Beilschmiedia tarairi
Beilschmiedia tawa
Brachyglottis kirkii var. *angustior*
Brachyglottis repanda
Callitriche muelleri
Calystegia tuguriorum
Cardamine debilis
Carmichaelia australis
Centella uniflora
Clematis paniculata
Coprosma arborea
Coprosma areolata
Coprosma grandifolia
Coprosma lucida
Coprosma rhamnoides
Coprosma robusta
Coprosma spathulata
Coriaria arborea
Corokia buddleioides var. *buddleioides*
Corynocarpus laevigatus
Dodonaea viscosa
Dracophyllum latifolium
Dracophyllum sinclairii
Dysoxylum spectabile
Elaeocarpus dentatus
Elatostema rugosum
Epilobium nerteroides
Euchiton gymnocephalus
Geniostoma rupestre var. *ligustrifolium*
Gonocarpus incanus
Griselinia lucida
Haloragis erecta
Hebe macrocarpa var. *macrocarpa*
Hedycarya arborea
Helichrysum lanceolatum
Hoheria populnea
Hydrocotyle dissecta
Hydrocotyle elongata
Ixerba brexioides
Knightia excelsa
Korthalsella salicornioides
Kunzea ericoides
Laurelia novae-zelandiae
Leionema nudum
Leptecophylla juniperina
Leptospermum scoparium
Leucopogon fasciculatus
Litsea calicaris
Lobelia anceps
Lophomyrtus bullata
Macropiper excelsum
Melicope simplex
Melicope ternate (planted, at Glen Esk car park)
Melicytus macrophyllus
Melicytus micranthus
Melicytus ramiflorus
Metrosideros carminea
Metrosideros diffusa
Metrosideros excelsa
Metrosideros fulgens
Metrosideros perforata
Metrosideros robusta
Mida salicifolia
Myrsine australis
Myrsine salicina
Nertera dichondrifolia
Nestegis lanceolata
Nestegis montana
Olearia furfuracea
Olearia rani
Olearia solandri (planted, at Glen Esk car park)
Parsonsia sp.
Passiflora tetrandra
Peperomia urvilleana
Pittosporum cornifolium
Pittosporum ellipticum
Pittosporum eugenioides
Pittosporum kirkii
Pittosporum tenuifolium
Pomaderris phylicifolia var. *ericifolia*
Pseudopanax arboreus
Pseudopanax crassifolius
Pseudopanax lessonii
Pseudowintera axillaris
Quintinia serrata
Ranunculus reflexus
Rhabdothamnus solandri
Rubus australis
Rubus cissoides
Schefflera digitata
Senecio minimus
Sophora fulvida
Syzygium maire
Toronia toru
Vitex lucens
Wahlenbergia violacea

Monocots excl. grasses & orchids

Arthropodium cirratum
Astelia banksii
Astelia nervosa
Astelia solandri
Astelia trinervia
Carex breviculmis
Carex dissita
Collospermum hastatum
Cordyline australis
Cordyline banksii
Cordyline ?australis x *C. pumilio*
Dianella nigra
Freycinetia banksii
Gahnia lacera
Gahnia pauciflora
Gahnia setifolia
Gahnia xanthocarpa
Isolepis reticularis
Juncus planifolius
Lepidosperma laterale
Libertia ?grandiflora
Morelotia affinis
Phormium cookianum
Phormium tenax (planted)
Rhopalostylis sapida
Ripogonum scandens
Schoenus maschalinus
Schoenus tendo
Uncinia banksii
Uncinia uncinata

Orchids

Acianthus sinclairii
Bulbophyllum pygmaeum
Corybas acuminatus
Corybas oblongus
Earina autumnalis
Earina mucronata
Genoplesium pumilum
Pterostylis trullifolia
Thelymitra sp
Winika cunninghamii

Grasses

Microlaena avenacea
Oplismenus hirtellus ssp. *imbecillis*

Rosalie Bay - Great Barrier Island: 2-5 Feb 2001

Steve McCraith & Kerry Bodmin

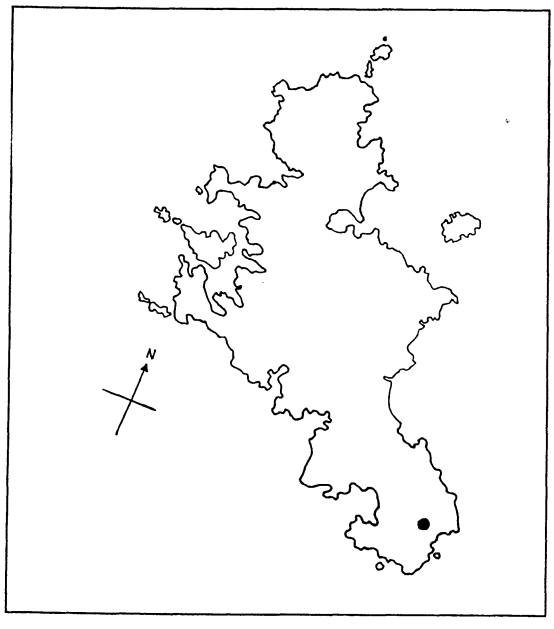

Fig. 1: Location of Benthorn Farm, Rosalie Bay, Great Barrier Island

Fri 2 Feb

At 6.30pm several Auckland Botanical Society members set off from Auckland aboard the Fullers ferry bound for Great Barrier Island in the outer Hauraki Gulf. The aim for the weekend was to carry out a botanical survey for landowners Peter and Helga Speck at their farm (Benthorn) in Rosalie Bay, on the southeastern corner of the island. After a smooth ferry crossing, a good half hour spent locating bags and packs in the absence of light on the wharf at Tryphena and a van ride over the hill down a seemingly precarious road the crew arrived at our residence for the next few days. We were greeted by Peter and Helga and plied with wine and pasta (a fine first impression I must say). Bedding arrangements were made, some inside, others in tents and everyone eventually wandered off in search of sleep.

Sat 3 Feb

After being woken by the local rooster population and downing more of the seemingly endless coffee supply plans were made for the day. Rosalie Bay lies at the bottom of a large valley. Benthorn Farm is located about halfway up the valley on a large plateau that allows for excellent views of the valley itself and, further out, to the sea. The slopes of a hill on the eastern side of the valley were to be botanised in order to compile a species list. This was the main area proposed for possible consideration as a conservation covenant. A gentle climb up through mature manuka bush followed the ridgeline. This soon gave way to a diverse broadleaf forest with many mature trees including puriri, coprosma,

taraire and tawa. The understory was dense with ponga and the floor was covered in taurepo (*Rhabdothamnus solandri*), small leaved coprosmas (*C. arborea* and *C. areolata*), *Alseuosmia* x *quercifolia* and a range of ferns. *Bulbophyllum* festooned many of the larger trees and *Drymoanthus adversus* was far from uncommon. Several mature specimens of wharangi (*Melicope ternata*) were located near the high point of the ridge, quite some distance from their more usual coastal locality.

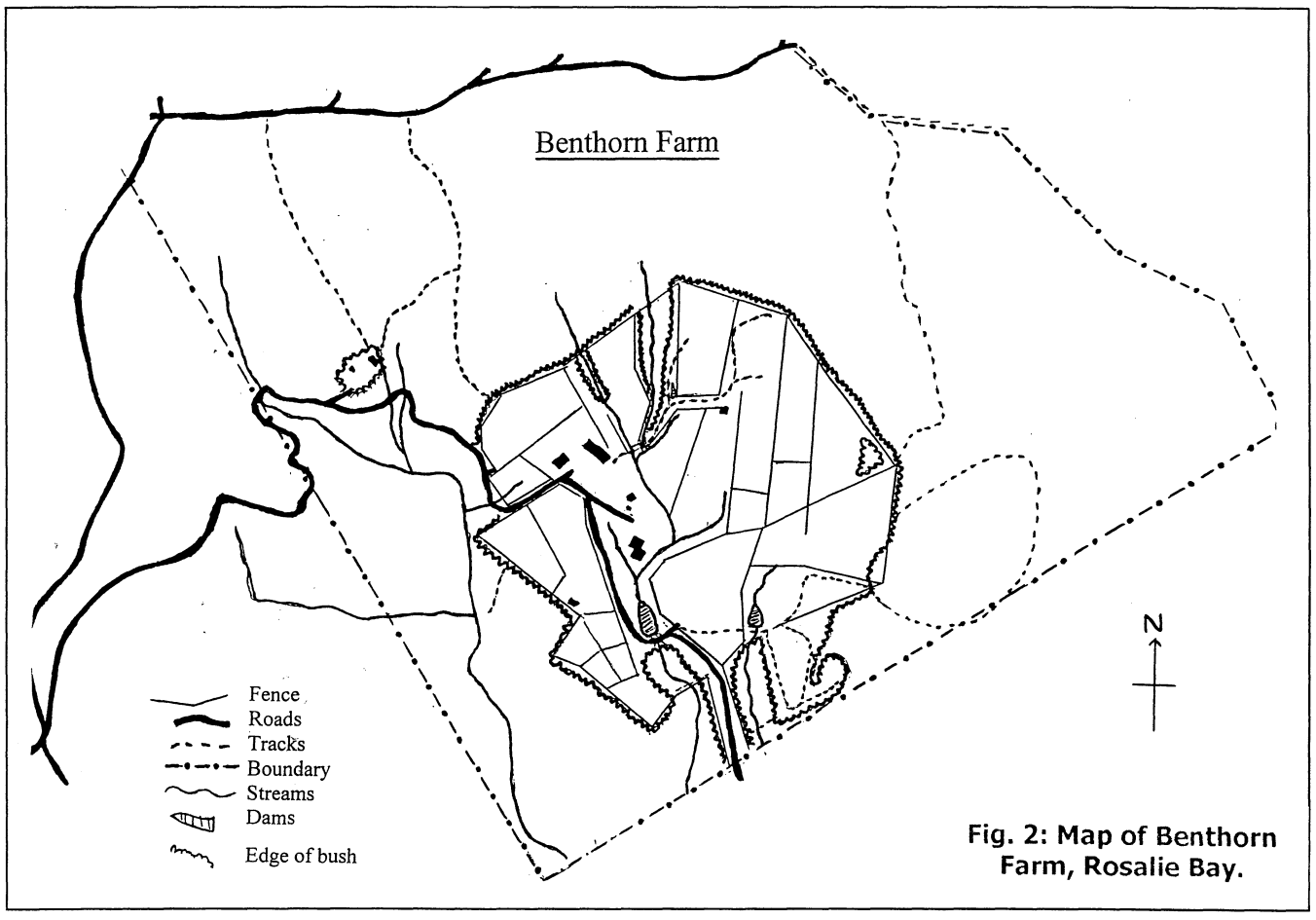

Fig. 2: Map of Benthorn Farm, Rosalie Bay.

At mid afternoon it was decided we should "visit the kauris". This area of bush was west of the house and we soon found ourselves surrounded by some wonderful specimen trees. A narrow track continued down to a stream that was followed for several hundred metres. Finally, with our guide Fred using finely tuned instincts, the party was led through thick scrub to emerge within a hundred metres of the house and signs of a BBQ. Peter had organized for several of the locals to meet the "city folk" over drinks and a fine fare (common theme). After chili olives, macadamia nuts and a several glasses of Helga's home brew the botanists felt the day's toil was well worth it. The visiting neighbours were happy to give us background information about the area and the pest control programme that is currently being undertaken.

Sun 4 Feb

After a short night's sleep, a quick breakfast stop and more coffee it was decided another forage into the main section of bush would be the plan for the day. It was decided this time we search the lower slopes that appeared to be a different type of habitat and included streamside habitat. This proved to be a wise move with several specimens of the 'other' subspecies of hen and chickens fern *Asplenium gracillimum* being discovered, a new record for the island. The forest in this section was mature and contained a number of puriri that had toppled over due to their advanced age. At one such particular spot the clearance in the canopy caused by the collapse of one of these large puriri had already been occupied by regrowth, with only one exotic (black nightshade) observed. In addition two separate sites were visited that were home to the green mistletoe (*Ileostylus micranthus*). The first site (in a fenced section of pasture) was recorded by Cameron (2000). The second site, again a single plant, is new for the Benthorn property and is in thick bush growing high in a kanuka. The sex of this second plant in unknown, but is possibly male and is the reason why the other plant produces fertile fruit. Later in the day one of the dams on the property was visited and turned up another surprise in the form of a small resident population of brown teal. The species is recorded from a number of sites on Great Barrier and are locally common around Claris.

It was agreed that the area surveyed would make an

excellent addition to any conservation covenant programme for several reasons. BotSoc made a list of over 140 species of higher plants on the short trip into the area and, while this is certainly not a comprehensive list, it shows a good diversity. No attempt was made to list lower plants. There are a number of different habitats within the area including streams, ridges (of varying aspects), swamp and scrubland. Also there was a noticeable lack of weeds present. It is highly likely however that any forest clearance (natural or otherwise) would result in the proliferation of weeds with wind borne seed, such as pampas, as seen on other islands in the gulf i.e. Little Barrier. A combination of factors ensures that animal pest numbers too, in the vicinity are low. Firstly a pest control programme (mainly targeting rats) was underway encompassing this section of Benthorn Farm. In addition, as there are no possums on Great Barrier Island, the damage to native forest that is seen all too commonly on the mainland is largely absent from this area of bush. Finally the presence of a nationally threatened plant *Ileostylus micranthus* must be of significance. Although only two plants have so far been located it is likely others will be discovered.

Thanks very much to our wonderful hosts Peter and Helga for all their efforts during the weekend and for allowing us the opportunity to visit this fantastic part of the island. We were very well taken care of from cuisine, transport, shelter to guiding us and introducing the Rosalie Bay locals. Also thanks to Don Armitage for organizing the trip from the Barrier end and for local insight. Thanks also to Fred Litten and Penny Sutton for being our guides their smiles and infectious enthusiasm for the area was obvious. Finally, thanks to Ewen Cameron for his insightful comments in the preparation of this article.

Our party:

Craig Greenslade	Helen Preston-Jones	Kerry Bodmin	Sandra Jones
Helen Cogle	Juliet Richmond	Mary Bodmin	Steve McCraith

Key to species list following: # additional species found in the kauri forest, along the stream or elsewhere on the Speck's property.
Specimens lodged in the Auckland Museum Herbarium are denoted AK #.
All species are native to New Zealand unless listed under adventives.

Rosalie Bay species list

Ferns and Fern Allies:
Adiantum cunninghamii
Adiantum fulvum
Adiantum hispidulum
Anarthropteris lanceolata
Asplenium bulbiferum
Asplenium gracillimum AK 252667 & AK 252668
Asplenium flaccidum
Asplenium lamprophyllum
Asplenium oblongifolium
Asplenium polyodon
#Blechnum chambersii
Blechnum filiforme
Blechnum fluviatile
#Blechnum fraseri
#Blechnum membranaceum
Blechnum novae-zelandiae
Cyathea dealbata
Cyathea medullaris
Deparia petersenii
Doodia australis
Grammitis ciliata
Huperzia varia
Hymenophyllum demissum
Hymenophyllum dilatatum
#Hymenophyllum flabellatum
Hymenophyllum sanguinolentum agg.
#Hymenophyllum scabrum
Hypolepis rufobarbata
Lastreopsis glabella
Lastreopsis hispida
Lastreopsis microsora ssp. *pentangularis*
#Leptopteris hymenophylloides
Lindsaea linearis
#Lycopodium deuterodensum
Lycopodium volubile
Lygodium articulatum
Microsorum pustulatum
Microsorum scandens
Paesia scaberula
Pneumatopteris pennigera
Polystichum richardii
Pteridium esculentum
Pteris macilenta
Pteris saxatilis
Pteris tremula
Pyrrosia eleagnifolia
Tmesipteris elongata ssp. *elongata*
Tmesipteris lanceolata
Tmesipteris sigmatifolia
Tmesipteris tannensis
#Trichomanes elongatum
Trichomanes reniforme

Gymnosperms:
#Agathis australis
Dacrycarpus dacrydioides
Dacrydium cupressinum
#Podocarpus totara
Prumnopitys ferruginea
#Prumnopitys taxifolia

Dicotyledons:
Alectryon excelsus
Alseuosmia x *quercifolia*
Beilschmiedia tarairi
*Beilschmiedia tawa (*incl. *B. tawaroa)* AK 252657
Brachyglottis kirkii var. *angustior*
Brachyglottis repanda
#Callitriche muelleri
Carmichaelia australis
Carpodetus serratus
Centella uniflora
Clematis cunninghamii
Clematis paniculata
Coprosma arborea
Coprosma areolata
Coprosma grandifolia
Coprosma lucida
Coprosma rhamnoides
Coprosma robusta
#Coriaria arborea var. *arborea*
Corynocarpus laevigatus
Dichondra repens agg.
Dysoxylum spectabile
Euchiton adux
Galium propinquum
Griselinia lucida
Hebe stricta var *stricta*
Hedycarya arborea
Hoheria populnea
Ileostylis micranthus
Knightia excelsa
#Kunzea ericoides
Laurelia novae-zelandiae
Leptecophylla juniperina
Leptospermum scoparium
Leucopogon fasciculatus
Leucopogon fraseri
Lobelia anceps
Lophomyrtus bullata
Macropiper excelsum ssp. *excelsum*
Melicope ternata
Melicytus micranthus
Metrosideros diffusa
Metrosideros excelsa
Metrosideros fulgens
Metrosideros perforata
Metrosideros robusta
Metrosideros excelsa x *M. robusta*
Mida salicifolia
Myrsine australis
Myrsine salicina
Nertera dichondrifolia
Nestegis lanceolata
Nestegis montana
Olearia furfuracea
Olearia rani
Peperomia urvilleana
Pittosporum cornifolium
Pittosporum eugenioides
Pittosporum tenuifolium ssp. *tenuifolium*
Pseudopanax arboreus
Pseudopanax crassifolius
Pseudopanax lessonii
Pseudopanax hybrids
Ranunculus reflexus
Rhabdothamnus solandri
Rubus australis
Rubus cissoides
Schefflera digitata
Streblus heterophyllus
Vitex lucens
Wahlenbergia vernicosa

Monocots: excluding grasses & orchids
Arthropodium cirratum
Astelia banksii
Astelia solandri
Baumea tenax AK 252664
Carex dissita
Carex lessoniana AK 252666
Carex testacea

#Carex virgata
Collospermum hastatum
Cordyline australis
Cordyline banksii
Cordyline pumilio
#Cyperus ustulatus f. *ustulatus*
Dianella nigra
Echinopogon ovatus AK 252659
Freycinetia banksii
Gahnia lacera
Gahnia pauciflora
Gahnia xanthocarpa
Isolepis reticularis AK 252663
Juncus gregiflorus
Juncus pallidus
Morelotia affinis
Phormium tenax
Polygonum salicifolium
Rhopalostylis sapida
#Schoenus maschalinus
Uncinia banksii
Uncinia uncinata

Orchids:
#Acianthus sinclairii
Bulbophyllum pygmaeum
Drymoanthus adversus
Earina aestivalis AK 252662
Microtis unifolia
Thelymitra longifolia
Winika cunninghamii

Grasses:
#Microlaena avenacea
Oplismenus hirtellus ssp. *imbecillis*

Adventives:
#Ageratina adenophora
#Araucaria heteroplylla
Crocosmia x *crocosmiifolia*
Erica lusitanica K 252661
 # Escallonia sp.
#Eucalyptus sp.
#Hedera helix
#Hydrangea macrophylla
Hypochoeris radicata
Lotus pedunculatus
#Oxalis sp.
#Pinus radiata
Paspalum dilatatum
Prunella vulgaris
#Symphytum officinale
Veronica plebeia AK 252660

References:
Cameron, E. K. 2000: An update of the distribution of *Ileostylus micrathus* in the Auckland Region. *Auckland Botanical Society Journal* 55(1): 39-44.

Plant colonisation on drained sludge ponds at the Mangere sewage works

Mike Wilcox and Rhys Gardner

With Keith Snow of Watercare Services Ltd we inspected the drained Mangere sludge ponds on 17 March 2000 to record what plants were colonising the newly exposed sites. The ponds had been accumulating sludge for 38 years, and cover 32 ha. Draining commenced in October 1998. After the water is drained off the nitrogen-rich peat-like organic sludge, mostly derived from the bodies of dead bacteria and algae, forms a substrate for numerous plants.

The dominant colonisers are
- purple amaranth (*Amaranthus lividus*) which forms a low meadow,
- willow-weed (*Polygonum salicifolium*),
- wavy-leaved fleabane (*Conyza bonariensis*),
- black nightshade (*Solanum nigrum*).
- tomato (*Lycopersicon esculentum*) was reported to have colonised in 1998, but does not seem to be present now.

Other colonists recorded were
- Mexican tea (*Chenopodium ambrosioides*),
- broad-leaved fleabane (*Conyza albida*),
- small-flowered nightshade (*Solanum americanum*),
- Australian fireweed (*Senecio bipinnatisectus*),
- ink weed (*Phytolacca octandra*),
- purslane (*Portulaca oleracea*),
- fathen (*Chenopodium album*),
- mugwort (*Artemisia annua*),
- freshwater paspalum (*Paspalum distichum*),
- South American barnyard grass (*Echinochloa crus-pavonis*),
- pampas grass (*Cortaderia selloana*),
- smooth witchgrass (*Panicum dichotomiflorum*),
- summer grass (*Digitaria ciliaris*),
- sea aster (*Aster subulatus*), and
- purpletop (*Verbena bonariensis*).

The only common woody plants were saplings of
- Peking willow (*Salix matsudana*) and
- corkscrew willow (*S. matsudana* 'Tortuosa'), both defoliated to various degrees by willow sawfly *(Nematus oligospilus),* a new introduction, first found in Auckland 9 February 1997 (Charles *et al.* 2000).

It is likely that the willow plants are seedlings from seed blown in from horticultural shelterbelts or garden plants. There was also a young plant of a poplar hybrid).

On older sludge deposits there were a few young plants of • (*Populus deltoides* or *P. deltoides* x *P. nigra*
- brush wattle (*Paraserianthes lophantha*),
- gorse (*Ulex europaeus*),
- New Zealand ngaio (*Myoporum laetum),*
- Tasmanian ngaio (*M. insulare*) (Gardner 2000)
- taupata (*Coprosma repens*),
- native fireweed (*Senecio glomeratus*), and
- swan plant (*Gomphocarpus fruticosus*).

Botanically, the most significant find was *Artemisia annua* – the first record of this highly aromatic, fine-leaved Mediterranean mugwort in New Zealand (Gardner 2000).

Reference:
Charles, J. G.; Allan, D. J.; Froud, K. J.; Fung, LE. 2000: A guide to willow sawfly (*Nematus oligospilus*) in New Zealand. *Hortnet.co.nz.publications/guides/willow-sawfly.* 8p.
Gardner, R. 2000: More noteworthy adventives, some of them from my garden. *Auckland Botanical Society Journal* 55(2): 98-99.