Field Trip: Coromandel Peninsula, Auckland Anniversary Weekend 28/01/05 to 1/02/05

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Abstract

Thirty two Auckland Bot Soc members were based at Te Kouma for the Anniversary weekend camp from 28th January to 1st February 2005. Notable native plants recorded were the coastal shrub *Pomaderris rugosa*, which we found fairly commonly on open banks in the Te Kouma area; *Metrosideros albiflora* and *Brachyglottis myrianthos* in the Manaia Forest Sanctuary of Coromandel Forest Park; *Ascarina lucida* and *Pseudopanax laetus* at 530 m in the Mahakirau Forest Estate; parapara (*Pisonia brunoniana*), *Macropiper excelsum* subsp. *excelsum* and *Streblus banksii* on Motuoruhi (Goat Island); *Hebe pubescens* subsp. *pubescens* – the common koromiko on coastal Coromandel cliffs, including the islands; *Alseuosmia quercifolia* and *Libertia ixioides* on the Te Kouma Peninsula; and *Korthalsella salicornioides* and *Austrofestuca littoralis* at Otama Beach. Significant exotic environmental weeds encountered were Mexican devil weed (*Ageratina adenophora*) on Motuoruhi and Motutapere, and elsewhere, bordered panic grass (*Entolasia marginata*) at Te Kouma and the Mahakirau Forest Estate, and yellow sedge (*Carex demissa*) in the Mahakirau Forest Estate. Australian ice plant (*Carpobrotus glaucescens*) was recorded at Otama Beach – a new plant record for New Zealand. Highlights were visiting "Tanenui" – the biggest kauri tree on the Coromandel Peninsula (and sixth biggest in New Zealand), and seeing the huge parapara trees on Motuoruhi.

Introduction

The 2005 Anniversary Weekend camp was held on the Coromandel Peninsula, based at the Te Kouma Harbour Farmstay at the head of Te Kouma Harbour about 8 km south of Coromandel town. Our accommodation was comfortable and the location convenient for exploring the botany of the western side of the Coromandel Peninsula. Those at the camp were: *Tricia Aspin, Wayne Aspin, Enid Asquith, Paul Asquith, Jan Butcher, Lisa Clapperton, Colleen Crampton, Gwenda Cruickshank, Brian Cumber, Gael Donaghy, Gladys Goulstone, Leslie Haines, Betty Headford, Graeme Jane, Wyne Johns, Elaine Marshall, Carol McSweeney, Garry McSweeney, John Millett, Helen Preston-Jones, C.J. Ralph, Carol Ralph, Juliet Richmond, John Rowe, Stella Rowe, Gabi Schmidt-Adam, Doug Shaw, Nancy Smith, Shirley Tomlinson, Alison Wesley, Mike Wilcox, Maureen Young*. Visitors were: *John Smith-Dodsworth*, *Joanna Smith-Dodsworth* and *Joseph Smith-Dodsworth*. The food was expertly organised by *Maureen Young*, and included smoked trout courtesy of angler *John Millett*, and smoked snapper supplied by *C. J. Ralph* – regular visiting summer migrant ornithologist and outdoorsman from California. Our local guides in the field were: *Danny Hitchcock*, *Dick McNair*, *John Smith-Dodsworth* and *Ian James*.

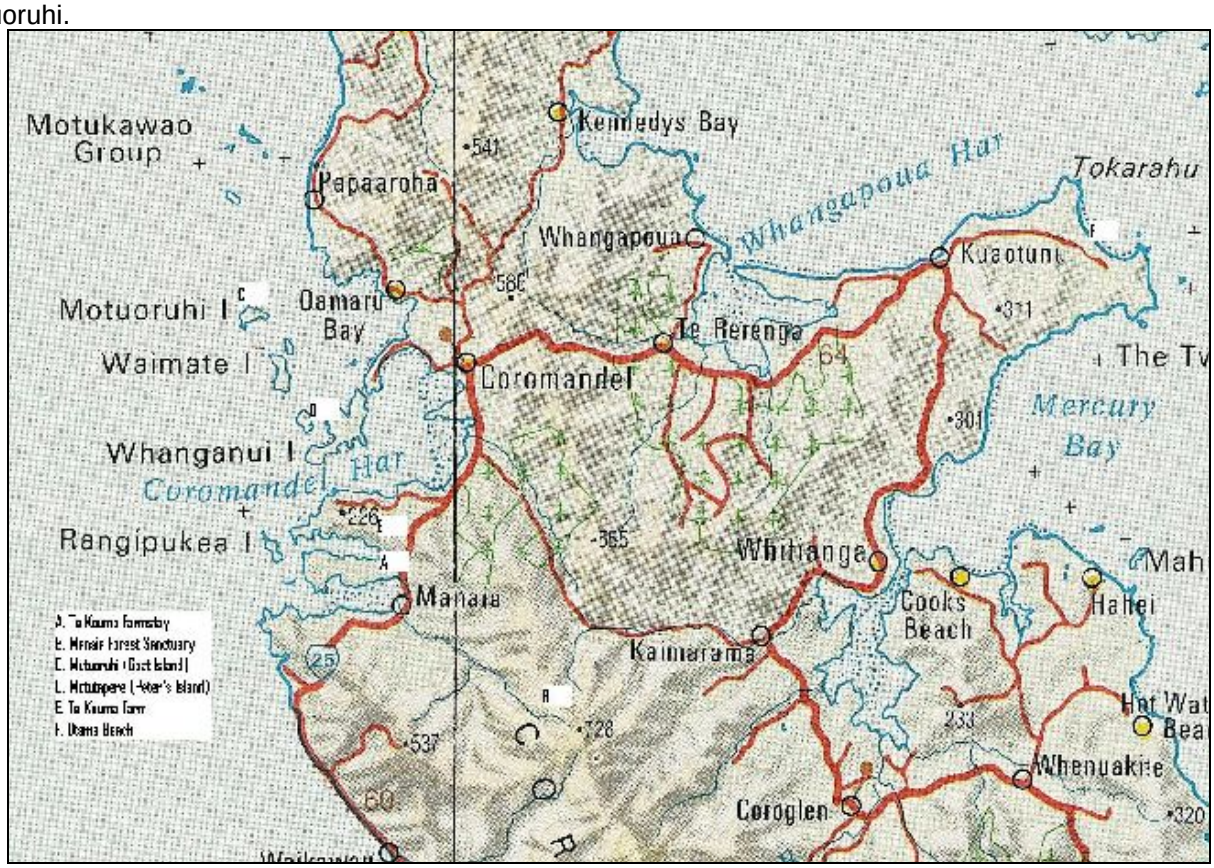

Fig. 1. Location map showing the places visited on the Coromandel Peninsula.

Upper Te Kouma Harbour

We began the programme in the late afternoon of Friday 28th January with a walk from camp to the southern shore of Te Kouma Harbour. Firstly, some grasses. Under pines and on the fringes were masses of bordered panic grass (*Entolasia marginata*) – a weedy Australian invader – and also some patches of the native hedgehog grass (*Echinopogon ovatus*) and *Microlaena stipoides*. We found *Poa anceps*, danthonia (*Rytidosperma racemosum*), cocksfoot (*Dactylis glomerata*), sweet vernal (*Anthoxanthum odoratum*), plume grass (*Dichelachne crinita*) and *Dichelachne inaequiglumis* plentifully on coastal banks, and fern-grass (*Catapodium rigidum*) growing along the edge of the coastal track.

Sedges were also very much in evidence in the fringing wetlands and salt meadows, and also in the bush. We recorded *Baumea juncea*, *Baumea rubiginosa*, *Bolboschoenus medianus*, *Carex breviglumis*, *Carex lessoniana*, *Carex flagellifera, Carex maorica*, *Carex secta*, *Carex virgata*, *Cyperus brevifolia*, *Cyperus eragrostis, Cyperus ustulatus*, *Gahnia lacera*, *Ficinia nodosa, Isolepis sepulcralis, Lepidosperma laterale* and *Uncinia uncinata*. Other monocots of note were raupo (*Typha orientalis*), oioi (*Apodasmia similis*), *Dianella nigra*, *Triglochin striata, Paspalum vaginatum, Juncus articulatus*, *Collospermum hastatum*, *Cordyline pumilio*, *Astelia banksii*, *Earina mucronata* and – perhaps the highlight of this site – *Winika cunninghamii* in full flower.

Fig. 2. Te Kouma Harbour.

As to trees and shrubs, both radiata pine (*Pinus radiata*) and maritime pine (*Pinus pinaster*) occur here, the former planted and the latter most likely self-sown. Large pohutukawa trees (*Metrosideros excelsa*) grow scattered along the shoreline, hosting the aforementioned epiphytic orchids, and remnant coastal forest was dominated by puriri (*Vitex lucens*), karaka (*Corynocarpus laevigatus*), kanuka (*Kunzea ericoides*), kohekohe (*Dysoxylum spectabile*) and kowhai (*Sophora chathamica*). Shrubs of note were houpara (*Pseudopanax lessonii*), mahoe (*Melicytus ramiflorus*), manuka (*Leptospermum scoparium*), rugose kumarahou (*Pomaderris rugosa*), karamu (*Coprosma robusta*), coastal karamu (*Coprosma macrocarpa* subsp. *minor*), mingimingi (*Leucopogon fasciculatus*), akepiro (*Olearia furfuracea*), which was in flower. Short mangroves (*Avicennia marina*) filled the head of the harbour. Vines recorded were *Parsonsia heterophylla*, *Clematis cunninghamii* and *Metrosideros perforata*.

Native herbs seen were *Geranium retrorsum, Haloragis erecta*, *Wahlenbergia violacea*, *Dichondra repens,* and *Samolus repens*. Herbaceous plants noted included many adventives: hedge woundwort (*Stachys sylvatica*), Brazilian fireweed (*Erechtites valerianifolia*), Mexican devil (*Ageratina adenophora*), parsley dropwort (*Oenanthe pimpinelloides*), spreading hedge parsley (*Torilis arvensis*), prickly lettuce (*Lactuca serriola*), and on the shore, orache (*Atriplex prostrata*) and the native goosefoot (*Chenopodium ambiguum*).

Ferns were prominent, abundant ones being *Doodia australis, Asplenium polyodon*, *A. oblongifolium*, *A. flaccidum*, *Microsorum pustulatum*, *Pteris tremula*, *Cyathea medullaris*, *Adiantum cunninghamii* and *Pteridium esculentum*.

Mahakirau Forest Estate and Manaia Forest Sanctuary

Mahakirau Forest Estate is a large block of logged-over native bush immediately to the south of the summit of the 309 Road on the Coromandel Range. It is privately owned in 25 separate lots, each with its own bush and house site, and the Estate has its own sealed access road, originally an old kauri logging road. On Saturday 29 January 2005 Danny Hitchcock and Dick McNair, our guides, met us at the gate on the 309 Road from where (by kind permission of the owners) we drove in about 8 km to the end of the seal and parked (lat. 36º 52.515', long. 175º 32.318', alt. 507 m.). Botanising started immediately, with the discovery of the exotic sedge *Carex demissa* growing plentifully along the old overgrown logging road, accompanied by the native *Carex dissita* and dense growth of bordered panic grass (*Entolasia marginata*). There was gorse (*Ulex europaeus*) here too (ouch!). The regenerating bush edge had some good examples of *Pseudopanax laetus* (as well as *Pseudopanax arboreus*), and we also found hinau (*Elaeocarpus dentatus*), hutu (*Ascarina lucida*), pigeonwood (*Hedycarya arborea*), *Raukaua edgerleyi*, and much wineberry (*Aristotelia serrata*).

We reached an elevation of 573 m on the Coromandel Range divide, looking down to Whitianga to the east and Te Kouma to the west, from where (after a welcome and karakia from Danny) we descended steadily into the great forested catchment of Kakatarahae Stream – the Manaia Forest Sanctuary, covering c. 489 ha, the highest point of which is Kakatarahae Trig at 725 m. The country is steep but we all found the going manageable along what was an

ancient logging track dating to an episode of kauri logging in about 1880, when many of the smaller kauri were cut out. About 300-400 big kauri trees were spared. Many years later (with logging about to resume) the catchment was given enduring protection when it was gazetted in 1973 by an Act of Parliament as the Manaia Forest Sanctuary. The late Prof. Frank Newhook and other staff members of the University of Auckland's Botany Department played a very active and successful part in the campaign at the time to convince Minister of Forests Duncan McIntyre that the Manaia kauris must be permanently protected.

During the course of the day our group visited several big kauri trees including "Tanenui" (lat. 36º 53.567', long. 175º 32.497', alt. 272 m). This splendid tree is a healthy specimen of majestic form (Burstall & Sale 1984) and with a girth of 11 m, located south of the Kakatarahae Stream, and up the slope a short distance. Further on up the slope is Coromandel's "fattest" tree – the kauri known as No. 251, boasting a girth of 12.1 m. (cf. Waipoua's giants - Te Matua Ngahere 16.4 m and Tane Mahuta 13.8 m). The bulk of the big kauri trees seemed to be on the mid to upper north-facing slopes at an altitude of 300-500 m.

Fig. 3. The biggest Coromandel kauri, "Tanenui", Manaia Forest Sanctuary.

Ahmed and Ogden (1987) investigated the age and growth rate of Manaia kauri trees ranging in diameter from 54 cm to 298 cm, and concluded that trees of 2 m diameter had an average age of c. 1100 years, and those of >3 m diameter (such as "Tanenui") could be as old as 1700 years. Altogether, the Manaia Forest Sanctuary contains 10 of the 30 biggest kauri trees on the Coromandel Peninsula and is truly a last refuge of ancient trees. Sadly, a number of them are moribund due to the damage inflicted on them many years ago for resin bleeding. Interestingly we saw no ricker stands, but rather a sprinkling of rickers in gaps.

Below the huge emergent kauri the most common canopy associates in this forest were "the four t's" - tawari (*Ixerba brexioides*), towai (*Weinmannia silvicola*), tawheowheo (*Quintinia serrata*) and tawa (*Beilschmiedia tawa*) – together with Hall's totara (*Podocarpus hallii*), and miro (*Prumnopitys ferruginea*). Hall's totara was quite a feature of the area. A few big northern rata (*Metrosideros robusta*) were also seen. Conspicuous plants on the ground were *Gahnia pauciflora* (we had never seen so much of it), *Astelia trinervia*, *Blechnum fraseri*, *Libertia micrantha*, *Sticherus cunninghamii*, and in the understorey was *Dracophyllum latifolium*, *Brachyglottis kirkii* var. *angustior*, *Coprosma lucida*, *Leucopogon fasciculatus*, and *Olearia rani*. One plant was found of the shrub, *Brachyglottis myrianthos*.

Beside the Kakatarahae Stream (which is a major tributary of the Manaia River, draining to the west into Manaia Harbour) some of our group saw a Hochstetter's frog (*Leiopelma hochstetteri*), but birdlife was sparse – just an occasional bellbird and tomtit, but no kaka. Of note were several nasty slips just below the crest of the main ridge – evidently the aftermath of the severe rainstorms experienced on the Coromandel Peninsula in the June 2002 "weather bomb" which did a lot of damage to baches and property north of Thames.

We did not go on to the top of the Kakatarahae ridge (600-725 m) – a mist-shrouded rainy place much of the time - but the vegetation here has been well described by Burns (1984). It is montane scrub forest of short stature, designated by Nicholls (1971) as the "highland and steepland softwoods-hardwoods" type. A few kauri and rimu emerge above a dense canopy of, again, "four t's" - this time, towai, tawari, tawheowheo, and toro (*Myrsine salicina*), and with one patch of kaikawaka (*Libocedrus bidwillii*) around the summit. Associated subcanopy and shrub species are neinei (*Dracophyllum traversii*), *Pseudopanax colensoi*, *Pseudowintera axillaris*, *Cyathea smithii*, heketara (*Olearia rani*), and *Griselinia littoralis*, southern rata (*Metrosideros umbellata*), swamp maire (*Syzygium maire*), putaputaweta (*Carpodetus serratus*) and coprosmas (*Coprosma colensoi*, *Coprosma arborea*).

Our big day out in the Coromandel Range bush was completed with a visit to the house in the bush of *Tim* and *Jude Hooson* of Lot 2, Mahakirau Forest Estate, where we enjoyed refreshments and learning about the history and management of the Estate and of the battle they are having with stoats and rats. We also had a great view north to Castle Rock (521 m) – the summit of which has an interesting flora, including *Olearia townsonii*, *Celmisia adamsii*, *Leionema nudum*, *Pittosporum huttonianum*, *Chionochloa conspicua*, *Hebe macrocarpa* and *Gaultheria paniculata* (Clarkson and Smith-Dodsworth 1992).

Species List: Manaia Forest sanctuary and Mahakirau Estate
 # Burns (1984)

Ferns and fern allies

Adiantum cunninghamii
Adiantum hispidulum
Anarthropteris lanceolata
Asplenium bulbiferum
Asplenium flaccidum
Asplenium oblongifolium
Asplenium polyodon
Blechnum chambersii
Blechnum colensoi
Blechnum discolor
Blechnum filiforme
Blechnum fluviatile
Blechnum fraseri
Blechnum membranaceum
Blechnum nigrum
Blechnum novae-zelandiae
Ctenopteris heterophylla
Cyathea dealbata
Cyathea medullaris #
Cyathea smithii
Dicksonia squarrosa
Doodia australis
Gleichenia dicarpa
Grammitis billardierei
Grammitis ciliata
Histiopteris incisa
Huperzia varia
Hymenophyllum armstrongii
Hymenophyllum demissum
Hymenophyllum dilatatum
Hymenophyllum ferrugineum
Hymenophyllum flabellatum
Hymenophyllum lyallii
Hymenophyllum multifidum
Hymenophyllum rarum
Hymenophyllum sanguinolentum
Hymenophyllum scabrum #
Hypolepis distans
Lastreopsis hispida
Leptopteris hymenophylloides
Lindsaea trichomanoides
Lycopodiella cernua
Lycopodium deuterodensum
Lycopodium scariosum
Lycopodium volubile
Lygodium articulatum
Microsorum scandens
Paesia scaberula
Pneumatopteris pennigera
Pteridium esculentum
Pteris tremula
Pyrrosia eleagnifolia
Rumohra adiantiformis
Schizaea dichotoma #
Sticherus cunninghamii
Tmesipteris elongata
Tmesipteris lanceolata
Tmesipteris tannensis
Trichomanes elongata #
Trichomanes reniforme
Trichomanes venosum

Conifers

Agathis australis
Dacrycarpus dacrydioides
Dacrydium cupressinum
Libocedrus bidwillii #
Podocarpus hallii
Prumnopitys ferruginea

Dicot trees and shrubs

Alseuosmia macrophylla
Aristotelia serrata
Ascarina lucida
Beilschmiedia tarairi
Beilschmiedia tawa
Brachyglottis kirkii
Brachyglottis myrianthos
Brachyglottis repanda
Carpodetus serratus
Coprosma arborea
Coprosma colensoi
Coprosma grandifolia
Coprosma lucida
Coprosma robusta
Dracophyllum latifolium
Dracophyllum traversii
Dysoxylum spectabile
Elaeocarpus dentatus
Fuchsia excorticata
Geniostoma ligustrifolium
Griselinia littoralis #
Griselinia lucida
Hebe macrocarpa
Hebe stricta
Hedycarya arborea
Ixerba brexioides
Knightia excelsa
Kunzea ericoides
Laurelia novae-zelandiae
Leptospermum scoparium
Leucopogon fasciculatus
Litsea calicaris
Melicytus ramiflorus
Metrosideros robusta
Metrosideros umbellata #
Mida salicifolia
Myrsine salicina
Nestegis lanceolata
Olearia furfuracea
Olearia rani
Pittosporum cornifolium
Pittosporum kirkii
Pseudopanax arboreus
Pseudopanax colensoi #
Pseudopanax crassifolius
Pseudopanax laetus
Pseudowintera axillaris
Pseudowintera colorata
Syzygium maire #
Quintinia serrata
Raukaua anomalum #
Raukaua edgerleyi
Rhabdothamnus solandri
Schefflera digitata
Toronia toru
** Ulex europaeus*
Weinmannia silvicola

Dicot climbers

Clematis paniculata
Metrosideros albiflora
Metrosideros diffusa
Metrosideros fulgens
Metrosideros perforata
Muehlenbeckia australis
Parsonsia heterophylla
Rubus australis
Rubus cissoides
** Rubus fruticosus*

Daisy-like herbs

Anaphalioides trinervis
** Cirsium arvense*
** Crepis capillaris*
** Erigeron karvinskianus*
Euchiton audax
Euchiton gymnocephalus
** Gamochaeta purpurea*
Lagenifera pumila
** Senecio jacobaea*
Senecio minimus

Other dicot herbs

Acaena anserinifolia
** Callitriche stagnalis*
** Centaurium erythraea*
Centella uniflora
** Digitalis purpurea*
Epilobium nerteroides
Epilobium rotundifolium
Gonocarpus micranthus
Hydrocotyle dissecta
Hydrocotyle microphylla
Hypericum japonicum
Lobelia anceps
** Lotus pedunculatus*
Nertera depressa
Nertera dichondrifolia
Oxalis exilis
** Plantago lanceolata*
** Prunella vulgaris*
Ranunculus reflexus
Viola filicaulis
Wahlenbergia violacea

Monocot trees and shrubs

Cordyline banksii
Cordyline pumilio

Monocot climbers

Freycinetia banksii
Ripogonum scandens

Orchids

Drymoanthus adversus #
Earina autumnalis
Earina mucronata
Ichthyostomum (*Bulbophyllum*) *pygmaeum*
Microtis unifolia
Nematoceras (*Corybas*) *acuminatus*
Nematoceras (*Corybas*) "Kaimai" aff. *rivularis*
Petalochilus (*Caladenia*) *chlorostylus*
Pterostylis agathicola
Pterostylis banksii
Pterostylis cardiostigma
Singularybas (*Corybas*) *oblongus*
Thelymitra longifolia
Thelymitra pauciflora
Winika cunninghamii

Grasses

* *Agrostis capillaris*
* *Aira caryophyllea*
* *Anthoxanthum odoratum*
* *Axonopus fissifolius*
Cortaderia fulvida
* *Cortaderia selloana*
* *Entolasia marginata*
* *Eragrostis brownii*
* *Holcus lanatus*
Microlaena avenacea
Microlaena stipoides
* *Paspalum dilatatum*
* *Paspalum urvillei*
* *Polypogon fugax*
Rytidosperma biannulare
Rytidosperma gracile
* *Rytidosperma penicillatum*

Sedges

Baumea rubiginosa
* *Carex demissa*
Carex dissita
Carex geminata
Carex solandri
Eleocharis acuta
Gahnia pauciflora
Gahnia setifolia
Gahnia xanthocarpa
Isolepis inundata
Isolepis reticularis
Lepidosperma australe
Schoenus maschalinus
Schoenus tendo
Uncinia uncinata
Uncinia zotovii

Rushes

* *Juncus effusus*
* *Juncus microcephalus*
Juncus pauciflorus
Juncus planifolius
Juncus prismatocarpus
* *Juncus tenuis*
Luzula picta

Other monocots

Astelia fragrans
Astelia solandri
Astelia trinervia
Collospermum hastatum
Collospermum microspermum
Dianella nigra
Libertia micrantha
Luzuriaga parviflora

Motuoruhi or Goat Island

Sunday 30th January was given over to island botany, and despite a heavy wind warning, the mussel barge that had been hired for the job managed to get us to two islands and back with only a minimal amount of wetting. We headed out from the ramp at Sugarloaf in choppy seas and went through the narrow passage between Whanganui Island and the mainland, and passed close to bush-clad Rat Island, (Motukakarikitahi) and then through a gap in the mussel farm beside Motukopake Island, before going a further 1.8 km to Motuoruhi.

Fig. 4. Motuoruhi or Goat Island.

Motuoruhi, or Goat Island, is the outermost of the small islands that cluster in the Hauraki Gulf outside the Coromandel Harbour. It is Maori-owned. Its botany has been reported on by Newhook *et al*. (1971), Esler (1978), and Clarkson & Smith-Dodsworth (1992). The area is 64 ha and it is quite steep with some rocky bluffs, and rising to a peak of 169 m, so in the couple of hours available it was only possible to explore the valley leading up from the landing beach on the south eastern side of the island. The undoubted highlight was being guided by John Smith-Dodsworth to see parapara, *Pisonia brunoniana,* in a natural setting. There were many smallish trees, and one very large one, showing to perfection the huge, glossy leaves. A fallen branch enabled us to see how its peculiar soft parenchymatous layers of wood exfoliate when dead (Studholme & Philipson 1966; Meylan & Butterfield 1978). The wood of the family Nyctaginaceae has always been a bit of a puzzle (Carlquist 2004). The day was also a great opportunity to get to know the local koromiko, *Hebe pubescens*, which has hairy leaf margins and petioles, peduncles and calyces (Bayley *et al.* 2003).

The typical northern coastal forest included pohutukawa, very plentiful tawapou (*Pouteria costata)*, the large-fronded *Pteris comans*, the large-leaved milk tree (*Streblus banksii*), and thickets of wharangi (*Melicope ternata*). Young whau (*Entelea arborescens*), *Solanum americanum* and *Solanum nigrum* formed associations where there was a gap in

the canopy, making the most of the increased light. Of special interest was the kawakawa, which on this island had reasonably big, dull leaves and green petioles, whereas on the second island visited, being a few kms closer to the mainland, the petioles were purplish-brown, the mainland form. Newhook *et al*. (1971) called the Goat Island plants *Macropiper excelsum* var. *majus* - but they are really just a big-leaved form of *M. excelsum* ssp. *excelsum* (R. O. Gardner, *pers. comm*.).

Other ferns of interest included minute plants of *Asplenium hookerianum,* several nice clumps of the velvet fern *Lastreopsis velutina,* a small amount of *Arthropteris tenella*, and the newly reinstated *Polystichum wawranum*.

Recently-used petrel burrows were tucked among the pohutukawa roots in the eastern end of the valley. These were possibly burrows of the grey faced petrel which is a winter breeding bird and chicks would have fledged earlier this summer.

The boulder shore line had very plentiful native celery (*Apium prostratum*), shore bindweed (*Calystegia soldanella*) and coastal windgrass (*Lachnagrostis billardierei*), and the tiny composite *Senecio lautus* was common on cliffs. Jan Butcher spotted a fast-moving lizard among the boulders – most likely Smith's skink *(Oligosoma smithii*).

After leaving Motuoruhi, our skipper Daryl O'Keefe ferried us around Motuokino Island. This is a high steep rock stack with a cap of vegetation. *Sicyos* aff. *australis* (Brandon *et al.* 2004) scrambles over the base of the rock stack and we were able to view it from the barge.

Species List for Goat Is (Motuoruhi) SE Bay
 # Clarkson & Smith-Dodsworth (1992)

Ferns

Adiantum cunninghamii
Adiantum fulvum #
Arthropteris tenella
Asplenium bulbiferum
Asplenium bulbiferum x *A. flaccidum*
Asplenium haurakiense
Asplenium oblongifolium
Asplenium polyodon
Blechnum chambersii
Blechnum filiforme
Cyathea dealbata
Cyathea medullaris
Doodia australis
Hymenophyllum sanguinolentum
Hypolepis ambigua
Huperzia varia #
Lastreopsis microsora
Lastreopsis velutina
Lindsaea linearis
Lygodium articulatum
Microsorum pustulatum
Microsorum scandens
Polystichum wawranum
Pteridium esculentum
Pteris comans
Pteris tremula
Pyrrosia eleagnifolia

Dicot trees and shrubs

Alectryon excelsus
Avicennia marina
Beilschmiedia tarairi
Brachyglottis repanda
Carmichaelia australis
Coprosma arborea
Coprosma lucida
Coprosma macrocarpa ssp. *minor*
Coprosma repens
Coprosma rhamnoides
Coprosma robusta
Coriaria arborea
Corynocarpus laevigatus
Dysoxylum spectabile
Entelea arborescens
Fuchsia excorticata
Geniostoma ligustrifolium
Hebe pubescens
Knightia excelsa
Kunzea ericoides
Leptospermum scoparium
Leucopogon fasciculatus
Litsea calicaris
Macropiper excelsum ssp. *excelsum*
Melicope ternata
Melicytus novae-zelandiae
Melicytus ramiflorus
Metrosideros excelsa
Myoporum laetum
Myrsine australis
Olearia furfuracea
Pimelea aff. *prostrata*
Pisonia brunoniana
Pittosporum crassifolium
Plagianthus divaricatus
Pomaderris aff. *phylicifolia*
Pouteria costata
Pseudopanax arboreus
Pseudopanax crassifolium x *P. lessonii*
Pseudopanax crassifolius
Pseudopanax lessonii
Rhabdothamnus solandri
Sophora chathamica
Streblus banksii
Vitex lucens

Dicot climbers

Clematis cunninghamii
Metrosideros perforata
Muehlenbeckia australis
Muehlenbeckia complexa
Parsonsia capsularis
Rubus cissoides

Daisy-like herbs

* *Ageratina adenophora*
* *Cirsium vulgare*
* *Crepis capillaris*
* *Gamochaeta coarctata*
* *Hypochoeris radicata*
* *Leontodon taraxacoides*
Pseudognaphalium "coast" *(pp P. luteoalbum)*
Senecio lautus
Senecio hispidulus
* *Sonchus asper*
* *Sonchus oleraceus*

Other dicot herbs

* *Anagallis arvensis*
Apium prostratum
* *Atriplex prostrata*
Calystegia soldanella
* *Centaurium erythraea*
Dichondra repens
Disphyma australe
* *Euphorbia peplus*
* *Geranium dissectum*
Gonocarpus incanus
Haloragis erecta
* *Kickxia elatine*
Linum monogynum

** Linum trigynum*
Lobelia anceps
** Lotus pedunculatus*
** Lotus suaveolens*
** Medicago nigra*
** Melilotus indicus*
Nertera depressa
** Orobanche minor*
Oxalis exilis
Pelargonium inodorum
Peperomia urvilleana
** Physalis peruviana*
** Phytolacca octandra*
** Polycarpon tetraphyllum*
** Ranunculus sardous*
** Sagina procumbens*
Sarcocornia quinqueflora
Solanum americanum
** Solanum nigrum*
** Trifolium dubium*
** Vicia sativa*
Vicia tetrasperma
Wahlenbergia violacea

Monocot trees and shrubs

Cordyline australis
Rhopalostylis sapida

Monocot climbers

Ripogonum scandens

Orchids

Acianthus sinclairii #
Diplodium (*Pterostylis*) *alobulum* #
Earina mucronata
Microtis unifolia
Pterostylis banksii
Thelymitra pauciflora

Grasses

** Aira caryophyllea*
** Avena barbata*
** Briza minor*
** Cortaderia selloana*
Dichelachne crinita
Echinopogon ovatus
** Holcus lanatus*
Lachnagrostis billardierei
Oplismenus hirtellus ssp. *imbecillis*
** Pennisetum clandestinum*
Poa anceps
Rytidosperma gracile
** Rytidosperma penicillatum*
** Sporobolus africanus*
** Vulpia bromoides*

Sedges

Carex breviculmis
Carex flagellifera
Carex geminata
Carex lambertiana
Carex solandri
Carex spinirostris
Carex virgata
Cyperus ustulatus
Ficinia nodosa
Gahnia lacera
Lepidosperma laterale
Morelotia affinis
Schoenus tendo
Uncinia uncinata

Other monocots

Astelia banksii
Astelia solandri
Collospermum hastatum
Dianella nigra
Phormium tenax

Motutapere or Peter's Island

Our second stop of the day was Motutapere - a steep island covered in scrub and bush with an area of 50 ha and highest point of 168 m. It is a Scenic Reserve under the jurisdiction of the Department of Conservation and is located close to the western coast of Whanganui Island. Locals know it as Peter's Island. Unlike Motuoruhi, this island wasn't dominated by houpara (*Pseudopanax lessonii*), but instead, flax, pohutukawa and mamangi (*Coprosma arborea*) were the most prominent plants.

We made a safe landing at full tide on a small boulder beach at the southern end and fanned out in all directions to record the plants. One group followed a steep defined route straight up the cliff through pohutukawa to an invertebrate research plot. Others of us struggled from the landing up to the ridge which leads to the top, with very difficult going at first as we encountered dense flax (*Phormium tenax*) and scratchy scrub of hangehange (*Geniostoma ligustrifolium*), koromiko (*Hebe stricta*), mingimingi (*Leucopogon fasciculatus*), mapou (*Myrsine australis*), coastal karamu (*Coprosma macrocarpa* ssp. *minor*), gorse (*Ulex europaeus*), *Gahnia lacera* and bracken (*Pteridium esculentum*). Once on the ridge we were able to follow a flagged animal control access track, through low kanuka with much *Coprosma arborea* and *Coprosma rhamnoides* beneath, and then into more open scrubby forest with plentiful native broom (*Carmichaelia australis*), mamangi, one akeake (*Dodonaea viscosa*), akepiro (*Olearia furfuracea*) – which was in flower, tutu (*Coriaria arborea*), rangiora (*Brachyglottis repanda*), kowhai and whau. Eventually we got into coastal broadleaved forest with some great specimens of taraire and a few puriri, tawa, rewarewa, karaka, pohutukawa, kohekohe, and, as observed by Stella and John Rowe, nikau palms with impressively large fronds – "real island stuff". There were attractive fern glades dominated by terrestrial *Blechnum filiforme, Arthropteris tenella, Asplenium lamprophyllum* and *Microsorum pustulatum*. In small clearings near the summit of the island were the grass *Echinopogon ovatus*, carpets of the moss *Ptychomnion aciculare* and the composite herb *Euchiton gymnocephalus.*

Fig. 5. Vegetation on Motutapere. In the background is Whanganui Island.

The island had obviously been going through a period of drought as we found many understorey species – particularly rangiora (which had particularly huge

leaves), wharangi, and coastal karamu – in a state of wilt. One of the botanical "finds" if it can be called that was a plot of a dozen 1 m tall *Cannabis sativa* plants secreted in the scrub above the landing place.

Familiar saltmarsh plants were present in the rocky terrain of the shoreline: *Selliera radicans, Samolus repens, Apium prostratum, Lobelia anceps, Ficinia nodosa, Isolepis cernua, Sarcocornia quinquefolia, Austrostipa stipoides, Plagianthus divaricatus.* Also we found *Asplenium haurakiense* and *Pyrrosia eleagnifolia* growing on a rock and *Triglochin striata* between rocks. There were even a few short mangroves (*Avicennia marina* ssp. *australasica*). Other plants recorded from the shoreline were *Bolboschoenus caldwellii*, *Cakile maritima, Calystegia soldanella, Cirsium vulgare, Muehlenbeckia complexa, Sonchus asper* and *Senecio lautus.*

As expected, no gymnosperms were present, except for *Pinus radiata* and *P. pinaster*. The worst weed was Mexican devil (*Ageratina adenophora*). Some of us had time for a quick swim before our mussel boat collected us and with the help of Garry McSweeney as a step, we piled on board and headed back to the boat ramp at the Sugarloaf.

Species list for Motutapere (Peter's Island) SE end
 # Clarkson & Smith-Dodsworth (1992)

Ferns and fern allies

Adiantum cunninghamii
Adiantum hispidulum
Anarthropteris lanceolata
Arthropteris tenella
Asplenium bulbiferum
Asplenium haurakiense
Asplenium lamprophyllum
Asplenium oblongifolium
Asplenium polyodon
Blechnum filiforme
Blechnum novae-zelandiae
Cyathea dealbata
Cyathea medullaris
Doodia australis
Hymenophyllum flexuosum #
Hymenophyllum sanguinolentum
Lastreopsis microsora
Lastreopsis velutina #
Lycopodium volubile
Lygodium articulatum #
Microsorum pustulatum
Microsorum scandens
Polystichum wawranum
Pteridium esculentum
Pteris saxatilis #
Pteris tremula
Pyrrosia eleagnifolia
Trichomanes reniforme #

Conifers

* *Pinus pinaster*
* *Pinus radiata*

Dicot trees and shrubs

Alectryon excelsus
Avicennia marina
Beilschmiedia tarairi
Beilschmiedia tawa
Beilschmiedia tawaroa #
Brachyglottis repanda
Carmichaelia australis
Coprosma arborea
Coprosma lucida #
Coprosma macrocarpa ssp. *minor*
Coprosma rhamnoides
Coprosma robusta
Coriaria arborea
Corynocarpus laevigatus
Dodonaea viscosa
Dysoxylum spectabile
Entelea arborescens
Geniostoma ligustrifolium
Hebe pubescens
Hebe stricta
Hedycarya arborea
Knightia excelsa
Kunzea ericoides
Leptospermum scoparium
Leucopogon fasciculatus
Macropiper excelsum ssp. *excelsum*
Melicope ternata
Melicytus micranthus
Melicytus ramiflorus
Metrosideros excelsa
Myrsine australis
Olearia furfuracea
Pisonia brunoniana #
Plagianthus divaricatus
Pomaderris rugosa #
Pouteria costata
Pseudopanax arboreus x *P. crassifolius*
Pseudopanax arboreus
Pseudopanax crassifolius x *P. lessonii*
Pseudopanax lessonii
Rhabdothamnus solandri #
Solanum aviculare #
Sophora chathamica
Streblus banksii #
* *Ulex europaeus*
Vitex lucens

Dicot climbers

Calystegia tuguriorum
Clematis cunninghamii
Clematis paniculata
Metrosideros fulgens
Metrosideros perforata
Muehlenbeckia complexa
Parsonsia capsularis
**Rubus fruticosus* agg.

Daisy-like herbs

* *Ageratina adenophora*
* *Cirsium arvense*
* *Cirsium vulgare*
* *Conyza albida*
* *Euchiton gymnocephalus*
* *Hypochoeris radicata*
Picris burbidgeae
Pseudognaphalium "coast"
Senecio hispidulus
Senecio lautus var. *lautus*
* *Sonchus oleraceus*
* *Taraxacum officinale*

Other dicot herbs

* *Anagallis arvensis*
Apium prostratum
* *Atriplex hastata*
* *Cakile maritima*
Calystegia soldanella
* *Cannabis sativa*
* *Centaurium erythraea*
Dichondra repens
Disphyma australe
* *Geranium dissectum*
Gonocarpus incanus
Haloragis erecta
Lobelia anceps
* *Lotus suaveolens*
* *Melilotus indica*
* *Melilotus officinalis*
Oxalis exilis
Parietaria debilis
Peperomia urvilleana
* *Physalis peruviana* #
* *Plantago lanceolata*
* *Polycarpon tetraphyllum*

Ranunculus reflexus
Samolus repens
Sarcocornia quinqueflora
Selliera radicans
Stellaria parviflora
** Verbascum thapsus*
** Vicia tetrasperma*
Wahlenbergia violacea

Monocot trees

Cordyline banksii
Rhopalostylis sapida

Monocot climbers

Ripogonum scandens

Orchids

Acianthus sinclairii
Diplodium (*Pterostylis*) *alobulum*
Pterostylis banksii

Grasses

** Aira caryophyllea*
** Anthoxanthum odoratum*
Austrostipa stipoides
** Avena barbata*
** Cortaderia jubata*
** Dactylis glomerata*
Dichelachne crinita
Echinopogon ovatus
Lachnagrostis billardierei
** Lolium perenne*
Oplismenus hirtellus ssp*. imbecillis*
** Paspalum dilatatum*
** Paspalum vaginatum*
** Pennisetum clandestinum*
Poa anceps
** Schedonorus phoenix*
** Stenotaphrum secundatum*
** Vulpia bromoides*

Sedges

Bolboschoenus caldwellii
Carex flagellifera
Carex lambertiana
Carex solandri
Cyperus ustulatus
Ficinia nodosa
Gahnia lacera
Isolepis cernua
Lepidosperma laterale
Schoenus tendo
Uncinia banksii
Uncinia uncinata

Other monocot herbs

Arthropodium cirratum
Astelia banksii
Astelia solandri
Collospermum hastatum
Dianella nigra
Phormium tenax
Triglochin striata

Te Kouma Farm

On our final full day, Monday 31st January, we visited Te Kouma Farm, courtesy of owner Ian James, who accompanied us for the day, together with Trevor and Nancy James, and Kate, Vanessa and Tristan James. Te Kouma Farm is a splendid coastal property running out to the entrance to Te Kouma Harbour and has several patches of native bush that have been carefully protected from stock and pests for about thirty years. The two main blocks we visited were on steep, south-facing slopes, and the highest point on the property is 227 m.

The bush is fairly typical coastal Hauraki Gulf forest such as occurs on Waiheke Island, with a 20 m canopy dominated by mamangi, kohekohe, taraire. together with karaka, towai (*Weinmannia silvicola*), pohutukawa (*Metrosideros excelsa*), pohutukawa-rata hybrids (*Metrosideros excelsa* x *M. robusta*), kanuka (*Kunzea ericoides*), lemonwood (*Pittosporum eugenioides*), pigeonwood, kowhai, rewarewa (*Knightia excelsa*), tawa, puriri, white maire (*Nestegis lanceolata*). Conifers are uncommon, with just a few kauri (*Agathis australis*), matai (*Prumnopitys taxifolius*), one or two tanekaha (*Phyllocladus trichomanoides*). Lemonwood was particularly common, with some trees as big as 40 cm dbh and 15 m in height.

The dense understorey and seral thickets were rich in species which included rangiora (*Brachyglottis repanda)*, heketara, akepiro, mingimingi, wharangi, five-finger, houpara, five-finger x houpara hybrids (of very varied leaf form), native broom, hairy koromiko (*Hebe pubescens*), mahoe, mapou, hangehange, kawakawa, willow-leaved maire (*Mida salicifolia*), turepo (*Rhabdothamnus solandri*), whau, putaputaweta, *Coprosma lucida, Coprosma rhamnoides* and *Alseuosmia quercifolia*.

Climbers noted were *Clematis paniculata*, *Clematis cunninghamii*, *Parsonsia heterophylla, Rubus cissoides*, *Metrosideros fulgens*, *Metrosideros perforata*, *Metrosideros diffusa*.

Monocots were prominent throughout and included nikau (*Rhopalostylis sapida*), supplejack (*Ripogonum scandens*), kiekie (*Freycinetia banksii*), *Microlaena stipoides*, *Oplismenus hirtellus*, *Rytidosperma gracile*, *Poa anceps*, *Echinopogon ovatus*, *Gahnia lacera* (very common), *G. pauciflora*, *Astelia solandri*, *Collospermum hastatum*, *Libertia ixioides*, *Uncinia banksii* (abundant), *Uncinia uncinata*, *Lepidosperma laterale*, *Schoenus tendo*, *Carex lambertiana*, *C. solandri*, dwarf cabbage tree (*Cordyline pumilio*), blue-berry (*Dianella nigra*), *Pterostylis banksii***,** *Earina mucronata* and *Ichthyostomum pygmaeum*.

This kind of forest can get very dry in the summer so the ferns on the slopes here were mainly the tougher, hardier ones, but with some moisture-loving species in the damp gullies. *Cyathea dealbata* and *C. medullaris* were the only tree ferns, whilst the dominant ground ferns were *Doodia australis*, *Adiantum fulvum* (very prominent), *A. cunninghamii*, *Asplenium oblongifolium*, *Pteris saxatilis* and *P. macilenta*. We found a few patches of filmy ferns - *Hymenophyllum demissum*, *H. rarum*, *H. sanguinolentum*, *Trichomanes reniforme*- and *Lindsaea linearis*. Damp, shady slopes had some impressive colonies of *Asplenium lamprophyllum*, together with *Lastreopsis glabella*, *Blechnum chambersii* and *Pneumatopteris pennigera*, while at the other extreme, *Pteridium esculentum* and *Paesia scaberula* were common on the grassy, open bush margins.

Species List for bush blocks at Te Kouma Farm

Ferns and fern allies

Adiantum cunninghamii
Adiantum fulvum
Anarthropteris lanceolata
Asplenium bulbiferum
Asplenium flaccidum
Asplenium lamprophyllum
Asplenium oblongifolium
Asplenium polyodon
Blechnum chambersii
Blechnum filiforme
Blechnum novae-zelandiae
Cyathea dealbata
Cyathea medullaris
Doodia australis
Hymenophyllum demissum
Hymenophyllum dilatatum
Hymenophyllum rarum
Hymenophyllum sanguinolentum
Huperzia varia
Lastreopsis glabella
Lindsaea linearis
Lycopodium deuterodensum
Lygodium articulatum
Pneumatopteris pennigera
Pteris macilenta
Pteris saxatilis
Pteris tremula
Pyrrosia eleagnifolia
Tmesipteris elongata
Tmesipteris lanceolata
Trichomanes reniforme

Conifers

Agathis australis
Dacrycarpus dacrydioides
Dacrydium cupressinum
Phyllocladus trichomanoides
Prumnopitys ferruginea
Prumnopitys taxifolia

Dicot trees and shrubs

Alseuosmia quercifolia
Beilschmiedia tarairi
Beilschmiedia tawa
Brachyglottis kirkii
Brachyglottis repanda
Carmichaelia australis
Carpodetus serratus
Coprosma arborea
Coprosma lucida
Coprosma macrocarpa ssp. *minor*
Coprosma rhamnoides
Coprosma robusta
Coriaria arborea
Corynocarpus laevigatus
Dysoxylum spectabile
Elaeocarpus dentatus
Geniostoma ligustrifolium
Hebe pubescens
Hedycarya arborea
Knightia excelsa
Kunzea ericoides
Leptospermum scoparium
Leucopogon fasciculatus
Litsea calicaris
Melicope ternata
Melicytus ramiflorus
Metrosideros excelsa
Metrosideros excelsa x *M. robusta*
Mida salicifolia
Myoporum laetum
Myrsine australis
Nestegis cunninghamii
Nestegis lanceolata
Olearia furfuracea
Pittosporum eugenioides
Pomaderris rugosa
Pouteria costata
Pseudopanax arboreus
Pseudopanax crassifolius
Pseudopanax crassifolius x *P. lessonii*
Pseudopanax lessonii
Rhabdothamnus solandri
Sophora chathamica
Vitex lucens
Weinmannia silvicola

Dicot climbers

Clematis cunninghamii
Clematis paniculata
Metrosideros diffusa
Metrosideros fulgens
Metrosideros perforata
Parsonsia heterophylla
Rubus cissoides

Daisy-like herbs

* *Hypochoeris radicata*

Other dicot herbs

Acaena anserinifolia
Acaena novae-zelandiae
Dichondra repens
Hydrocotyle dissecta
Hydrocotyle moschata
Lobelia anceps
Nertera depressa
Peperomia urvilleana
Ranunculus reflexus

Monocot trees and shrubs

Cordyline pumilio
Rhopalostylis sapida

Monocot climbers

Freycinetia banksii
Ripogonum scandens

Orchids

Earina mucronata
Ichthyostomum (*Bulbophyllum*) *pygmaeum*
Pterostylis banksii
Winika cunninghamii

Grasses

* *Anthoxanthum odoratum*
Dichelachne crinita
Echinopogon ovatus
Microlaena stipoides
Oplismenus hirtellus ssp. *imbecillis*
Poa anceps
Rytidosperma gracile

Sedges

Carex dissita
Carex flagellifera
Carex lambertiana
Carex solandri
Carex spinirostris
Gahnia lacera
Gahnia pauciflora
Gahnia setifolia
Lepidosperma laterale
Schoenus tendo
Uncinia banksii
Uncinia uncinata

Other monocots

Astelia solandri
Collospermum hastatum
Dianella nigra
Libertia ixioides
Typha orientalis

Otama Beach

John Smith-Dodsworth joined us for this extra day on Tuesday 1 February for the 15 of us who decided to postpone the trip home and avoid the heavy traffic returning from the long weekend. The first stop was at a wetland in Ernslaw One's Whangapoua Forest at Opitonui, beside SH 25 and at the start of the Castle Rock Road. Plants of note here were toetoe (*Cortaderia fulvida*), flax (*Phormium tenax*), *Eleocharis sphacelata*, *Baumea rubiginosa*, swamp panic grass

(*Isachne globosa*), and swamp bindweed (*Calystegia sepium*). A fernbird was heard, and the Ernslaw One forest ranger has heard bitterns here.

We continued on to Kuaotunu with John noting both *Olearia townsonii* and *O. furfuracea* in flower, and *Dracophyllum sinclairii*, and then jolted over the Black Jack Hill to Otama Beach. Beside the road as it comes down to the beach is an unremarkable (or so we first thought!) scrubby vegetation of karamu (*Coprosma robusta*), *Coprosma rhamnoides*, koromiko (*Hebe stricta*), manuka (*Leptospermum scoparium*), Spanish heath (*Erica lusitanica*), mingimingi (*Leucopogon fasciculatus*), mapou (*Myrsine australis*), and karo (*Pittosporum crassifolium*). But what John had brought us here to see was a population of the tiny hemiparasite, *Korthalsella salicornioides*, growing here in abundance on manuka, and also on Spanish heath and *Coprosma rhamnoides*. It was in fruit, too. The road verge had colonies of red-leg grass *Bothriochloa macra*.

Our last stopping place – and finale of the weekend – was Otama Beach. The plant we had come to see was sand tussock (*Austrofestuca littoralis*) which we saw in sparse, scattered colonies or single plants along the crest of the foredunes. This is the largest and one of a few populations surviving on the Coromandel Peninsula. The plants were shorter than we expected – perhaps, recent strong winds had buried the culms deeply beneath the sand. Another dune plant of special interest we noted was Australian ice plant (*Carpobrotus glaucescens*). This plant is not recorded in Flora Volume IV or any subsequent updates, and DOC has been treating it as *C. edulis*, with extermination the objective. The assemblage of dune plants comprised shore bindweed (*Calystegia soldanella*), sand coprosma (*Coprosma acerosa*), pingao (*Desmoschoenus spiralis*), spinifex (*Spinifex sericeus*), marram grass (*Ammophila arenaria*), shore cottonwood (*Ozothamnus leptophyllus*), sea rocket (*Cakile maritima*), shore oxalis (*Oxalis rubens*), tree lupin (*Lupinus arboreus*), golden sand dune carex (*Carex testacea*), harestail (*Lagurus ovatus*), sand wind-grass (*Lachnagrostis billardierei*), shore pohuehue (*Muehlenbeckia complexa*), sorrel (*Rumex acetosella*), ratstail (*Sporobolus africanus*), catsear (*Hypochoeris radicata*), hair grass (*Aira caryophyllea*), plume grass (*Dichelachne crinita*), shivery grass (*Briza maxima*), ripgut grass (*Bromus diandrus*), and knobby sedge (*Ficinia nodosa*). Sand coprosma is very common here and was in fruit (mostly white). Shore oxalis was in full flower, and was scattered but plentiful. Four hardy species of moss formed carpets in this seemingly hostile bryophyte environment – *Syntrichia princeps*, *Bryum capillare*, *Tortella rubripes* and *Triquetrella papillata*. Protected hollows in the dunes supported oioi (*Apodasmia similis*), *Baumea juncea*, and bracken fern (*Pteridium esculentum*).

Fig. 6. Sand dunes at Otama Beach.

The fringes of the lagoon and adjacent wetland had extensive stands of oioi, with sea rush (*Juncus kraussii*), *Paspalum vaginatum*, *Phormium tenax*, and on the margins, very tall *Juncus pallidus*, and shore ribbonwood (*Plagianthus divaricatus*).

And so at c.1.30 pm, botanised almost to a standstill, the group departed for home - some choosing to return via Coromandel Town and others going on south via Whitianga and over the Coroglen-Tapu Road or Hikuai-Kopu Road - to rest and reflect on what had been a very full long-weekend programme in a most picturesque and historic part of the country, with gold mining and kauri milling of the past long overtaken by gentle tourism, mussel farming, and pine forestry. Mike's last duty before departure was to stop in to see Dan Hansen of "Wilderland", Coroglen, and buy a pot of his delicious rewarewa honey.

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Acknowledgements
Thanks to Tim Hooson (Lot 6), Sean Marsh (Lot 22) and Mike Sean (Lot 25) of the Mahakirau Forest Estate for access through their land to the Manaia Forest Sanctuary; to Tim and Jude Hooson for hospitality and assistance with maps and references; to Danny Hitchcock for guidance in the field and for assistance with access arrangements; to Dick McNair for guidance to "Tanenui"; to John Gaukrodger, Finn Buchanan and Jason Roxburgh (Thames), Rob Chappell (Coromandel) and Andrea Brandon (Hamilton) of DOC for advice and assistance; to Bruce Burns of Landcare Research, Hamilton, for his 1984 report on the flora of the Manaia Forest Sanctuary; to John Smith-Dodsworth for guidance on Motuoruhi and at Otama; to Oho Nicholls and other owners of Motuoruhi for permission for our group to land on and explore the island; to Ian James and family of Te Kouma Farm for access to their bush and for their fine company and guidance; to Daryl O'Keefe of Snapper Safaris for our transport to the islands; to Heini and Teresa Gujer of Te Kouma Harbour Farmstay for our accommodation; to Jessica Beever for checking the identity of the Otama Beach mosses; and to all members of our group for their contributions to transportation, meals and species records, and for their cheerful company and admirable perseverance in the field.

Field Trip: Mahurangi West Regional Park. 19/02/05

Maureen Young

The field trip to Mahurangi West Regional Park explored two bush clad headlands within the park. Due to the Te Muri River having to be crossed at low tide, the more southerly of these was explored first. This is the northern headland of the Puhoi River. The main canopy trees here are large specimens of tawaroa (*Beilschmiedia tawaroa)*, and the dappled shade of the bush was a welcome relief from the blazing February sun. As usual, the presence of this species generated a great deal of discussion as to whether or not it is a good species. The consensus was that not all species have hard and fast boundaries. The later finding of a true tawa (*Beilschmiedia tawa*) made comparison possible. Other northern coastal species present were pohutukawa (*Metrosideros excelsa*), *Coprosma macrocarpa* subsp. *minor*, whau (*Entelea arborescens*), *Hebe macrocarpa* and *Olearia albida.* This latter species is only occasionally encountered, and of the two trees seen, one was very old and gnarled. Due to the heat, the intended picnic on Te Muri Beach was passed up in favour of lunch being eaten in the shade.

After lunch a considerably deeper river crossing was necessary. On the riverside dunes was a succulent adventive plant that caused much comment. This was saltwort (*Salsola kali*), a species that was very familiar to our Canadian visitor, Randy Olson. It was disappointing to observe here the plantings of Tasmanian ngaio (*Myoporum insulare*). On a shady bank near the river was a good population of the fern, *Arthropteris tenella,* and also a few plants of the velvet fern (*Lastreopsis velutina*).

The second headland, named Cudlip Point, had robust plants of *Pteris comans* growing along the track to the viewpoint on the clifftop. Good populations of *P. macilenta, P. saxatilis* and *P. tremula* completed the quartet. The presence of a large titoki tree satisfied those who were wondering why none had been seen, and along the clifftop can be found a thicket of *Melicope ternata*. On the walk back to the cars John earned a chocolate fish by finding a flowering bush of *Solanum aviculare*. Some ended the day with a swim at Sullivans Bay.

Those present were:
Colleen Crampton, Gwenda Cruickshank, Brian Cumber, Frances Duff, Robyn Gardner-Gee, Leslie Haines, Naomi Lorimer, Alistair McArthur, John Millett, Randy Olsen (from Saskatchewan, Canada), Margaret Peart, Josh Salter, Alison Wesley, Mike Wilcox, Maureen Young (leader).

Species List
This list of vascular indigenous plants was compiled by Graeme Hambly and Maureen Young on 22 January 2005, with additions by ABS on 19 February 2005.

Ferns & Fern Allies

Adiantum cunninghamii
Adiantum fulvum
Adiantum hispidulum
Anarthropteris lanceolata
Arthropteris tenella
Asplenium flaccidum
Asplenium gracillimum
Asplenium oblongifolium
Asplenium polyodon
Blechnum chambersii
Blechnum filiforme
Blechnum membranaceum
Blechnum novae-zelandiae
Cyathea dealbata
Cyathea medullaris
Dicksonia squarrosa
Doodia australis
Huperzia varia
Hypolepis ambigua
Lastreopsis microsora