	BC	piripiri
* <i>Acaena novae-zealandiae</i>	BC	piripiri
* <i>Anagallis arvensis</i>	GJ	Scarlet pimpernel
* <i>Brassica rapa</i> var. <i>rapa</i>	GJ	Wild turnip
<i>Cardamine</i> sp. ( <i>C. debilis</i> agg.)	BC	Bitter cress
<i>Cardamine</i> sp. "Long style"	GJ	
<i>Centaureum erythraea</i>	BC	Centauray
* <i>Cirsium vulgare</i>	BC	Scotch thistle
* <i>Conyza floribunda</i>	BC	Fleabane
* <i>Conyza sumatrensis</i>	GJ	Broad-leaved fleabane
* <i>Crepis capillaris</i>	GJ	Hawksbeard
* <i>Digitalis purpurea</i>	GJ	Foxglove
<i>Drosera peltata</i> subsp. <i>auriculata</i>	BC	Sundew
<i>Epilobium pedunculare</i>	BC	Creeping willow-herb
<i>Epilobium pubens</i>	BC	Willow-herb
<i>Epilobium rotundifolium</i>	BC	Round-leaved willow-herb
* <i>Erigeron karvinskianus</i>	GJ	Mexican daisy
<i>Euchiton audax</i> s.s.	BC	Creeping cudweed
<i>Euchiton involucratus</i>	GJ	Creeping cudweed
* <i>Galium aparine</i>	BC	Cleavers
<i>Gamochaeta spicata</i>	GJ	Purple cudweed
<i>Haloragis erecta</i>	BC	Shrubby haloragis
<i>Helichrysum filicaule</i>	BC	Creeping everlasting daisy
<i>Hydrocotyle dissecta</i>	BC	Pennywort
<i>Hydrocotyle heteromeria</i>	GJ	Waxweed
<i>Hydrocotyle moschata</i>	BC	Hydrocotyle
* <i>Hypericum perforatum</i>	GJ	St John's wort
* <i>Hypochoeris radicata</i>	BC	Catsear
<i>Lagenifera pumila</i>	BC	Papataniwhaniwha
* <i>Leontodon taraxacoides</i>	BC	Hawkbit
* <i>Leucanthemum vulgare</i>	BC	Ox-eye daisy
* <i>Lotus pedunculata</i>	BC	Lotus
* <i>Mycelis muralis</i>	BC	Wall lettuce
* <i>Phytolacca octandra</i>	GJ	Inkweed
* <i>Plantago lanceolata</i>	BC	Ribwort
* <i>Polycarpon tetraphyllum</i>	GJ	Allseed
<i>Pratia angulata</i>	BC	Pratia
* <i>Prunella vulgaris</i>	BC	Selfheal

<i>Pseudognaphalium luteo-album</i> agg.	BC	Jersey cudweed
<i>Ranunculus reflexus</i> s.s.	BC	Buttercup
* <i>Ranunculus repens</i>	BC	Creeping buttercup
* <i>Rumex acetosella</i>	GJ	Sheep's sorrel
* <i>Rumex obtusifolius</i>	GJ	Broad-leaved dock
* <i>Sagina procumbens</i>	BC	Mossy pearlwort
* <i>Senecio bipinnatisectus</i>	GJ	Australian fireweed
* <i>Senecio jacobaea</i>	BC	Ragwort
<i>Senecio minimus</i>	GJ	Fireweed
* <i>Solanum americanum</i>	GJ	Small-flowered nightshade
* <i>Solanum nigrum</i>	BC	Black nightshade
<i>Stellaria parviflora</i>	BC	Native chickweed
* <i>Taraxacum officinale</i>	GJ	Dandelion
* <i>Tradescantia fluminensis</i>	GJ	Wandering Jew
* <i>Trifolium pratense</i>	GJ	Red clover
* <i>Trifolium repens</i>	GJ	White clover
<i>Urtica incisa</i>	BC	Stinging nettle
* <i>Wahlenbergia marginata</i>	BC	Harebell
<i>Wahlenbergia violacea</i>	GJ	Blue harebell

### MONOCOTYLEDONOUS TREES, SHRUBS AND LIANES

<i>Cordyline australis</i>	BC	Cabbage tree
<i>Cordyline banksii</i>	BC	Forest cabbage tree
<i>Freycinetia banksii</i>	BC	Kiekie
<i>Ripogonum scandens</i>	BC	Supplejack

### ORCHIDS

<i>Drymoanthus adversus</i>	GJ	Green fleshy orchid (2006?)
<i>Earina autumnalis</i>	BC	Raupeka
<i>Earina mucronata</i>	BC	Peka-a-waka
<i>Microtis unifolia</i>	BC	Common onion orchid
<i>Orthoceras novae-zeelandiae</i>	BC	Mamaika
<i>Pterostylis banksii</i>	BC	Common greenhood
<i>Thelymitra longifolia</i>	BC	Common sun orchid
<i>Winika cunninghamii</i>	BC	Winika

### GRASSES

* <i>Agrostis capillaris</i>	BC	browntop
* <i>Anthoxanthum odoratum</i>	BC	Sweet vernal
* <i>Bromus willdenowii</i>	GJ	Prairie grass
<i>Cortaderia fulvida</i>	BC	Toetoe
* <i>Dactylis glomerata</i>	BC	Cocksfoot
<i>Deyeuxia aucklandica</i>	GJ	
<i>Deyeuxia avenoides</i>	GJ	Mountain oatgrass

<i>Dichelachne crinita</i>	BC	Plume grass
<i>Echinopogon ovatus</i>	BC	Hedgehog grass
* <i>Holcus lanatus</i>	BC	Yorkshire fog
<i>Lachnagrostis filiformis</i>	GJ	Tumble grass
* <i>Lolium perenne</i>	GJ	Perennial ryegrass
<i>Microlaena avenacea</i>	BC	Bush rice grass
<i>Microlaena stipoides</i>	GJ	Forest rice grass
* <i>Phleum pratense</i>	GJ	Timothy
* <i>Poa annua</i>	BC	Annual poa
<i>Rytidosperma gracile</i>	BC	Danthonia
* <i>Rytidosperma penicillatum</i>	GJ	

### SEDGES

<i>Carex dissita</i>	BC	Flat-leaved sedge
<i>Carex geminata</i>	BC	Rautahi
<i>Carex solandri</i>	GJ	
<i>Morelotia affinis</i>	BC	
<i>Uncinia distans</i>	GJ	
<i>Uncinia ferruginea</i>	BC	Hooked sedge
<i>Uncinia sylvestris</i>	GJ	
<i>Uncinia uncinata</i>	BC	Kamu

### RUSHES

* <i>Juncus tenuis</i>	BC	Track rush
<i>Luŕula picta</i> var. <i>picta</i>	BC	Painted woodrush

### OTHER MONOCOTYLEDONOUS HERBS

<i>Astelia fragrans</i>	BC	
<i>Astelia solandri</i>	BC	
<i>Astelia trinervia</i>	GJ	
<i>Collospermum microspermum</i>	BC	
<i>Collospermum hastatum</i>	JL	
<i>Dianella nigra</i>	BC	Turutu