

citrifolia), which produces a red and a yellow color; turmeric (*Curcuma longa*), which produces a yellow;



Fig. 5. Demonstration of candlenut use, Mauke, Cook Islands. Photo: Art Whistler, 1985.

and candlenut (*Aleurites moluccana*), which produces a black and, to a lesser extent, a brown. The canoe plant kava (*Piper methysticum*) was one of the most important plants in Polynesia. A sedative or mildly narcotic drink called by the same name is made from its pounded roots. The canoe plant candlenut cited above as a dye plant was used for lighting (Fig. 5)

throughout Polynesia (except New Zealand). Ornamental plants were relatively scarce in ancient Polynesia, but the most important ones were ti plant (cited above); pua (*Fagraea berteriana*), which is native into eastern Polynesia; red hibiscus (*Hibiscus rosa-sinensis*), which is a canoe plant carried eastward as far as the Marquesas; ilangilang (*Cananga odorata*), which is a canoe plant in western Polynesia; and Tahitian gardenia (*Gardenia taitensis*), which is native to western Polynesia but a canoe plant east of that.

Conclusions

In summary, ancient Polynesians discovered and settled nearly every inhabitable island in the region. The native flora of the islands was insufficient to meet the needs for survival or a good life. In order to successfully survive on the newly discovered islands, the settlers carried a suite of plants ("canoe plants") to meet their needs not met by native plants. The farther into the Pacific from the center of dispersal (Western Polynesia), the fewer successfully introduced canoe plants there were (e.g., ca. 60 in Tonga, c. 27 in Hawai'i). Only about six canoe plant species were successfully introduced to New Zealand by the Maoris, mainly because canoe plants are tropical, and did not survive or thrive in temperate New Zealand. The most important Maori canoe plant was sweet potato. Because of the paucity of canoe plants and the colder climate in New Zealand, the Maoris relied almost exclusively on native plants, the major exception being the sweet potato.

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Waipoua Forest Labour Weekend camp, 22-26 October 2010

Maureen Young

Introduction

Thanks largely to the efforts of Professor W.R. McGregor (1894-1977), who ran an energetic campaign in the 1940s to put an end to logging in Waipoua Forest, 9105 ha of kauri forest was dedicated as a sanctuary in 1952. Since the 1980s the Native Forest Restoration Trust (NFRT) has been buying land in the neighbourhood of the forest with the objective of restoring degraded ecosystems and extending the boundaries of the forested area. The Waipoua Forest Trust, with Stephen King as its prime mover, is an off-shoot of the NFRT, and as a millennium project has undertaken to re-introduce kauri to restore the southern Waipoua catchment. Stephen was our leader and inspiration for the weekend.

Trip participants: Helen Cogle, Bev & Geoff Davidson, Kristy Hall, James Luty, Val Tomlinson, Alison Wesley, Diana Whimp, Maureen Young (camp mother).

Friday (22 Oct)

All arrived at McGregor House in time for dinner, though it was late dining for the car-load that forgot to bring instructions for the location of our accommodation.

Saturday (23 Oct)

We first drove to Hood Road to get a hilltop overview. To the south could be seen Maunganui Bluff - the mountain of Te Iwi O Te Roroa - the eroded remnant of a volcano that was situated 11 km out to sea and was the source of the Waipoua basalt. Here Stephen

acquainted us with his vision to restore the lowland forest over a large area, thus giving an uninterrupted sequence from the puriri-nikau-kahikatea lowland forest, through the mid-slopes with kauri-taraire forest, to the ranges with towai-tawa-rimu and other podocarps. Some of us were rather surprised that his restoration plans include occasional plantations of *Pinus radiata*. As there are few weed trees in the area and with such a huge seed source all around, a native forest quickly establishes under pines. When the pines are felled very natural vegetation is left to grow.

On driving along Marlborough Road to the NFRT McGregor Memorial Reserve, we stopped at a block where pines had been removed some 12 years ago. The regeneration of a varied forest was well underway with trees c. 4 m high. The Waipoua Forest Trust removes wilding pines as they appear, working on the theory that attending to biosecurity is a more natural way to revegetate than planting. They teach visitors that biosecurity is the number one principle of nature conservation because of the far-reaching and often irreversible effects of introduced pests on natural systems. Accordingly their highest priority is dealing to weeds in the surrounding landscape in gardens, roadsides etc. They cover the weed dispersal zone around the land and use that as their buffer area (10 km for some species). The message is that everyone can do something to protect the natural habitats of our unique botanical treasures by being careful about what they grow at home. If it's likely to jump the fence, don't plant it!

At the reserve we were shown the ridge that was in rough pasture 20 years ago. The Trust used the now proven method of double-discing the land so that a wide swathe of soil is laid bare. When manuka seeds are broadcast (or seedlings planted) this gives them a chance to germinate and/or grow without competition from long grass. Although the lines of plants so produced look rather unnatural, in no time at all seedlings of local species establish between the lines. After 20 years the manuka is collapsing and the very best sort of regeneration is well underway. Unfortunately, the considerable pig damage we saw there (and the long line of pig skins on a nearby fence) gave us an idea of the scale of a problem that is plaguing the whole of the Waipoua Forest.

A lunch stop at the Tane Mahuta car park gave us a chance to distinguish between the tree ferns *Cyathea medullaris* and *C. cunninghamii*. On the short walk to the largest surviving kauri tree we noted the short-trunked tree fern, *Dicksonia lanata*, and the handsome white flowers of *Metrosideros albiflora* (Fig. 1). Stephen pointed out a mistletoe, *Ileostylus micranthus*, growing high in the tree-tops.

Stephen then guided us off-track to an area near Tarahoka, an old Maori clearing burnt over many

centuries for catching kiwi, now in gumland vegetation. It is mostly boggy *Gleichenia-Leptospermum-Baumea* heath land and a nice surprise was a good population of the sedge, *Baumea complanata* (Nationally Vulnerable). The plants here are more robust than those growing at Ngawha Springs, with large seed panicles and culms 2 m tall and 2 cm wide. They retain this robust form in growth trials (S. King pers. comm.).



Fig. 1. *Metrosideros albiflora*. All photos: A. Wesley, taken during the field trip.

The heath land soon gave way to a moist, primeval kauri forest where the processes of decay and new life were displayed before our eyes. We saw huge kauri logs, ranging from those recently fallen and supporting a covering of bryophytes, orchids, notably *Nematoceras acuminatum*, and tree seedlings, to ones that had completely rotted away but whose former presence was marked by a line of replacement kauri that had started life on the logs and have prop roots to show for it. Most of the crown had blown out of a tree that had the same girth as Tane Mahuta, and only one branch remained alive. The crown had landed upside down on branch "legs" and standing under it was a strange topsy-turvy experience.

Interesting plants abounded. One of the first to catch our attention was the form of *Aleuosmia* that has long, narrow leaves with entire margins, and in this case the plants were bearing copious chocolate/pink flowers (Fig. 2). The grass that is seldom seen other than in Waipoua Forest, *Microlaena carsei*, was reasonably common. Both the common *Dianella nigra* and *D. haemata* with deep reddish-purple sheaths at the bases of the leaves, were present. The so-called "pines" had us puzzled. Was it silver pine (*Manoao colensoi*) that we were seeing, or yellow-silver pine (*Lepidothamnus intermedius*)? On reflection, it was probably the former. Another "pine" was the more easily distinguishable *Halocarpus kirkii*, always a handsome tree. We were able to get our collective eye in for the difference between *Collospermum hastatum* and *C. microspermum*, as both were present in respectable numbers.

Just as a chocolate fish was being offered for the finding of *Pseudowintera axillaris*, Alison found a seedling, and later a sapling bearing its primitive flowers conveniently at eye-level to please the photographers. An exciting find for a fern lover was the hairy strap fern, *Grammitis pseudociliata*, growing



Fig. 2. *Alseuosmia* sp. (with long, entire leaves).

in good numbers mostly lower on the trunks of trees. Other species worthy of mention were *Nestegis montana* (common), tawari (*Ixerba brexioides*), tawherowhero (*Quintinia serrata*), mairehau (*Leionema nudum*) mostly along the roadside, *Libertia micrantha*, mangeao (*Litsea calicularis*), raukawa (*Raukaua edgerleyi*), swamp maire (*Syzygium maire*) and the filmy fern, *Trichomanes stricta*.

The only negative feature of this stimulating experience was that, to our dismay, the numerous pigs were causing severe damage, even right on the doorstep of Tane Mahuta. The ground was ploughed up; there were holes in the ground where young nikau had been dug up for the nutritious boles; and most distressing of all were the torn-apart shells of the kauri snail (*Paryphanta busbyi*). One wonders how many snails there were fifty or a hundred years ago, compared with the numbers remaining today, and how long it will be before the population crashes completely. Kauri snails are alleged to have dropped in abundance by at least 80% since pig numbers increased about 10 years ago (S. King pers. comm.). As Stephen pointed out, if our taonga housed in museums were being ravaged by silver-fish, borer or corrosion, then money would quickly be found to

restore them, as would be proper. But here is a unique, world-famous forest, with the highest possible classification of "sanctuary" and it is quietly being destroyed for lack of action.

Sunday (24 Oct)

First we visited the nursery that Stephen manages, and admired, among other plants, the hundreds of healthy young kauri that are being grown from local seeds for the revegetation programme. We then had a walk on the lovely Toatoa Track, where *Neomyrtus pedunculata* caused amazement. With its opposite leaves, why wasn't it a *Coprosma*? Well, when seen in flower it becomes obvious that it is in the Myrtaceae, and the long peduncles give a clue to the specific name.

With Stephen's local contacts we were allowed through the locked gate on the road to the west coast at Kawerua. He was keen for us to show him where the rare *Pimelea tomentosa* had been seen in 1990, to enable restoration, as it has not been seen for years at Waipoua. As the short scrub had, in the intervening years grown tall, there was no luck in finding it. This was the only area where we noted a weed problem. The clearing of the natural cover for exotic forestry has resulted in the introduction of pampas (*Cortaderia* spp.), ginger (*Hedygium* spp.) and the blue flowered monocot, *Aristea ecklonii*, all of which were growing rampantly.

A prolonged roadside stop allowed us to become familiar with *Pomaderris edgerleyi*, an attractive prostrate plant with a rusty backing and edges to the leaves, and pom-poms of creamy-yellow flowers. The common *P. amoena* was also in full bloom. On the same bank was the leafless parasitic *Cassytha pubescens*. In the past this Australian species was thought to be adventive and introduced to the pine forest with the seedling stock, but it is now considered to be indigenous. The twining yellow-green stems were covered in ferruginous hairs, thus distinguishing it from the more northerly and glabrous *C. paniculata*.

At a lunchtime stop in the gumland scrub on Kararoa Rd we were among *Epacris pauciflora*, *Lycopodiella lateralis*, *Toronia toru*, *Drosera binata* and the flesh-pink flowers of the sun-orchid, *Thelymitra carnea* (Fig. 3). We drove down to the beach at Kawerua and walked along to the old hotel that was used as a club house by the Auckland University Field Club for many years. This brought back memories for some of us of the fun of earlier Bot Soc camps and it was a pity to see it in a dilapidated condition.

Monday (25 Oct)

Stephen was busy this day, so we set off along the old track that used to lead to the fallen Toronui kauri. This went eastward from the bridge on the highway more or less parallel to the Waipoua River. The

flowering *Metrosideros albiflora* was a feature, and *Tmesipteris sigmatifolia* was growing on a tree fern. When the track reached the river bank we found *Gunnera monoica* growing among the moss and *Selaginella kraussiana* (this weed was not common,



Fig. 3. *Thelymitra carnea*.

but it was a shame to see it at all). The flower stems of toetoe (*Austroderia fulvida*) were just beginning to elongate. We crossed the river and carried on until our stomachs told us it was lunchtime. Nearby was the largest tree of *Melicope simplex* (in full flower) that we had seen, and we sat among the many seedlings that proved its fecundity. We also puzzled our brains about the species of *Alseuosmia* that grew there, and decided that both *A. banksii* and *A. quercifolia* were present.



Fig. 4. Waipoua River scene.

At this point the party divided, and those who had to hurry back to the city, and those who decided against a river walk, retraced their steps along the track. The

three who remained plunged in, boots and all, and walked back down the river, wading and boulder-hopping and sometimes diverting into the bush (Fig. 4). If only every New Zealander could experience the breathtaking majesty of this forest with huge kauri soaring upwards on the ridges; the tree ferns arching over the water; makamaka (*Ackama rosifolia*) trees lining the waterway, at this time of the year with the panicles of creamy flowers beginning to change to rosy fruits (Fig. 5); and tutu (*Coriaria arborea*) colonising the river gravels. Among the mamaku tree ferns (*Cyathea medullaris*) were a dozen or so of the much less common *C. cunninghamii*. A spider orchid, *Nematoceras rivulare* (Fig. 6), was flowering nicely in places along the riverbank, with this, as its specific name suggests, its preferred habitat. A wisp of native violet, *Viola filicaulis*, was seen there too.



Fig. 5. *Ackama rosifolia*.

Sadly there was an almost complete lack of birds to be seen or heard, in a forest that should be echoing with birdsong. A fantail and a rosella were seen, and a blackbird, paradise duck and several kingfishers were heard. The torn-apart snail shells were in evidence again and goats have been seen here in the past.



Fig. 6. *Nematoceras rivulare*.

On a sharp bend in the river we came to several bushes of *Hebe diosmifolia* (one flowering), these

signalling that we should leave the riverbed and climb up to the Ricker Track, and thus back to the road. The Ricker Track is a delight, as in its short length grow many of the special plants that make up the northern forests. Among these are Kirk's daisy (*Brachyglottis kirkii* var. *angustior*), *Collospermum microspermum*, *Singularybas oblongus* (flower), *Dracophyllum latifolium*, *Drymoanthus adversus*, hinau (*Elaeocarpus dentatus*), *Halocarpus kirkii*, *Ichthyostomum pygmaeum*, mairehau (*Leionema nudum*) (flower), *Libertia grandiflora*, *Metrosideros albiflora* (flower), *Pterostylis agathicola*, *P. banksii* (flower), *Tmesipteris sigmatifolia* and *Loxsoma cunninghamii*.

After the day's exhilarating experience, it was rather a let-down to emerge into the everyday world of the highway, even if it was the Waipoua Forest Road. It is well worth noting here the wonderfully natural look of this award winning highway, a condition due to the

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Trip report: Waikawau Bay, Northeast Coromandel Peninsula, 28–31 January 2011

Ewen K. Cameron (editor)

With contributions from: Jan Butcher, Lisa Clapperton, Leslie Haines, John Millett, Stella & John Rowe, Alison Wesley, Phillip Wrigley

The Auckland Anniversary weekend camp for 2011 was based at the Karuna Falls Community property (340 ha) at Waikawau Bay, Northeast Coromandel Peninsula (Fig. 1). Our hosts, Wayne Todd and Kathi Parr, who arranged the use of the facilities, were also our guides for the field trips. The northern Coromandel has a wide range of plant species from coastal to sub alpine (Mt Moehau) – many reaching their geographical northern limit, and is also home to rare fauna, e.g. Archey's frog, Moehau stag beetle, kiwi, NZ dotterel and brown teal.

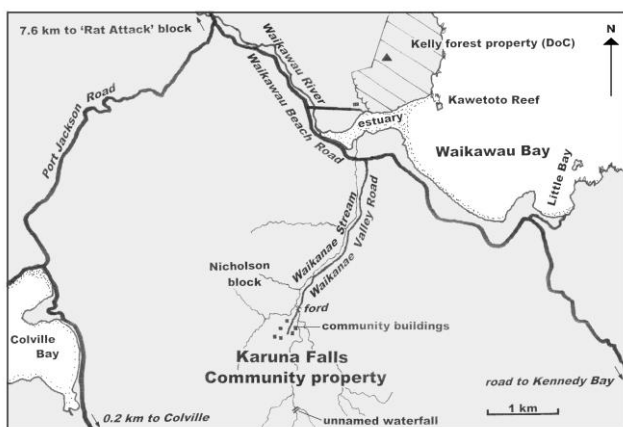


Fig. 1. Location map with place names (drawn by Ewen Cameron and improved by Josh Salter)

careful hand trimming by Stephen and members of the Trust; and of the delight of seeing healthy *Pterostylis banksii* orchids flowering just a metre from the tar seal. On a recent survey 24 patches were seen on the highway edge, four times what were there five years ago. Other roadside orchids include *Orthoceras novae-zeelandiae*, 2 species of *Microtis*, *Acianthus sinclairii*, *Thelymitra longifolia*, *T. pauciflora*, *T. carnea*, *Diplodium trullifolium*, *Pterostylis agathicola*, *Singularybas oblongus* plus five species of epiphytic orchids (S. King pers. comm.).

Back at base, Bev was disappointed that she had missed the joys of the Ricker Track, so we accompanied her back there, and it took another hour to cover the 10 minute walk.

This brought to an end a weekend of fine weather and fine leadership – a learning experience for us all, together with great botany.

Friday 28th January – north Waikawau Bay coast

John Millett

Between 3.30 and 5pm some of us dared to challenge the approaching Cyclone Wilma, and suffered the wettest outing of the weekend. However, this proved the only chance we had of exploring coastal vegetation of the northern end of Waikawau Beach comprising dunes and a rocky islet at the end, Kawetoto Reef (see Cameron 1992 for its flora). Species noted were the invasive saltwater paspalum (*Paspalum vaginatum*) and, on the rocks at the end of the beach, *Apium prostratum*, *Coprosma acerosa* × *C. rhamnoides*, *Calystegia soldanella* and locally, profusely flowering *Pimelea urvilleana*. John, Stella and myself disappeared into wind-scoured foredune bunkers 3m deep where we hoped the exposed sand profile might disclose some Maori artifacts. Nothing doing, but we remarked on a healthy tangle of large flowering *Corokia cotoneaster* shrubs and close by nikau (*Rhopalostylis sapida*) growing beyond, and the pohutukawa (*Metrosideros excelsa*) seemed able to prevent itself from being buried by the wide spread of its lower branches. Vascular plants seen during the trip are all listed in Appendix 1, separated into the four different areas that we visited.