

*Holcus lanatus**
Ichthyostomum pygmaeum
*Iris foetidissima**
Isachne globosa
Isolepis cernua
Isolepis distigmatosa
*Isolepis levynsiana**
Isolepis reticularis
*Isolepis sepulcralis**
Juncus australis
Juncus edgariae
*Juncus effusus**
Juncus kraussii
Juncus pallidus
Juncus planifolius
Juncus prismatocarpus
Juncus sarophorus
*Juncus tenuis**
Kniphofia uvaria var. *praecox**
Lachnagrostis billardiarei
Lachnagrostis filiformis
*Lagurus ovatus**
Lepidosperma australe
Libertia grandiflora
*Lilium formosanum**
Microlaena stipoides
Microtis unifolia
Morelotia affinis
Nematoceras "pygmy"
Nematoceras macranthum
Nematoceras trilobum
Oplismenus hirtellus subsp. *imbecillis*
Orthoceras novae-zelandiae
*Parapholis incurva**
Paspalum dilatatum
*Pennisetum clandestinum**

Petalochilus bartlettii
Petalochilus chlorostylus
Phormium tenax
Phyllostachys nigra var. *henonis*
Poa anceps
*Poa annua**
*Poa pratensis**
*Polypogon fugax**
Pterostylis agathicola
Pterostylis banksii
Pterostylis graminea
Rhopalostylis sapida
Ripogonum scandens
Rytidosperma biannulare
Rytidosperma clavatum
Rytidosperma gracile
*Rytidosperma penicillatum**
*Rytidosperma racemosum**
*Schedonorus arundinaceus**
Schoenus maschalinus
Schoenus tendo
*Setaria palmifolia**
Simpliglottis cornuta
Singularybas oblongus
*Sporobolus africana**
*Stenotaphrum secundatum**
Thelymitra longifolia
Thelymitra pauciflora
Typha orientalis
Uncinia banksii
Uncinia uncinata
Uncinia zotovii
*Vulpia bromoides**
*Watsonia aletroides**
*Watsonia meriana**
Winika cunninghamii

Waiuku Forest, 15 November 2008

Tricia Aspin

Attendance (13): Tricia Aspin (leader), Jan Butcher, Colleen Crampton, Pam Dale, Jo Fillery, Leslie Haines, Shelley Heiss-Dunlop, Lati Moodie, Suman Pancha, Harold Waite, Alison Wesley, Mike Wilcox, Maureen Young.

The day began with confusion for some, due to the recent removal of some road signs and because Tricia chose to come via the back road she was unaware that some were taking an extra tour — her apologies. Our visit was split into three parts. We began at the dams near the site of the old Headquarters, then drove through restricted areas to the coastal dune area and finally to a remnant of native bush, before exiting the forest near the Maioro Sandmine.

The area which is now the Waiuku Forest at Maioro was described in 1859 as a "perfect sea of sand" (von Hochstetter 1867: chapter XIII) and in 1864 by Rev.

Vicemus Rush as "almost utterly bare of vegetation" (Drummond 1882). In July 1869 T. F. Cheeseman collected matagouri (*Discaria toumatou*) from the sandhills near Waiuku (AK 5152) and Harry Carse wrote in 1901 that "I understand from Mr Petrie that *Discaria toumatou* occurs among the sandhills near the Waikato Head." (No chocolate fish for the spotting of this — a chocolate whale it would have to be!) Sand drift encroached rapidly, engulfing settlers' farms and even dwellings. In 1932 the area was taken over by the Public Works Dept. First there was the planting of marram (*Ammophila arenaria*) to stabilise the sand followed by tree lupin (*Lupinus arboreus*) to provide nutrients and shelter for the pines that were first planted in 1935.

Monterey pine (*Pinus radiata*) was the main species used as a basis for rotational timber production. A small area of Bishop pine (*Pinus muricata*) on the first

slope up from the narrow coastal dune strip and a somewhat tortured-looking but picturesque forest of maritime pine (*Pinus pinaster*) on the flat dune area next to the coast provide a buffer zone for the timber-producing radiata pines some 100m inland.

Wetlands at entrance

The small dam beside the site of the former Headquarters building is surrounded by an electric fence. Only one yelp confirmed the fact that this was indeed live! Here we were able to view the aquatic ferns, both the indigenous *Azolla filiculoides* and to a far lesser extent, the exotic *A. pinnata*. Samples of both species had been collected for close comparison. Contrary to what is generally happening elsewhere in the Auckland region, this dam surface was covered with a dense carpet of the native species with just a little of the exotic showing. There is a mix of exotic and native wetland species around the margin with most in flower for our visit. We had hoped to find *Sparganium subglobosum* here, and several small clumps were spotted with two or three in the early stages of flowering. A surprise was two small patches of *Blechnum penna-marina* growing on the very edge of the dam. These are underneath a tree planted several metres from the former small entrance garden of the headquarters Has this naturalised from a garden planting? A few other ferns included *Blechnum novae-zelandiae*, *Dicksonia squarrosa*, *Paesia scaberula* and *Pneumatopteris pennigera*.



Fig. 1. *Pinus pinaster*, Waiuku Forest, 15 Nov 2008.
Photo: Mike Wilcox.

Other species noted were *Epilobium pallidiflorum*, *Carex fascicularis*, *C. maorica*, *C. secta*, *Cyperus ustulatus*, *Schoenoplectus tabernaemontani* and *Persicaria decipiens*. The exotics *Apium nodiflorum*, *Cyperus congestus*, *Glyceria declinata*, *Isolepis sepulcralis* and *Juncus articulatus* are also present. Across the road is a larger wetland dominated by raupo (*Typha orientalis*). The native trees in the surrounds were all planted in the 1980s. Grey willow (*Salix cinerea*) is present in the wet. We viewed a portion of the area from outside the surrounding fenceline. Some extra species noted here included

Baumea rubiginosa, a small *Cyathea medullaris*, *Eleocharis acuta* and the exotic *Carex punctata*.

Pinus pinaster forest and dunes

To reach the next stop we carpoled and drove through an area of *Pinus radiata* forest in various stages of timber production not open to the general public. Up until a year ago blocks of forest had been leased for cattle grazing. The forest is mostly bare underneath or with pampas. The fern *Pteris tremula* is common but there are very few shrubs apart from *Coprosma rhamnoides*. As we dropped down to the coastal dunes we passed the block of Bishop pines before parking next to the Maritime pines on the flat. Some more rolling under an electric fence and immediately an area of a fine grass was of interest. A search did not reveal a flower, but when we returned to the cars later we found some, and confirmed this as *Poa pusilla*. *Carex "raotest"* is common in this forest (bi-folded leaves) and we were to observe this species taking on an almost golden colour where exposed to plenty of light and appearing greener and more lushly grown when shaded. We made a beeline towards the coast crossing the bridle path and threading our way through the pines which became more stunted and bent nearer the sea. The first sighting of the fern *Pellaea falcata* under the pines brought discussion on the possibility of a form intermediate with *P. rotundifolia*. Other ferns were *Asplenium flaccidum*, *A. oblongifolium*, *A. polyodon*, *Doodia australis*, *Microsorium pustulatum* and *Pyrrosia eleagnifolia* all in toughened forms to cope with extreme conditions. Noted in passing were orchids *Microtis unifolia*, *Thelymitra longifolia* (both in flower) and a colony of *Nematoceras trilobum*. Wind grass (*Lachnagrostis billardierei*), the exotics *Briza maxima*, *B. minor*, ripgut brome (*Bromus diandra*), veldt grass (*Ehrharta erecta*) and haretail (*Lagurus ovatus*) were all in flower. *Cortaderia splendens* and the exotic *C. selloana* grew side by side offering an opportunity for comparison (the weedy pampas has easily torn leaves



Fig. 2. *Pellaea falcata*, Waiuku Forest, 15 Nov 2008.
Photo: Mike Wilcox

and dead blades curl at the base of the plant). *Euchiton sphaericus*, *Tetragonia implexicoma* and *Wahlenbergia violacea* were also noted. Once out of the forest and onto the sandy dune track we viewed how the Waikato River is constantly eroding these soft landforms as it changes course in a northwards direction. Heading northwards we noted usual dune species, *Ficinia nodosa*, *Muehlenbeckia complexa*, *Oxalis rubens* (in flower), *Ozothamnus leptophyllus*, some *Spinifex sericeus* and in particular the occasional good clump of *Pellaea falcata*. Of special note was the orchid *Thelymitra pauciflora* (keeled leaf and deep cleft in the column) with three purplish flowers fully open. Unless it is warm and still (our day was perfect) this species refuses to open and simply self pollinates. Among the exotic species present were the occasional boxthorn (*Lycium ferocissimum*) and *Solanum chenopodioides* and one could not help but admire the beauty of a meadow of catchfly (*Silene gallica*) and yellow serradella (*Ornithopus pinnatus*) intermingled with a profusion of harestail and *Briza* spp.



Fig. 3. *Thelymitra pauciflora*, Waiuku Forest, 15 Nov 2008. Photo: Mike Wilcox

We looped back into the pines for lunch and followed the bridle path back to the cars. We saw a few kawakawa (*Macropiper excelsum*), mapou (*Myrsine australis*), mahoe (*Melicytus ramiflorus*), several more *Pellaea falcata* as well as another *Thelymitra pauciflora* in flower.

Bush remnant

After a brief stop at the Lookout we drove to visit a small bush portion. The aim was to view *Olearia albida* and hopefully the small daisy *Lagenifera stipitata*. A pleasant walk along a bridle path, then through some tall pampas took us up to the bush area. Storms from last July have wreaked havoc and several large kanuka have succumbed. There are a dozen or so mature *Olearia albida* here, the distinct white backs of the leaves giving lie to its name. Other species include *Carmichaelia australis*, *Cordyline australis*, *Coprosma rhamnoides* (common), *Corokia cotoneaster*, *Dodonaea viscosa*, *Melicytus ramiflorus* (common), *Myrsine australis* and *Pseudopanax lessonii*. Now that cattle have been removed many seedlings are present. Ferns include *Pellaea rotundifolia* and *Polystichum neozelandicum*. Some *Poa pusilla* and much *Carex* "raotest" are here, and veldt grass is ever present. A highlight was to find *Lagenifera stipitata* on a small semi-open ridge still in full flower. The flower is much smaller and on a longer stem than the better known *L. pumila*.

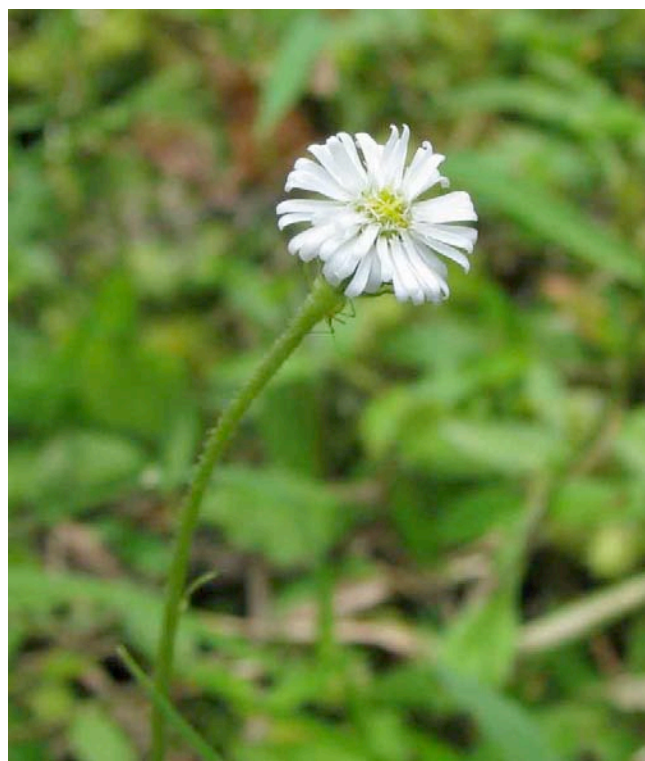


Fig. 4. *Lagenifera stipitata*, Waiuku Forest, 15 Nov 2008. Photo: Mike Wilcox

On returning to the cars we drove through areas of forest replanted after sand mining. The pines here look very nitrogen-deficient. After exiting through the fifth locked gate of the day we stopped at the Sandmine information board and viewed the extensive reedbeds of American bulrush (*Schoenoplectus californicus*) in Maioro Bay on the Waikato River before returning to the old Headquarters to conclude the day. Around thirty new plants were added to Tricia's basic list of known species.

Acknowledgements

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References

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Indigenous Vascular Plants of Waiuku Forest and Dunes 15 November 2008

Ferns

Adiantum hispidulum
Asplenium flaccidum
Asplenium oblongifolium
Asplenium polyodon
Azolla filiculoides
Blechnum novae-zelandiae
Blechnum penna-marina
Cyathea medullaris
Dicksonia squarrosa
Doodia australis
Microsorium pustulatum
Paesia scaberula
Pellaea falcata
Pellaea rotundifolia
Pneumatopteris pennigera
Polystichum neozelandicum
Pteridium esculentum
Pteris tremula
Pyrrosia eleagnifolia

Gymnosperms

Podocarpus totara (sapling)

Dicotyledons

Carmichaelia australis
Coprosma repens
Coprosma rhamnoides
Coprosma robusta
Corokia cotoneaster
Dodonaea viscosa
Epilobium pallidiflorum
Euchiton sphaericus
Geniostoma ligustrifolium
Geranium homeanum
Knightia excelsa
Kunzea ericoides
Lagenifera stipitata
Leptospermum scoparium
Leucopogon fasciculatus
Macropiper excelsum
Melicytus ramiflorus
Myrsine australis

Muehlenbeckia complexa
Olearia albida
Ozothamnus leptophyllus
Oxalis rubens
Parsonsia heterophylla
Persicaria decipiens
Pseudopanax lessonii
Senecio biserratus
Solanum americanum
Tetragonia implexicoma
Wahlenbergia littoricola
Wahlenbergia violacea
Vitex lucens

Monocotyledons

Apodasmia similis
Baumea rubiginosa
Carex fascicularis
Carex maorica
Carex "raotest"
Carex secta
Cordyline australis
Cortaderia splendens
Cyperus ustulatus
Eleocharis acuta
Ficinia nodosa
Juncus edgariae
Juncus pallidus
Juncus planifolius
Lachnagrostis billardierei
Lemna minor
Microlaena stipoides
Microtis unifolia
Nematoceras trilobum
Oplismenus hirtellus
Phormium tenax
Poa pusilla
Schoenoplectus tabernaemontani
Sparganium subglobosum
Spinifex sericeus
Thelymitra longifolia
Thelymitra pauciflora
Thypha orientalis