

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

Acknowledgements

Our thanks to Stephen King for sharing his knowledge and vision with us, for leading us in the field, and for his comments on a first draft of this article, and to Bernard King for his company.

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.

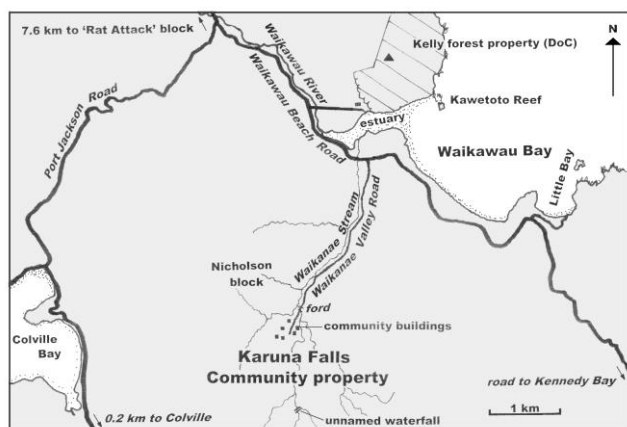


Fig. 1. Location map with place names (drawn by Ewen Cameron and improved by Josh Salter)

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.



Fig. 2. The group photo by Waikawau Beach Road, Moehau Range in background (absent: Cheryl & Nerrisa). Photo: Nerrisa. All photos taken during the trip.

Our group (25 people, Fig. 2) Jan Butcher (main organiser), Ewen Cameron, Lisa Clapperton, Bev & Geoff Davidson, Michelle Dublon, Leslie Haines, Peter Hutton, Helen Preston Jones, Margi Keys, Helen Lyons, John Millett, Geoff Prestidge, Carol & CJ Ralph, Juliet Richmond, John Rowe, Stella Rowe, Jennifer Shanks, John & Nerrisa Smith-Dodsworth, Cheryl Taylor, Alison Wesley, Phillip Wrigley, Maureen Young (food assistant).

Saturday morning 29th January – local conservation update

Jan Butcher

During the night the heavens opened, the stream roared, but by dawn the clouds and rain were lifting. In the morning we stayed indoors allowing the weather to settle down. Wayne and Kathi gave us a talk on the background to the commune that was settled 35 years ago. The large meeting hall we were in was built of salvaged kauri (Fig. 3). The community relies on solar power. These days the number of permanent occupiers has decreased, with a number going off-site to earn an income. Wayne also spoke of his involvement with MEG (Moehau Environment Group). He was a foundation member when the group formed in 1999. Funding has also been received from the World Wildlife Fund in June 2008 to do base surveys of the Waikawau Bay wetlands and estuary and further funding was received in August

2008 from Environment Waikato to look at the spread of the saltwater paspalum and its impact on the estuary. The Group has also been involved with the reintroduction of the brown teal and North Island robin, and mustelid control over an area of 10,000 ha (the MEG Kiwi Zone). Funds were also used for education including running a summer holiday programme.

Saturday afternoon 29th January – Kelly (Knox) Farm Coastal Forest

Leslie Haines

After being grounded for the morning due to a large overnight storm (>200mm rain) with associated flooding, we set out around 1pm to Kelly Farm Coastal Forest, led by Wayne Todd (Fig. 4) from Karuna Falls. As the Karuna Falls ford was impassable, we crossed a footbridge, walked over a small hill then drove (we had deliberately parked our vehicles on the other side) to the entrance to the forest now owned by DoC (Department of Conservation) (see background story by Cameron 2003).

A bulldozed road allows easy access, but we were led up the grassy ridge through manuka (*Leptospermum scoparium*)/gorse (*Ulex europaeus*) to a knoll. This area has fairly young regeneration with understorey of *Myrsine australis*, *Coprosma rhamnoides*, *Pittosporum umbellatum*, ponga (*Cyathea dealbata*),

Microsorium pustulatum, bracken (*Pteridium esculentum*), *Pyrrosia eleagnifolia*, and typical gumland species such as *Schoenus tendo* and *Pomaderris kumeraho*. *Hakea sericea* was the other common exotic species present. As we climbed, the species richness increased, with taller manuka (c.3m), *Olearia furfuracea*, *Leptocophylla juniperina*, *Leucopogon fasciculatus*, *Gahnia lacera*, *Hedycarya arborea*, *Coprosma macrocarpa*, *Pseudopanax arboreus*, *Geniostoma ligustrifolium*, *Morelotia affinis*, *Lindsaea linearis* (local), and three lycopod species: *Lycopodium volubile*, *L. deuterodensum* and *Lycopodiella cernua*. Ferns included kiokio (*Blechnum novae-zelandiae*), *Paesia scaberula* and *Doodia australis*. Tree species were *Knightia excelsa*, *Toronia toru*, *Pseudopanax crassifolius* and tanekaha (*Phyllocladus trichomanoides*). Herbaceous species included *Oplismenus hirtellus*, *Haloragis erecta*, *Uncinia banksii*, *Nertera dichondrifolia*, *Dianella nigra*, *Carex solandri* and *Ficinia nodosa*. The summit was open grass with *Acaena novae-zelandiae* which some unthinkingly lay upon for the fantastic views down to the coastal pohutukawa cliffs, sandbanks and swathes of sediments washed out from the storm, with Cuvier Island in the distance to the northeast. As we left the summit we encountered *Geranium homeanum*, *Parsonsia heterophylla*, *Clematis paniculata*, flax (*Phormium tenax*) and Mexican devil (*Argeratina adenophora*).

The descent into a valley was through some very good quality forest with a large number of nikau (Fig. 5) and a canopy of puriri (*Vitex lucens*) (with large epiphytic *Griselinia lucida*), kohekohe (*Dysoxylum spectabile*), taraire (*Beilschmiedia tarairi*), pigeonwood (*Hedycarya arborea*) and the occasional kohuhu (*Pittosporum tenuifolium*) occurring through the forest. Other species included *Geniostoma ligustrifolium*, ponga, *Coprosma rhamnoides*, with *Rhabdothamnus solandri* near a seepage. Ferns were *Asplenium oblongifolium*, *A. polyodon*, *Adiantum cunninghamii*, *Blechnum filiforme*, *Microsorium scandens*, *Gleichenia dicarpa* and *Blechnum discolor*. Climbers were *Ripogonum scandens*, *Freycinetia banksii*, *Metrosideros fulgens*, *M. perforata* and *M. diffusa*.

We then took a diversion across the slope to a stand of regenerating kauri (*Agathis australis*) with tall pohutukawa and *Cordyline australis* growing amongst it, and also kohekohe, *Pittosporum umbellatum*, rimu (*Dacrydium cupressinum*), *Brachyglottis kirkii* and miro (*Prumnopitys ferruginea*). Other species were *Cardiomanes reniforme*, *Tmesipteris elongata*, *Gahnia lacera*, *G. pauciflora*, *Rubus cissoides*, *Clematis cunninghamii*, *C. paniculata*, *Cordyline pumilio*, *Collosporum hastatum*, *Alseuosmia quercifolia*, *Dendrobium cunninghamii*, *Microlaena polynoda*, *Carmichaelia australis*, *Carex lambertiana*, *C. solandri*, *Coprosma arborea*, *Juncus pallidus*, *Drymoanthus adversus*, *Libertia grandiflora*, and a plant of *Astelia*

banksii. Within this kauri association Ewen showed us a kiwi burrow he had located there in October 2010 (along with kiwi feathers), but unfortunately it wasn't occupied. Near the end of the walk we emerged finally back onto the bulldozed road and saw *Fuchsia excorticata*, tutu (*Coriaria arborea*), and *Histiopteris incisa*. Overall we only added three species to Ewen's comprehensive draft species list for the general Waikawau area of >500 spp. compiled during his almost annual family holidays there since 1991. Some of us ended the day driving round to Little Bay for a swim in the post-storm swell.

Sunday morning 30th January – Nicholson block Phillip Wrigley

The weather fine, we walked up past houses of the Karuna Falls Community into an area known as the Nicholson Block. We were guided by our hosts Wayne & Kathi and joined by a local Erica Dorin. The block is on lowland slopes of the Coromandel Range, with our walk attaining no more than about 100 m elevation. The land is privately owned, partly by the Community and partly by a neighbour. Ten stream crossings took us up as far as a rough four-wheel drive road leading up to a pine plantation. The block had been milled long before and at least some of it grazed. The Community's land had been burnt not long before they acquired it around 30 years earlier. Thankfully some pockets of forest had escaped the fire(s). Goats were removed about five years ago as part of a broader effort on the Moehau Range by DoC. Members of the Community had been baiting possum and rat stations in the block for the previous 9 months. We were able to enjoy the benefits of vigorous regeneration.

We began our species list after leaving the dwellings behind us, so garden escapes were largely excluded. Few exotics were recorded and none seemed especially troublesome; *Hakea sericea* was the most noticeable. Initially we were in kanuka (*Kunzea ericoides*)-dominated regrowth. In this part we saw skinks scurrying away, but could not tell what species.

By the stream there were plenty of banks and damp boulders to examine and they supported plenty of the small ferns. In all, we saw 11 filmy ferns (nine *Hymenophyllum* spp.) including "frilly knickers" (*H. flexuosum*). *Loxosoma cunninghamii*, with its unusual sori that were like miniature cigarette butts, was a highlight. This fern is the only member of its genus and shares its family (Loxosomataceae) with just one other (non-NZ) species. A small *Grammitis* ground fern found in a localised stand of hard beech (*Nothofagus truncata*) forest by the stream was later confirmed by Barbara Parris to be *G. rawlingsii* (Fig. 6). The only previous collection of this fern on the Coromandel Ranges appears to be from the Kauaeranga Valley (AK 253959). *Grammitis ciliata* was seen in several places and both species of tangle fern

were also spotted (*Gleichenia dicarpa* and *G. microphylla*).

As we climbed a little, the forest type changed to a rich mixture of larger trees which had escaped the fire(s). There were impressive northern rata (*Metrosideros robusta*) and puriri and a pleasing association of hard beech and kauri. Logs of hard beech are long-lived after the tree has fallen due to its tough heartwood – we saw an example of it with *Grammitis* colonising the surface. With the kauri were some of its commonly found associates tanekaha, *Gahnia pauciflora* and *Astelia trinervia*. Three other *Gahnia* (*G. lacera*, *G. setifolia* and *G. xanthocarpa*) were also present at one point or another on the walk, providing a useful lesson on their identification. The presence of both *Mida salicifolia* and the similar white maire (*Nestegis lanceolata*) gave an opportunity for the traditional Bot Soc lesson on their distinction one from the other. For those who had not seen *Leucopogon fraseri* before, it was instructive to see this low creeper growing right next to *L. fasciculatus* (mingimingi). The presence of five *Metrosideros* species was also notable.

Sunday afternoon, 30th January – ‘Rat Attack’ block near Port Charles

Alison Wesley

After a wonderful walk up the ridge behind the Karuna Falls Community buildings, the afternoon was spent visiting Port Charles ‘Rat attack’ block.

We were met by Lettecia Williams who explained the history of the area. This consisted of an area of 350 ha which is under a QE2 covenant (private land owned by Lettecia and her neighbours) and stretches north as far as Big Sandy Bay. There has been possum control in the area for a long time. However, pest management was intensified 11 years earlier when a Kiwi Sanctuary was established. Also pateke (brown teal) were released in the area 8 years previously when a planned release to Okarito had to be abandoned and a new home was required for them at short notice. Over 200 birds have been released progressively over the years. The area contains grids of rat traps and includes live trapping of cats. A recent assessment of the prevalence of rats has shown that only 1.5% of monitoring tunnels contained evidence of rats.

Since this activity has been in place, increased numbers of invertebrates have resulted and more recently many tree seedlings are now appearing. Unfortunately there has also been noted an increase in weeds such as climbing asparagus (*Asparagus scandens*). Another result of the near-eradication of rats has been an increasing population of mice.

Our walk, ably led by John Smith-Dodsworth, consisted of a track within a gully closely skirting an unnamed tributary of the Tangiaro Stream. It also

involved multiple crossings of the stream, a feature of many of our walks. Once again a major delight was the profusion of *Loxsonia cunninghamii* (Fig. 7), along with kiokio, on the steep streamside banks. Most plant species seen were similar to the previous day’s walks (see Appendix 1) which were adjacent to the many streams of the area, but two new species for the trip were *Dracophyllum latifolium* at the highest point we reached and the remains of some *Pterostylis banksii*.

Monday morning, 31 January – Waikawau estuary

Lisa Clapperton

The estuary /wetlands, of c.75 ha, is located at the mouth of the Waikawau River and the Waianae Stream. We first made our way out to the south side of the estuary over very low lying pasture, flooded from the Friday night storm, where remnant salt marsh scrub followed drainage channels before forming swathes along the edge of the estuary (*Plagianthus divaricatus*, *Olearia solandri* and (planted?) flax). This changed to reed beds of *Baumea juncea*, *Apodasmia similis*, *Ficinia nodosa*, with scattered mangrove (*Avicennia marina*), in turn giving way to the estuary herbs of *Selliera radicans*, *Samolus repens*, *Sarcocornia quinqueflora* along the tidal margins. These tidal flats are under extreme pressure from the exotic weed, saltwater paspalum, which is capable of forming dense beds ≤ 0.5 m in height. These mats are very effective silt traps modifying the estuary as well as swamping out the less robust native plants. Kathi and Wayne explained the test plots they are carrying out here to try to establish the most effective method of controlling/eradicating this problem plant. They are trialing eight methods: cutting, covering with black plastic, spraying (*Gallant*) and various combinations (Fig. 8).

The exotic spartina (*Spartina alterniflora*) is also present in the estuary and has been sprayed with reasonable success, although the occasional runner was still persisting.

We made our way out to the beach heading into the wind past groups of dotterel before making our way back through the dunes. Sand dunes were colonised with *Spinifex sericeus* and small areas of pingao (*Ficinia spiralis*), *Calystegia soldanella* and *Ficinia nodosa*, the back dunes supporting in addition *Muehlenbeckia complexa*, bracken and the occasional pohutukawa tree. The exotics *Acacia melanoxylon*, *Banksia integrifolia* and *Cupressus macrocarpa* had also locally established here. We then drove further up the valley and entered the estuary by the Waimanu Road bridge, making our way through the dense reed beds dominated by *Juncus kraussii* and *Apodasmia similis* with low *Plagianthus divaricatus* shrublands (Fig. 9), next to *Olearia solandri* and mangrove. The stock banks on either side of the river were well covered with manuka, *Coprosma*

rhamnoides, *Cordyline australis*, flax, *Austroderia fulvida* and pampas grass (*Cortaderia selleana*).

Some of our party had very good views of a fernbird; their distinctive peeping could be heard very close at hand. Brown teal were seen on several occasions in the stream, as we drove past on our way to various excursions. Rat traps, part of the extensive trapping undertaken by the locals, were apparent through this area although some had suffered from the recent flood. Pieces of bedroll foam had been strapped to the trunk of manuka to form gecko accommodation. The saltwater paspalum is well established here, contributing to the narrowing of the stream channel with its silt-trapping capacity.

Monday afternoon 31 January – to an unnamed waterfall

Stella Rowe

After lunch, Wayne and Kathi took us up another unnamed Karuna Falls stream further to the south, a tributary of the Waikanae Stream, to list the plants in the valley. *Loxosoma cunninghamii*, while still present was not nearly as plentiful and luxuriant as on the previous day, but some saplings of hutu (*Ascarina lucida*) (Fig. 10) were an addition to the list. They occasioned a discussion on the similarity of the leaves to pukatea (*Laurelia novae-zelandiae*). Among other differences, the coarsely toothed leaves of hutu are pointed rather than rounded and each tooth is attractively black tipped. On a short detour to a large old puriri favoured by New Zealand pigeons, we saw many seedling tree species growing underneath: pigeonwood, taraire, kohekohe and several titoki (*Alectryon excelsus*). The steep-sided valley is dominated by a youthful canopy of kanuka (Fig. 11), with local stands of broadleaf species and large tutu individuals common along the stream margin. Ornithology briefly took over from botany when Wayne spotted a morepork roosting in a ponga. Then another and another, a family with fledged young. We came across the *Geranium homeanum* again, this time in a different habitat from the open grassy hilltop on Saturday. It was growing on a large streamside mossy-covered rock. These boulders, some the size of small houses, held much of interest (Fig. 12): *Astelia banksii*, *Anaphalioides trinervis*, *Earina autumnalis*, *Wahlenbergia vernicosa*, the last in flower, and the find of the day the native carrot, *Daucus glochidiatus* on a prominent boulder (Fig. 13). This slender annual/biennial with its uneven inflorescence had small oval fruits with hooked bristles. It is found sparingly throughout New Zealand (though easily overlooked) as well as in Australia including near Alice Springs! Our walk ended at a waterfall after which we retraced our steps but not before three of our group succumbed to the temptation of cooling off in a couple of the pools where they wallowed smugly under the waterfalls.

Tuesday morning, 1 February – and a summary Ewen Cameron

Most of us stayed the extra night to maximize the weekend and to try to avoid the bottleneck back into Auckland. After cooking up the leftovers for breakfast, we packed up and descended down to Shala's (Tarata) wonderful garden (Fig. 14) for a guided tour by her. It was very colourful with an aesthetic mix of flowers and vegetables. Her lower section had been swept-over by the storm-fed ranging Waikanae Stream, and Geoff advised her to plant the local *Carex lessoniana* to help stabilise the stream banks with its ability to form rhizomatous mats. It was then time for farewells, thank yous and head back to Auckland avoiding the numerous slips, single-lane sections, and detouring back through Whitianga because a large slip (10,000m³) of rock and debris at Ruamahunga had completely blocked that road section just south of Tapu. A major brown teal roost, 3.5 km north of Colville by the first bridge on the Port Jackson Road, was viewed by some on the way home.

Although Cyclone Wilma had poured down on us Friday night causing widespread flooding on the low-lying land, the swollen rivers quickly dropped the following day and the impact on our program was minor – except for cancelling our proposed trip to an important local wetland. It was wonderful to see bait stations and stoat traps just about everywhere we went – a real credit to the local people for their vision and hard work to restore the wildlife and forests of the local area. Weeds have yet to be tackled in a similar way – but I feel confident they will be as time goes on. It was also wonderful to see the young forests of the area regenerating so well. Over the weekend the group recorded 260 plant species for the wider Waikawau area of which 84% were native species (see Appendix 1). As mentioned previously there were also two additional species observed on the 'Rat Attack' block near Port Charles: *Dracophyllum latifolium* and *Pterostylis banksii*. Interesting botanical finds during the weekend and additions to my wider Waikawau draft plant list included: *Grammitis rawlingsii* in the Nicholson Block; *Gastrodia sessamoides* and *Microlaena polynoda* on the Kelly Farm forest headland (both spotted by Carol Ralph); and hutu and the native carrot (*Daucus glochidiatus*) in the unnamed waterfall valley on the Karuna Falls property.

Birds for Waikawau Bay weekend

Stella & John Rowe

Waikawau estuary and saltmarsh birds

Paradise shelduck, grey teal, brown teal, mallard, little shag, little black shag, white-faced heron, variable oystercatcher, South Island pied oystercatcher, pied stilt, NZ dotterel, banded dotterel, spur-winged plover, black-backed gull, red-billed gull, Caspian tern, white-fronted tern, North Island fernbird. Notes: brown teal have been re-introduced to the area (c.200 have been released over a period of 8 years). White-



Fig. 3. Spacious communal meeting and cooking hall at Karuna Falls – preparing for the field. Photo: Cheryl.



Fig. 4. Our co-leader for the weekend, Wayne Todd, at a local high point of the Kelly Farm, Waikawau Bay behind with muddy water from Cyclone Wilma. Photo: Ewen.



Fig. 5. A heavy fruiting nikau palm in the coastal forest on the Kelly Farm block, Waikawau. Photo: Ewen.



Fig. 6. A nice find – *Grammitis rawlingsii* on the ground near the stream in a small stand of hard beech in the Nicholson block, Karuna Falls. Photo: Ewen.



Fig. 7. *Loxosoma cunninghamii* – (with kiokio) a major feature of the streamside banks at Karuna Falls and by Port Charles. 'Rat Attack' block near Port Charles. Photo: Ewen.



Fig. 8. Wayne and Kathi (not in photo) explaining the test plots they are doing to establish the most effective method of controlling/eradicating saltwater paspalum on the margins of the Waikawau Estuary. This one has been treated with black plastic. Photo: Ewen.



Fig. 9. Our group winds through the *Plagianthus divaricatus* thicket listening to fernbirds at the back of the Waikawau estuary. Photo: Ewen.



Fig. 10. Hutu (*Ascarina lucida*) sapling (in the centre) in the young regenerating bush near the stream, unnamed waterfall, Karuna Falls. Photo: Ewen.



Fig. 11. Kanuka-shaded, crystal-clear streams were some of the main routes we followed during the weekend. Afternoon to the unnamed waterfall, Karuna Falls. Photo: Ewen.



Fig. 12. The attractive stream boulders and pools on the way to the unnamed waterfall, Karuna Falls. No evidence of Cyclone Wilma 2.5 days after the event. Photo: Cheryl.



Fig. 13. End of the afternoon walk to view the unnamed waterfall – this boulder proved to be an interesting viewing spot with the cryptic native carrot (*Daucus glochidiatus*) almost being sat on, Karuna Falls. Photo: Cheryl.



Fig. 14. Shala's colourful house and garden down by the stream, Karuna Falls. Photo: Ewen.

fronted tern: 6-700 were roosting on the beach by the estuary mouth, an unusually large number for this estuary (Ewen Cameron pers. comm.; Cameron 1999). Australasian bittern, banded rail and spotless crane are known from the saltmarsh/wetlands (Wayne Todd pers. comm.) though not seen or heard on this occasion.

Birds seen/heard at Karuna Falls, other bush patches and associated farmland

Californian quail, swamp harrier, rock pigeon, NZ pigeon, eastern rosella, morepork, NZ kingfisher, grey warbler, bellbird, tui, North Island fantail, Eurasian skylark, silvereye, welcome swallow, Eurasian blackbird, song thrush, common starling, common mynah, dunnoek, yellowhammer.

Acknowledgments

Our hosts and guides, Wayne Todd and Kathi Parr, who had planned the weekend program to maximize our stay; the Karuna Falls Community as a whole for making us so welcome and accommodating us so comfortably during a weekend that began with a cyclone; Lettecia Williams at Port Charles for allowing us to visit her conservation block; and Josh Salter for improving Fig.1.

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Appendix 1. Vascular plants seen during the Auckland Bot Soc visit to Waikawau Bay, Jan 2011

Key

Kelly = Kelly (Knox) Farm forest, coast and estuary, Waikawau Bay coast
 Nicho = Nicholson Block, Karuna Falls, inland Waikawau Bay
 Waterf = unnamed waterfall valley, Karuna Falls, inland Waikawau Bay
 PC = 'Rat Attack' blocks, stream valley just south of Port Charles (started at Topo 50 AZ34 212532)
 * = adventive species
 Ad = adjacent to the area visited
 ✓ = present
 s = scarce (<5 seen)
 Pl = planted

Appendix 1. Vascular plants seen during the Bot Soc visit to Waikawau Bay, Jan 2011

Four areas visited:	Kelly	Nicho	waterf	PC
Ferns and fern allies (53 + 0) (native + naturalised totals)				
<i>Adiantum cunninghamii</i>	✓			✓
<i>Adiantum hispidulum</i>			✓	
<i>Adiantum viridescens</i>	✓			
<i>Asplenium bulbiferum</i> s.str.		✓		
<i>Asplenium flaccidum</i>		✓	✓	✓
<i>Asplenium oblongifolium</i>	✓	✓		✓
<i>Asplenium polyodon</i>	✓	✓	✓	✓
<i>Blechnum chambersii</i>			✓	
<i>Blechnum discolor</i>	✓	✓		✓
<i>Blechnum filiforme</i>	✓	✓	✓	✓
<i>Blechnum fraseri</i>		✓		
<i>Blechnum novae-zelandiae</i>	✓	✓	✓	✓
<i>Cardiomanes reniforme</i>	✓	✓	✓	
<i>Cheilanthes sieberi</i>			✓	
<i>Cyathea dealbata</i>	✓	✓	✓	✓
<i>Cyathea medullaris</i>		✓	✓	✓
<i>Deparia petersenii</i>			✓	
<i>Dicksonia squarrosa</i>		✓	✓	✓
<i>Doodia australis</i>	✓	✓	✓	✓
<i>Gleichenia dicarpa</i>	✓	✓	✓	
<i>Gleichenia microphylla</i>	✓	✓		
<i>Grammitis ciliata</i>		✓	✓	
<i>Grammitis rawlingsii</i>		s		
<i>Histiopteris incisa</i>	✓			

<i>Huperzia varia</i>	✓	✓	✓	
<i>Hymenophyllum demissum</i>		✓	✓	✓
<i>Hymenophyllum dilatatum</i>		✓	✓	✓
<i>Hymenophyllum flabellatum</i>		✓	✓	
<i>Hymenopyllum flexuosum</i>		s		
<i>Hymenophyllum multifidum</i>		✓	✓	
<i>Hymenophyllum rarum</i>		✓	✓	
<i>Hymenophyllum revolutum</i>		✓	✓	
<i>Hymenophyllum sanguinolentum</i>		✓	✓	✓
<i>Hymenophyllum scabrum</i>		✓		
<i>Lastreopsis hispida</i>		✓		
<i>Lindsaea linearis</i>	✓	✓	✓	✓
<i>Lindsaea trichomanoides</i>	✓			✓
<i>Loxsoma cunninghamii</i>		✓	✓	✓
<i>Lycopodiella cernua</i>	✓	✓	✓	
<i>Lycopodium deuterodensum</i>	✓	✓	✓	
<i>Lycopodium volubile</i>	✓	✓	✓	
<i>Lygodium articulatum</i>	✓	✓	✓	✓
<i>Microsorium pustulatum</i>	✓	✓	✓	✓
<i>Microsorium scandens</i>	✓	✓	✓	
<i>Paesia scaberula</i>	✓	✓	✓	✓
<i>Pneumatopteris pennigera</i>		✓	✓	
<i>Pteridium esculentum</i>	✓	✓	✓	✓
<i>Pteris macilentia</i>		✓	✓	
<i>Pyrrosia eleagnifolia</i>	✓	✓	✓	✓
<i>Sticherus cunninghamii</i>			✓	
<i>Tmesipteris elongata</i>	✓	✓	✓	✓
<i>Tmesipteris lanceolata</i>		✓	✓	✓
<i>Trichomanes elongatum</i>		✓		✓

Gymnosperms (6 + 3)

<i>Agathis australis</i>	✓	✓		✓
<i>Cupressus macrocarpa*</i>	✓			
<i>Dacrycarpus dacrydioides</i>		✓	✓	
<i>Dacrydium cupressinum</i>	✓	✓		
<i>Pinus pinaster*</i>			✓	
<i>Pinus radiata*</i>		✓	✓	✓
<i>Phyllocladus trichomanoides</i>	✓	✓	✓	✓
<i>Podocarpus totara</i>	✓			
<i>Prumnopitys ferruginea</i>	✓			

Dicotyledons (101 + 22)

<i>Acacia melanoxylon*</i>	✓			
<i>Acaena novae-zelandiae</i>	✓			
<i>Achillea millefolium*</i>	✓			
<i>Ageratina adenophora*</i>	✓	✓	✓	
<i>Ageratina riparia*</i>		✓		
<i>Alectryon excelsus</i>			✓	
<i>Alseuosmia macrophylla</i>		✓		✓
<i>Alseuosmia quercifolia</i>	✓			
<i>Anagallis arvensis</i> var. <i>arvensis*</i>			✓	
<i>Anaphalioides trinervis</i>			✓	
<i>Apium prostratum</i> s.str.	✓			

<i>Aristolelia serrata</i>		✓	✓	✓
<i>Ascarina lucida</i>			✓	
<i>Avicennia marina</i>	✓			
<i>Banksia integrifolia*</i>		✓		
<i>Beilschmiedia tarairi</i>	✓	✓	✓	
<i>Beilschmiedia tawa</i> (incl. <i>B. tawaroa</i>)			✓	
<i>Bellis perennis*</i>		✓		
<i>Brachyglottis kirkii</i> var. <i>angustior</i>	✓	✓		✓
<i>Brachyglottis repanda</i>		✓	✓	✓
<i>Cakile maritima*</i>	✓			
<i>Callitriche muellerii</i>		✓		
<i>Calystegia soldanella</i>	✓			
<i>Carmichaelia australis</i>	✓	✓	✓	
<i>Carpodetus serratus</i>		✓	✓	
<i>Centaurium erythraea*</i>		✓	✓	
<i>Centella uniflora</i>		✓	✓	✓
<i>Clematis cunninghamii</i>	✓	✓		
<i>Clematis paniculata</i>	✓	✓	✓	
<i>Conyza sumatrensis*</i>	✓			
<i>Coprosma acerosa</i> × <i>C. rhamnoides</i>	✓			
<i>Coprosma arborea</i>	✓			
<i>Coprosma grandifolia</i>			✓	✓
<i>Coprosma lucida</i>		✓	✓	✓
<i>Coprosma macrocarpa</i>	✓			
<i>Coprosma rhamnoides</i>	✓	✓	✓	✓
<i>Coprosma robusta</i>	✓	✓	✓	✓
<i>Coriaria arborea</i>	✓	✓	✓	✓
<i>Corokia cotoneaster</i>	✓			
<i>Corynocarpus laevigatus</i>	✓			
<i>Daucus glochidiatus</i>			✓	
<i>Digitalis purpurea*</i>			✓	
<i>Disphyma australe</i>	✓			
<i>Dodonea viscosa</i>		✓	✓	
<i>Dracophyllum latifolium</i>				s
<i>Dysoxylum spectabile</i>	✓	✓	✓	
<i>Elaeocarpus dentatus</i>		s	✓	
<i>Erica lusitanica*</i>		✓		
<i>Eriobotrya japonica*</i>		s		
<i>Euchiton collinus</i>		✓	✓	
<i>Fuchsia excorticata</i>	✓		s	
<i>Gaultheria antipoda</i>			✓	
<i>Geniostoma ligustrifolium</i>	✓	✓	✓	✓
<i>Geranium homeanum</i>			✓	
<i>Gonocarpus incanus</i>		✓		
<i>Griselinia lucida</i>	✓	✓	✓	
<i>Hakea sericea*</i>	✓	✓		✓
<i>Haloragis erecta</i> s.str.	✓			
<i>Hebe macrocarpa</i> s.str.		✓	✓	
<i>Hebe stricta</i> s.str.		✓		
<i>Hedycarya arborea</i>	✓		✓	
<i>Hypochaeris radiata*</i>			✓	
<i>Ixerba brexioides</i>		Ad		
<i>Jacobaea vulgaris*</i>			s	

<i>Knightia excelsa</i>	✓	✓	✓	✓
<i>Kunzea ericoides</i> s.lat.	✓	a	a	a
<i>Laurelia novae-zelandiae</i>		s		
<i>Leptecophylla juniperina</i>	✓	✓	✓	✓
<i>Leptospermum scoparium</i>	✓	✓	✓	✓
<i>Leucopogon fasciculatus</i>	✓	✓	✓	✓
<i>Leucopogon fraseri</i>	✓	✓		
<i>Lilaeopsis novae-zelandiae</i>	✓			
<i>Lobelia anceps</i>		✓		
<i>Lotus pedunculatus</i> *		✓	✓	
<i>Macropiper excelsum</i>		✓	✓	
<i>Melicytus ramiflorus</i>	✓	✓	✓	✓
<i>Metrosideros diffusa</i>	✓	✓		
<i>Metrosideros excelsa</i>	✓	✓		✓
<i>Metrosideros fulgens</i>	✓	✓		
<i>Metrosideros perforata</i>	✓	✓	✓	
<i>Metrosideros robusta</i>		✓		
<i>Mida salicifolia</i>		s		
<i>Muehlenbeckia australis</i>			✓	✓
<i>Myrsine australis</i>	✓	✓	✓	✓
<i>Myrsine salicina</i>		s	✓	
<i>Nertera depressa</i>		✓	l	
<i>Nertera dichondrifolia</i>	✓	✓	✓	✓
<i>Nestegis lanceolata</i>	✓	✓	✓	✓
<i>Nothofagus truncata</i>		✓		
<i>Olearia furfuracea</i>	✓	✓	✓	✓
<i>Olearia rani</i>		✓	✓	
<i>Olearia solandri</i>	✓			
<i>Oxalis exilis</i>			✓	
<i>Parsonsia heterophylla</i>	✓			
<i>Persicaria decipiens</i>			✓	
<i>Physalis peruviana</i> *		✓		
<i>Pimelea urvilleana</i>	✓			
<i>Pittosporum crassifolium</i>	✓			
<i>Pittosporum eugenioides</i>	✓			
<i>Pittosporum tenuifolium</i>	✓	✓		✓
<i>Pittosporum umbellatum</i>	✓	✓		
<i>Plagianthus divaricatus</i>	✓			
<i>Pomaderris kumeraho</i>	✓	✓	✓	
<i>Prunella vulgaris</i> *		✓	✓	
<i>Pseudopanax arboreus</i>	✓	✓	✓	✓
<i>Pseudopanax crassifolius</i>	✓	✓	✓	
<i>Pseudopanax crassifolius</i> × <i>P. lessonii</i>		✓	✓	
<i>Pseudopanax lessonii</i>	✓	✓		
<i>Ranunculus reflexus</i>			✓	
<i>Rhabdothamnus solandri</i>	✓			
<i>Rubus cissoides</i>	✓	✓	✓	✓
<i>Rubus fruticosus</i> agg.*	✓			
<i>Samolus repens</i>	✓			
<i>Sarcocornia quinqueflora</i>	✓			
<i>Selliera radicans</i>	✓			
<i>Solanum mauritianum</i> *			s	
<i>Sophora microphylla</i>		PI?		PI?

<i>Toronia toru</i>	✓	✓		✓
<i>Ulex europaeus*</i>	✓	✓	✓	✓
<i>Veronica plebeia</i>			✓	
<i>Vitex lucens</i>	✓	✓	✓	
<i>Wahlenbergia vernicosa</i>			✓	
<i>Weinmannia racemosa</i>				✓

Monocotyledons (61 + 16)

<i>Agapanthus praecox*</i>		✓		
<i>Aira caryophyllea</i> s.str.*			✓	
<i>Anthoxanthum odoratum*</i>			✓	
<i>Apodasmia similis</i>	✓			
<i>Aristea ecklonii*</i>		✓		
<i>Astelia banksii</i>	✓		✓	
<i>Astelia solandri</i>		✓		
<i>Astelia trinervia</i>		✓		
<i>Austroderia fulvida</i>	✓			
<i>Axonopus fisifolius*</i>	✓			✓
<i>Baumea juncea</i>	✓			
<i>Baumea rubiginosa</i>		✓	✓?	
<i>Baumea tenax</i>		s		✓
<i>Carex dissita</i>		✓	✓	
<i>Carex lambertiana</i>	✓			
<i>Carex lessoniana</i>		✓	✓	✓
<i>Carex pumila</i>	✓			
<i>Carex solandri</i>	✓	✓		
<i>Carex virgata</i>		✓	✓	✓
<i>Collospermum hastatum</i>	✓	✓	✓	
<i>Cordyline australis</i>	✓	✓	✓	
<i>Cordyline banksii</i>		✓	✓	✓
<i>Cordyline pumila</i>	✓	✓	✓	✓
<i>Cortaderia selloana*</i>	✓		✓	
<i>Crocasmia crocosmiiflora*</i>		✓		
<i>Cyperus eragrostis*</i>		✓		✓
<i>Cyperus ustulatus</i>		✓	✓	✓
<i>Dendrobium cunninghamii</i>	✓			
<i>Dianella latissima</i>		✓	✓	✓
<i>Dianella nigra</i>	✓	✓	✓	✓
<i>Dichelachne</i> sp. or spp.		✓	✓	
<i>Drymoanthus adversus</i>	✓			
<i>Earina autumnalis</i>		✓	✓	✓
<i>Earina mucronata</i>		✓		
<i>Eleocharis acuta</i>		✓		
<i>Ficina nodosa</i>	✓			
<i>Ficina spiralis</i>	✓			
<i>Freycinetia banksii</i>	✓	✓		
<i>Gahnia lacera</i>	✓	✓	✓	✓
<i>Gahnia pauciflora</i>	✓	✓		
<i>Gahnia setifolia</i>		✓	✓	
<i>Gahnia xanthocarpa</i>		✓	✓	
<i>Gastrodia sessamoides</i>	s			
<i>Ichthyostomum pygmaeum</i>	✓	✓		
<i>Isachne globosa</i>			✓	

<i>Juncus edgariae</i>			✓	✓
<i>Juncus kraussii</i>	✓			
<i>Juncus pallidus</i>	✓	✓		
<i>Juncus prismatocarpus</i>		✓		
<i>Juncus tenuis*</i>	✓			
<i>Juncus usitatus</i>		✓		
<i>Lagurus ovatus*</i>	✓			
<i>Libertia grandiflora</i>	✓			
<i>Microlaena avenacea</i>		✓		✓
<i>Microlaena polynoda</i>	✓			
<i>Microlaena stipoides</i>	✓		✓	
<i>Morelotia affinis</i>	✓	✓	✓	✓
<i>Oplismenus hirtellus</i>	✓	✓	✓	✓
<i>Orthocerus novae-zelandiae</i>	✓	✓		
<i>Paspalum dilatatum*</i>			✓	
<i>Paspalum vaginatum*</i>	✓			
<i>Pennisetum clandestinum*</i>	✓			
<i>Phormium tenax</i>	✓	✓		
<i>Poa anceps</i>		✓	✓	
<i>Pterostylis banksii</i>				✓
<i>Rhopalostylis sapida</i>	✓	✓	✓	
<i>Ripogonum scandens</i>	✓	✓		
<i>Rytidosperma racemosum*</i>		✓		
<i>Rytidosperma</i> sp. or spp.	✓	✓	✓	✓
<i>Schoenus apogon</i>		✓	✓	
<i>Schoenus tendo</i>	✓	✓	✓	✓
<i>Spartina alterniflora*</i>	✓			
<i>Spinifex sericeus</i>	✓			
<i>Stenotaphrum secundatum*</i>	✓			
<i>Thelymitra</i> sp.			✓	
<i>Uncinia banksii</i>	✓			
<i>Uncinia uncinata</i>		✓	✓	✓

Muriwai Regional Park Field Trip – 19 February 2011

Helen Preston Jones, James Luty, Joshua Salter, Mike Wilcox

Participants: Ewen Cameron, Litza Coello, Neil Davies, Melanie Dixon, John Smith-Dodsworth, Nerrisa Smith-Dodsworth, Frances Duff, Tom Greer, Kristy Hall, Peter Hutton, Helen Preston Jones, James Luty, Elaine Marshall, Alistair MacArthur, Chris Pronk, Juliet Richmond, Josh Salter, Cheryl Taylor, Richard Tippett, Val Tomlinson, Eleanor Vincent, Simon Vincent, Harold Waite, Alison Wesley, Mike Wilcox, Tony Williams, Maureen Young.

Our first outing of the year, on 19 February 2011, led by our president, Mike Wilcox, was held on a lovely summer afternoon at Muriwai (Fig. 1.). We were glad to start under the shade of the bush, be refreshed by an ice cream and coffee break midway, check out the last fledgling gannets (Plate 1a), and spend some very pleasant hours wandering along the southern Maori Bay foreshore and seabed (Fig. 2, 3) looking at

seaweeds. The programme was timed to benefit from the very low tide, which meant we could walk all the way round the Muriwai headland, beneath the gannet colony (Plate 1b), which is possible only rarely. And the day ended with a swim. What could be better? The trip provided us with a good demonstration of the vegetation changes occurring from cliff top to sea in this area of the Waitakere Ranges, and a gentle introduction to our field programme for 2011. All photos except Fig. 12 were taken on the day, by Alistair MacArthur (AM), Cheryl Taylor (CT), Joshua Salter (JS) and Mike Wilcox (MW).

Quarry, Edwin Mitchelson and Lookout Tracks: We first explored the Quarry, Edwin Mitchelson and Lookout Tracks (which form the northern end of the Hillary Trail). The Quarry Track, reached from the road to Maori Bay, after a rather weedy start, ascends