

Appendix: List of vascular plant species seen at Journey's End on 18 October 2014 by Auckland Botanical Society.

Ferns

Adiantum hispidulum
Blechnum parrisiae
Pteridium esculentum
Pyrrosia eleagnifolia

Dicots

Alternanthera philoxeroides *
Arctotis stoechadifolia * (planted?)
Atriplex prostrata *
Avicennia marina
Callitriche sp.
Calystegia sepium
Calystegia soldanella
Calystegia turguriorum
Carpobrotus chilensis *
Cirsium vulgare *
Cerastium sp. *
Conyza sumatrensis *
Coprosma rhamnoides
Coprosma robusta
Cotula coronopifolia
Crassula sieberiana
Crepis capillaris *
Dodonaea viscosa
Foeniculum vulgare *
Galium aparine *
Geniostoma ligustrifolium
Haloragis erecta
Hebe stricta
Hypochaeris radicata *
Kunzea sp.

Leontodon saxatilis *
Leptospermum scoparium
Leucopogon fasciculatus
Lotus pedunculatus *
Lupinus arboreus *
Malva ?neglecta *
Melicytus ramiflorus
Modiola caroliniana *
Muehlenbeckia complexa
Myrsine australis
Myrsine divaricata
Olearia solandri
Ornithopus pinnatus *
Osteospermum fruticosum * (planted?)
Phytolacca octandra *
Piper excelsum
Plagianthus divaricatus
Rumex acetosella *
Samolus repens
Sarcocornia quinqueflora
Senecio esleri
Selliera radicans
Senecio hispidulum *
Senecio quadridentatus
Sida rhombifolia *
Solanum mauritianum *
Sonchus oleraceus *
Sophora chathamica
Ulex europaeus *
Veronica arvensis *
Wahlenbergia vernicosa

Monocots

Anthoxanthum odoratum *
Apodasmia similis
Astelia banksii
Austrostipa stipoides
Avena barbata *
Bromus diandrus *
Carex pumila
Cordyline australis
Cortaderia selloana *
Cyperus ustulatus
Ficinia nodosa
Ficinia spiralis
Gahnia lacera
Gladiolus undulatus *
Juncus acutus *
Juncus kraussii
Machaerina articulata
Machaerina juncea
Microtis unifolia
Oplismenus hirtellus
Paspalum dilatatum *
Paspalum vaginatum *
Phormium tenax
Schenodorus arundinaceus *
Sporobolus africanus *
Stenotaphrum secundatum *
Typha orientalis
Watsonia meriana var. *bulbilifera* *
Zostera muelleri

Lord Howe Island – a record of the Auckland Botanical Society visit, 18-24 October 2014

Ewen K. Cameron (editor)

General Introduction – by Ewen Cameron

There was a previous unofficial Auckland Botanical Society (ABS) trip to Lord Howe Island (via Norfolk Island) by 20 people, which included 15 ABS members (see Appendix) in Nov-Dec 1993, organised by Helen Cogle because "Graeme Hambly wanted to go there". Graeme gave a wonderful talk about this trip to ABS in April the following year. There have

also been three ABS "overseas trips" to remote parts of New Zealand: Raoul Island in Nov 1994 and two to the Chatham Islands in Jan 2007 and Jan 2009 (Young 2007, 2009) and four foreign overseas trips: New Caledonia (Wilcox 2004), Sydney area (Wilcox et al. 2010), Norfolk Island (Wilcox et al. 2010), Tasmania (Wilcox 2012), and now this 2014 Lord Howe Island (LHI) trip.

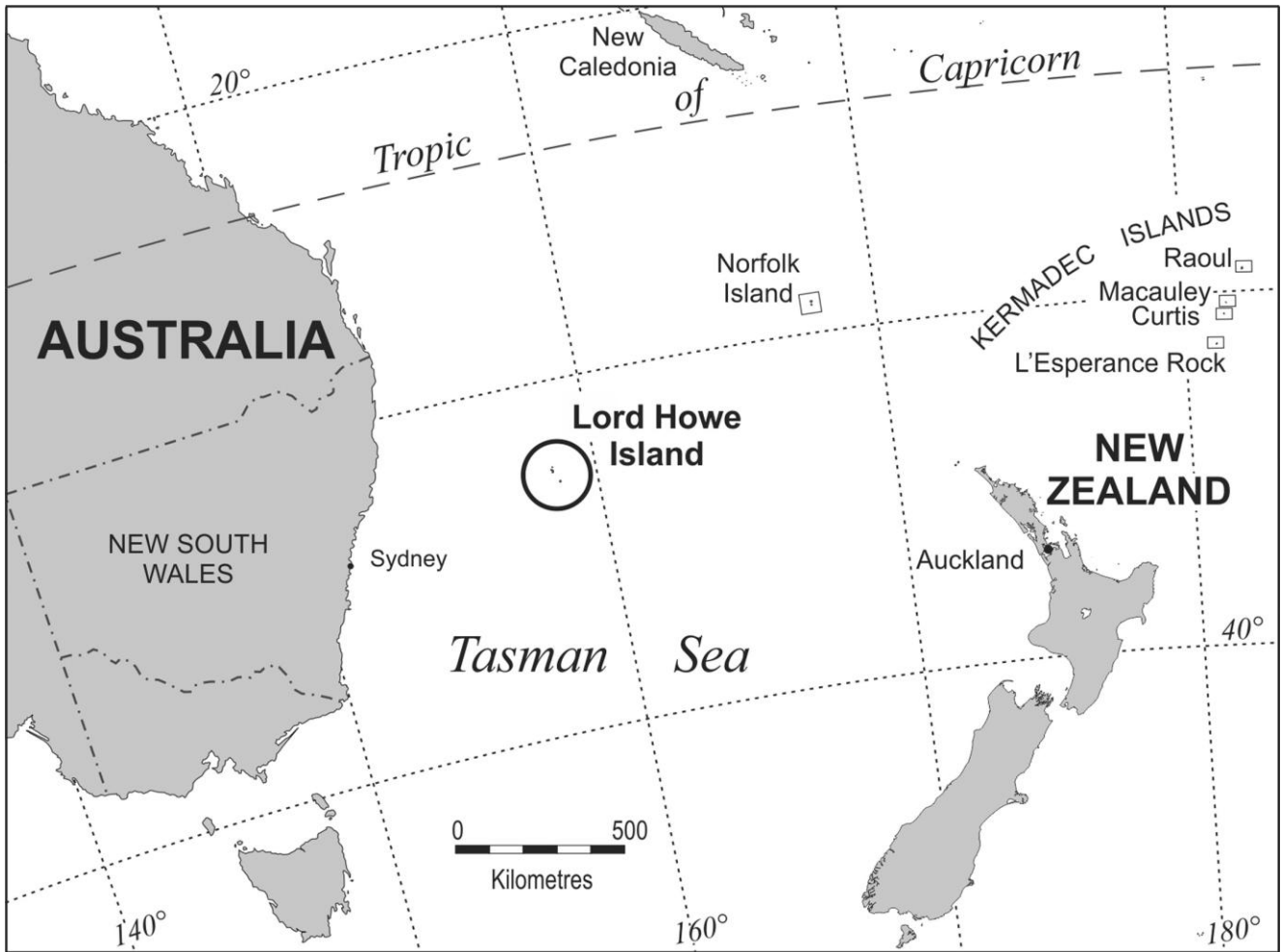


Fig. 1. Location of Lord Howe Island. Map by LC.

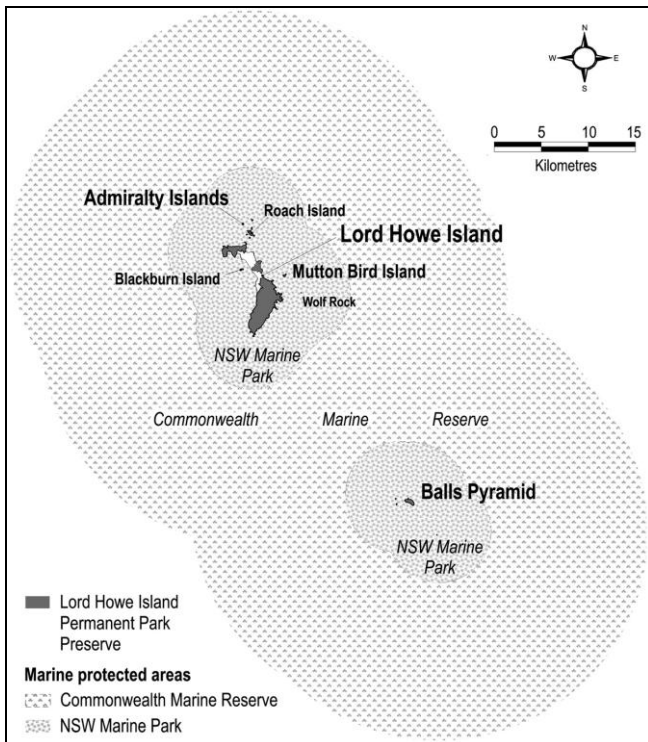


Fig. 2. The Lord Howe Island archipelago with terrestrial and marine reserves shown. Map by LC.

Lord Howe Island, Lat. $31^{\circ} 33' S$, Long. $159^{\circ} 05' E$, is situated 600 km directly E of mainland Port Macquarie, 780 km ENE of Sydney, and 900 km WSW of Norfolk Island (Fig. 1). The Lord Howe archipelago is composed of 27 islands covering 1455 ha, all close to the one main island, except Balls Pyramid 23 km distant. Most of the land and the surrounding ocean is protected (Fig. 2). Lord Howe Island is irregularly crescent-shaped and only 11 km long (Fig. 3). There are 380-odd local residents and no more than 400 tourists are allowed on the island at a time. The island is legally part of New South Wales and is administered by the Lord Howe Island Board. There is a small network of narrow tar-sealed roads often overhung with the endemic, world-famous kentia or thatch palm (*Howea forsteriana*), >20 km of well-marked walking tracks over varied terrain, few cars, and a speed limit of 25 kph. I'm sure I witnessed Duncan in his wheelchair breaking the speed limit on a downhill section of the road!

This report is written from a New Zealand standpoint – family names are generally only added where the genus is not present in New Zealand.

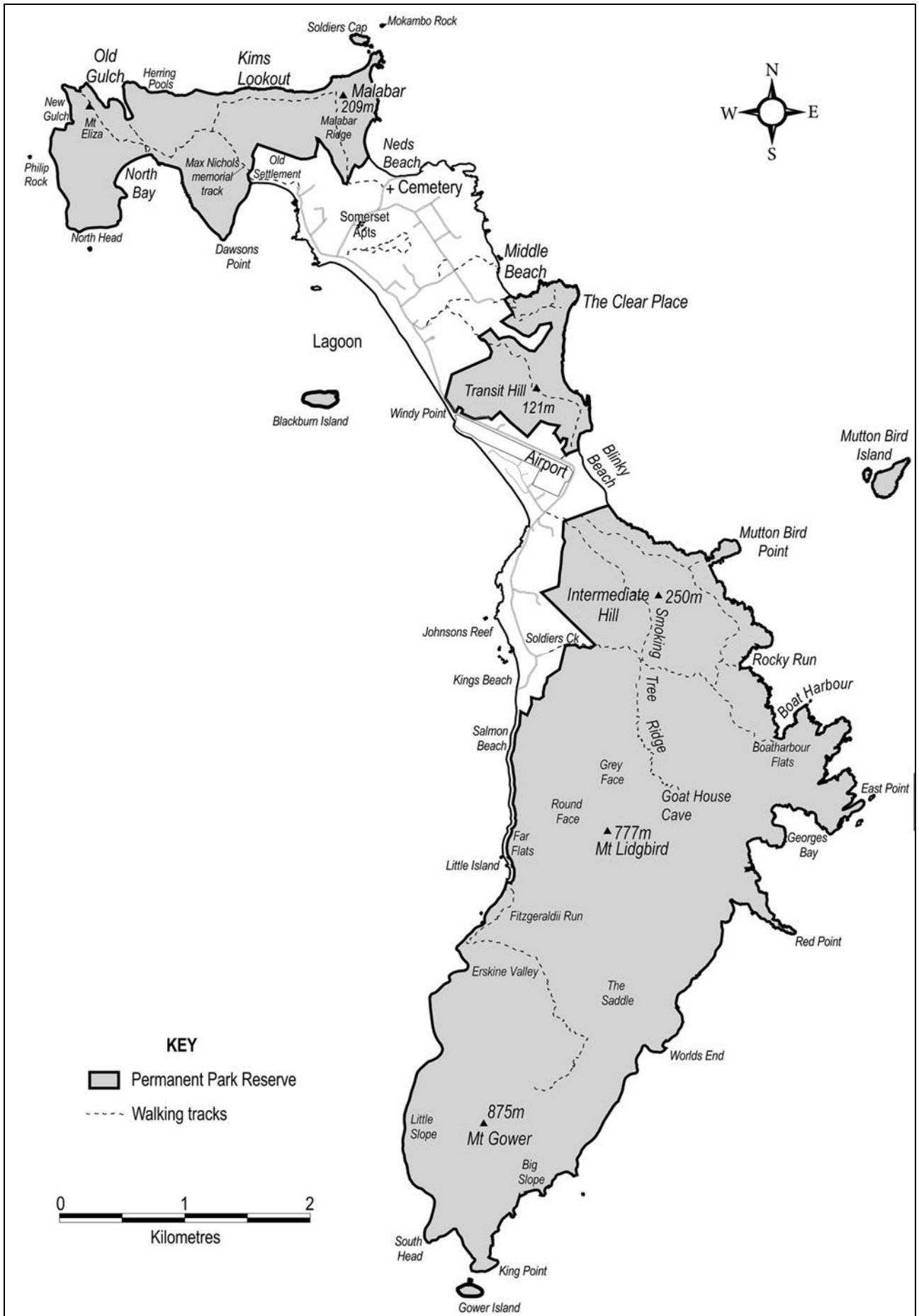


Fig. 3. Lord Howe Island showing Park Reserve and location of areas visited by our group. Map from NSW Govt / Lord Howe Island Board – Permanent Park Reserve – Plan of Management, Nov 2010, adapted by LC.

The group (Fig. 4): *Duncan Benzie, Ewen Cameron, Janeen Collings, Louise Cotterall, Leslie Haines, Mei Nee Lee, Christine Major (organiser), Colleen Pilcher, Mere Roberts, John & Stella Rowe, Mike Rowledge, Peter Scott, Jenni Shanks (assistant organiser), Doug Sheppard, Claire Stevens, Val Tomlinson, Diana Whimp, Anthony Wright, Maureen Young.* Maureen was the only one who had been to the island before. Sadly Bev and Geoff Davidson pulled out the week before departure due to Geoff's mishap with a bonfire.

All field photographs were taken during the trip by: Ewen Cameron (EC), Janeen Collings (JC), Louise Cotterall (LC), Leslie Haines (LH), Mei Nee Lee (ML), Christine Major (CM), Colleen Pilcher (CP), Stella Rowe (SR), Mike Rowledge (MR), Doug Sheppard (DS), Claire Stevens (CS), Anthony Wright (AW). The maps were prepared by Louise Cotterall.

Geology and History – by Christine Major

Lord Howe Island is located on the Lord Howe Rise, the immersed north-western region of the Zealandia continent that extends from west of New Caledonia to the Challenger Plateau west of central New Zealand. From 2000 m ocean depths Lord Howe Island rises to 875 m asl (Mount Gower) and, 23 km distant, Balls Pyramid to 550 m asl.

Lying at the south end of the Lord Howe Seamount Chain, the LHI Group comprise the eroded remnants of late Miocene intraplate basaltic volcanism. Volcanic activity commenced 7 million years ago creating a shield volcano 30 km in diameter. The earliest rocks are the tuff found on the Admiralty Islands while the North Ridge, Transit Hill and Intermediate Hill are composed of basalt intruded by many dykes. Although the lava generally flowed quietly, breccia at Boat Harbour is evidence of an explosive event.

The final period of eruption, 6.4 million years ago, consisted of successive deep lava flows filling a 5–6 km wide caldera – viewed today as the spectacular columnar jointed cliffs of Mounts Lidgbird and Gower. Erosion has reduced the main island to 11 km by 2 km in size with a few adjacent islets and rocks.

Most of the flatter areas of LHI are composed of alluvial or sedimentary material. The world's southernmost coral reef encloses a lagoon on the western side of the island and thus the lagoon beaches are composed of calcareous fragments from the reef and its inhabitants. On other beaches basalt pebbles and large coral fragments may predominate. Wind dispersed coral, shell and algal fragments have accumulated in low lying areas and subsequently been cemented by calcite dissolved in percolating

ground water, creating calcarenite. Susceptible to weathering, this rock is usually recognised by its honeycomb appearance.

Balls Pyramid (Fig. 5) is another volcanic centre of undetermined age separated from LHI by a 700 m deep trench. This island was of smaller proportion to its neighbour and this towering slender edifice has roughly 5,000 years of existence as an island remaining before it is claimed by erosion.

Apparently unknown to Polynesians, LHI was discovered in 1788 by Lieutenant Henry Lidgbird Ball aboard the HMS *Supply* who claimed it as a British possession. Within three years the whale industry commenced with the island being visited by whaling ships for decades before the first permanent settlement was established in 1834. This primarily served as a source of supplies for whalers. In 1855 the island was officially designated as part of New South Wales.

Within years of the decline of the whaling industry in the 1870s, the export of the endemic kentia palm seeds commenced and continued until 1981 by which time live plants formed the basis of the industry. Unfortunately today the importance of the export has declined as LHI competes with the production of kentia by Norfolk Island and other countries.

Major conservation initiatives commenced in the 1970s with the first milestone being the eradication of cats in 1979 and pigs in 1981. In 1982 eighty percent of the main island was protected within a Permanent Park Reserve and in the same year, LHI was cited under the UNESCO World Heritage List. The LHI Marine Park was declared in 1999 and wild goats were removed in 2001. Mice and ship rats are the last two feral mammals that need to be removed.

Introduction to the flora and fauna – by Ewen Cameron

Green (1994) lists nine vegetation types for the island and their characteristic species. However, a more generalised view is:

(a) Littoral rainforest – occurring mainly north of the airport on the alluvium/sedimentary ground, the main plants related closely to those growing along the E Australian coast, with *Drypetes deplanchei* subsp. *affinis* (En = endemic to LHI), *Cryptocarya triplinervis*, *Howea forsteriana* (En) or *H. belmoreana* (En) as important species;

(b) Submontane rainforest / Cloud forest – occurring mainly south of the airport on basalt with *Cryptocarya gregsonii* (En) and *Hedescepe canterburyana* (En) as important species; and higher up on Mt Gower and Mt Lidgbird with *Zygogynum*

howeanum (En) (Winteraceae), *Dracophyllum fitzgeraldii* (En) and *Metrosideros nervulosa* (En) as important species.

The island is subject to strong winds and the effect on the vegetation has been exacerbated in places by forest clearance by the early settlers, exposing the remaining trees to the often salt-laden winds (Green 1994). Three species stand out as tolerant of this salt-laden wind: *Melaleuca howeana*, *Cassinia tenuifolia* and *Myoporum insulare* and they consequently dominate the coastal forest edge. One species that is particularly susceptible to the wind is the banyan fig (*Ficus macrophylla* f. *columnaris*) (En) which has declined rapidly since the lowland forest was opened up by the early settlers clearing land for their crops (Green 1994).

The first botanical collections on LHI (and the Kermadec Islands) were made by J. MacGillivray and W.G. Milne in 1854 on the HMS *Herald* and its first flora by Botting Hemsley (1896) who was based at Kew. A New Zealander, W.R.B. Oliver, published LHI's next most comprehensive flora (Oliver 1917). The extensive modern flora published by Green (1994) as part of the *Flora of Australia* series recognised 460 wild vascular taxa: 242 native with 105 taxa endemic to LHI, and 218 naturalised taxa. Most of the LHI endemic taxa, the more ancient plants, have their closest relatives in New Zealand, New Caledonia, and Norfolk Island rather than Australia.

In more recent times plants have migrated across from E Australia. This was brought home to me three weeks after the LHI trip when I was briefly in a forest area just out of Brisbane, the D'Aguiar Range, where I saw many non-New Zealand species and genera which were in common with LHI, e.g.: *Balogia inophylla*, *Flagellaria indica*, *Marsdenia rostrata* (Apocynaceae), *Platynerium bifurcatum* (elkhorn fern), *Sarcomelicope simplicifolia* (Rutaceae), *Smilax australis*, *Atractocarpus* spp. (Rubiaceae), and *Polyscias* sp. (Araliaceae).

Many of the recorded 218 naturalised plants are aggressive weeds, mainly limited to areas close to habitation. They include: *Psidium cattleianum* (strawberry guava), *Ochna serrulata* (ochna), *Pittosporum undulatum* (sweet pittosporum), *Chrysanthemoides monilifera* subsp. *rotundata* (bitou bush), *Asparagus aethiopicus* and *A. asparagoides*. Two species threatening the southern mountain forests are *Anredera cordifolia* (Madeira vine) and *Lilium formosanum* (Hutton 2003). The worst lowland weeds are considered to be the two species of asparagus. From the New Zealand experience, the relatively recent arrival of veldt grass (*Ehrharta erecta*) should also be considered as one of the worst weeds on the island.

The native fauna contains a single mammal, an insectivorous native bat (*Vespadeleus pumilus*) which is probably extinct. There is a gecko (*Christinus guentheri*), a skink (*Pseudemoia lichenigereum*) which, due to ship rats, is now mainly restricted to the offshore islands, and 70 species of endemic land snails. There have been 202 different birds recorded on the island (Hutton 2010a) which is a seabird heaven (14 seabird species breed on LHI). Of the 15 land bird species recorded for LHI (13 endemic) nine are now extinct including the white gallinule, white-throated pigeon, a parakeet, a fantail, and the LHI boobook owl (Hutton 2003).

Twelve exotic vertebrates have formed wild populations on the island: barn owls and rabbits died out naturally, while feral cats and feral pigs were eradicated in 1979 and 1981 respectively and feral goats in 2001. Rodents (mice and ship rats) have been subjected to control strategies ranging from a bounty scheme and attempts at biocontrol with the introduction of two Australian owls, barn and masked owl during the 1920s, to the current use of warfarin baits largely to protect the islanders' palm seed industry (mainly from Hutton et al. 2007). A small skink we commonly saw throughout the forest was the introduced oviparous Australian rainbow skink (*Lampropholis delicata*) – which has also naturalised in New Zealand. The only amphibian on the island is the exotic bleating tree frog (*Litoria dentata*) native to eastern Australia.

The endemic LHI phasmid/stick insect (*Dryococelus australis*) is thick-bodied and thick-legged, reaching 15cm long. It became extinct on LHI after ship rats established, but was discovered alive in 2001 high up on Balls Pyramid (Fig. 5). It is now in a captive breeding programme with the aim of reintroducing it to LHI once rodents are eradicated. We saw some live juvenile phasמידs in the LHI Museum.

The planned eradication of rodents from LHI is sadly verging on stalling. Recently the island board held a vote amongst residents as to whether they wanted the eradication to continue or not. It passed by a slim margin which is not a good basis to proceed on. Nevertheless the board have resolved to try to gain further support before deciding whether to proceed or drop the project (Keith Springer, Parks & Wildlife Service Tasmania, pers. comm. to EKC, May 2015).

Getting there (Friday 17 Oct 2014)

Eighteen of the group departed from Auckland airport on Friday afternoon and we met up with the other two in a hotel by the Sydney domestic airport where we stayed for an early morning departure to LHI (an internal Australian flight), 780 km NE of Sydney.

Arrival and Transit Hill (Saturday 18 Oct 2014) – by Ewen Cameron

After the 2 hr flight in a Qantas Dash 8-200 from Sydney, we landed at Lord Howe airport and were quickly taken to the northern end of the island to our comfortable accommodation at Somerset Apartments. Time to unpack, purchase a few supplies down the road for breakfasts and lunches and then a walk down the narrow tar-sealed road lined with the most famous Lord Howe plant, kentia palms (Fig. 6), to the local museum a little over 1 km away. The frequent introduced Norfolk I. pines (*Araucaria heterophylla*) along the route often had white terns perched on low branches, and the terns were common in the air too.

There was time to work out a few of the common trees along the way: *Drypetes deplanchii* var. *affinis* (En) (Euphorbiaceae) with grey bark and a slightly wavy margin to the alternately arranged leaves; *Cryptocarya triplinervis* (Lauraceae) having alternate leaves with 3 veins from the leaf base and dark bark ('blackbutt'); and a small tree/shrub *Ochrosia elliptica* (Apocynaceae) with shiny leaves in whorls of three and paired red fruit to c.3 cm long. The commonest vine in the palm forest understorey was *Geitonoplesium cymosum*, a monotypic genus in the Hemerocallidoideae, which is native here and naturalised in New Zealand (Rogan 2000). Another widespread common climber was *Smilax australis* with tendrils, prickles along the stem, and leaf venation similar to the New Zealand *Coriaria arborea*. A roadside *Korthalsella* (much larger than any New Zealand species) was spotted high up on a *Drypetes deplanchii* tree. After a climb, a small piece that we acquired appeared to be *K. emersa* (En) – one of the two similar species on the island.

At the museum we met Ian Hutton, the local natural history guru, and collected our pre-ordered very handy natural history books authored by him. After a short introductory talk on the island's natural history and geology we then walked to the adjacent Transit Hill (123 m asl) led by Ian, with frequent informative botanical stops along the way. Generally the common names of the plants he spoke about didn't help us work out the species' relatives and we soon asked him if he could mainly keep to the scientific names. The hill was named after the Transit of Venus which was observed there in 1882 by Surveyor Wm J. Condor.

A large banyan fig (Fig. 7) was one of our first stops, where Ian explained that this endemic taxon was originally described in 1874 as a separate species distinct from the eastern Australian *F. macrophylla*, then sunk to a subspecies in 1986, followed by the lower rank forma in 2001. The separation is mainly based on the aerial roots taking root in the Lord Howe endemic. According to Ian, the banyan may reach 2-3000 years old and a single tree

may form a small forest on its own, covering up to 1.2 ha. It reminded me of the single Bengal fig (*F. benghalensis*) tree that I saw in the Calcutta Botanic Garden in 1975, looking like a forest with >1000 aerial roots, each looking like a tree (the largest individual of this species is the world's largest single tree by canopy coverage and has a perimeter of 846 m). Duncan managed to stay with us until the ground got too rocky for his cross-country wheelchair.

Ian introduced us to: *Olea paniculata*, a small tree with obvious pale lenticels in the bark; *Syzygium fullagarii* (scaly bark) (En) with buttress roots; *Dysoxylum pachyphyllum* (En); *Planchonella horreana* (En), a small tree with wide ovate leaves with texture and venation similar to *P. costata*; the climber *Flagellaria indica* (Flagellariaceae) with diagnostic coiled leaf tips; and we admired the handsome ground ferns *Microsorium pustulatum* subsp. *howense* (En) and *Asplenium milnei* (En).

We then came out on an open weedy ridge now being rehabilitated with planted shrubs of: *Cassinia tenuifolia* (En), *Dodonaea viscosa*, *Leptospermum polygalifolium* subsp. *howense* (En), *Melaleuca howeana* (En), *Alyxia ruscifolia* (Apocynaceae) and *Myoporum insulare*. We continued along the lower margin of the forest with views out over the lagoon and over pasture where we spotted spur-winged plovers and two cattle egrets. Back in the forest Ian pointed out a weed control area where a mixture of hand weeding and herbicide had been used to control two species of *Asparagus*: *A. aethiopicus* and *A. asparagoides*. Much of this weed work is being carried out by outside volunteer 'holiday' groups organised by Ian: mornings weeding, afternoons off. Maureen had previously visited the island on a weeding trip.

Closer to the summit we were shown the difference between the two endemic *Howea* palms occurring together here: kentia palm (*H. forsteriana*) and curly palm (*H. belmoreana*). Ian explained that it was an example of sympatric speciation, the kentia palm that occurs on the coral sand having been blown up here c.1 mya, and the curly palm occurring on the basalt. Over time they have reproductively become isolated by flowering at different times. Trees seen near this summit area included: kowhai (*Sophora howinsula*) (En) which was originally described by W.R.B. Oliver (1917) as a variety of the New Zealand *S. tetraptera*, a few flowers were on the ground; *Atractocarpus stipularis* (En) (Rubiaceae), an attractive tree with large opposite leaves and prominent stipules (Fig. 8), with green fruit; *Drypetes deplanchei*; *Homalanthus nutans*; *Balogia inophylla* (Euphorbiaceae) fruiting; *Polyscias cissodendron* (Araliaceae); *Guioa coriacea* (En) (Sapindaceae); *Myrsine mcomishii* (En), a single tree pointed out; *Myrsine platystigma* (En) two trees

with green fruit; and *Sarcomelicope simplicifolia* (Rubiaceae) single leaves with an articulate petiole. Two species of *Coprosma* shrubs were present, *C. putida* (En) with foetid-smelling leaves, and *C. prisca* (En) with non-foetid leaves; and the tall shrub *Geniostoma petiolosum* (boar tree) (En) (Fig. 9) with its foetid white flowers was easy to identify. Three climbers stood out: *Trophis scandens* subsp. *megacarpa* (En) (Moraceae) with rough leaves feeling like sandpaper; *Alyxia lindis* (Apocynaceae); and *Marsdenia rostrata* (Apocynaceae). On the ground *Carex brunnea* (En) was abundant and *Arthropteris tenella* was common. The small forest bird, LHI golden whistler, an endemic subspecies, was seen and heard throughout the walk, along with the introduced blackbird.

The elevated viewing platform on the flat summit was just high enough to give us 360° views over the forest canopy to other high points on the island, the coastline and associated islands, including the famous Wolf Rock that nearly sank the British destroyer HMS *Nottingham* in 2002. From here we retraced our steps. It was a wonderful introduction to the LHI flora with Ian teaching us the identity of many of the common species along with much general island information as well. With many plants in familiar genera and some species in common with New Zealand, the initial day wasn't too botanically challenging. For dinner we descended on the Bowling Club for excellent fresh kingfish and salads. As is the island way, we accepted the restaurant offer of a free lift back to our accommodation after the meal.

Malabar Hill Track (Sunday 19 Oct 2014) – by Mei Nee Lee

Closest to our accommodation was the Malabar Track, in the north of the island. The track runs between Ned's Beach Road and Old Settlement Beach, taking in Malabar (209 m asl at its highest) and Kim's Lookout, providing stunning views over the ocean and back over the island, and great photo opportunities (Fig. 10), and then looping back via the Lagoon coast. Most of our group had a rather rushed walk along this track on the Sunday morning, so

three of us came back for a more leisurely exploration the following day.

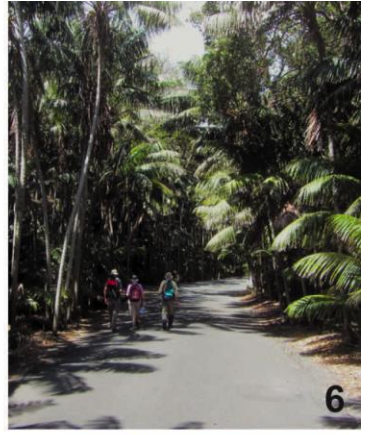
Starting the track from Ned's Beach Road, we walked past an abundance of fleshy-footed shearwater burrows amongst kentia palms, banyan, *Celtis conferta* subsp. *amblyphylla* and some small *Piper excelsum* bushes (not fruiting) in the understory, with *Stephania japonica* var. *timoriensis* (Menispermaceae) and *Parsonsia howeana* scrambling over everything.

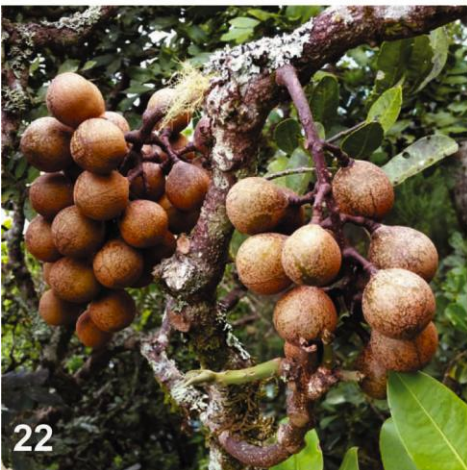
The track took us over a stile where we dutifully dipped our boots into the disinfectant trough before entering a paddock to begin our ascent to Malabar. Around the perimeter of the paddock, of mostly kikuyu (*Cenchrus clandestinus*) and *Sporobolus africanus*, were large *Lagunaria patersonia* trees. In the upper part of the paddock near the forest edge was a large colony of sooty terns. Their raucous calls were an interesting soundtrack for the start of our climb.

Amongst the rocky outcrops in the paddock we found *Crassula sieberiana*, *Oxalis exilis*, *Euchiton involucratus* and a few *Dendrobium macropus* subsp. *howeanum* (bush orchid) with beautiful creamy flowers. From the paddock the track took us over another stile into the Permanent Forest Park with short trees of up to c.1.5 m. We were undecided on whether these trees had been planted or just recently naturally regenerated. We saw *Cassinia tenuifolia*, *Myoporum insulare*, *Dodonea viscosa* subsp. *burmanniana* and *Xylosma maidenii*, with *Microsorium scandens* on the ground and vines of *Jasminum simplicifolium* subsp. *australiense*, *Pandorea pandorana* (wonga wonga vine) and *Geitonoplesium cymosum* (scrambling lily). I found it interesting to see *G. cymosum* in its natural habitat, remembering the effort of the Auckland Regional Biosecurity team to stop a potential spread of it on Waiheke Island over 10 years ago.

The canopy became taller as we continued our ascent and included *Sophora howinsula*, *Pimelea congesta*, *Olea paniculata* and *Myrsine platystigma*.

Figures 4-14: **4.** Bot Soc group at Lord Howe airport ready to depart. Absent: Maureen Young. Photo: on LC's camera. **5.** Balls Pyramid, 550 m asl, 23 km SE of LHI. Photo: SR. **6.** Lagoon Road in the Settlement area overhung by the endemic kentia palms (*Howea forsteriana*). Photo: EC. **7.** The banyan fig (*Ficus macrophylla* f. *columnaris*). Prop roots of a single individual. Photo: DS. **8.** Endemic *Atractocarpus stipularis* (Rubiaceae), opposite leaves and wonderful large stipules. Photo: SR. **9.** Boar tree (*Geniostoma petiolosum*), larger foetid flowers and larger leaves than the New Zealand *G. ligustrifolium*. Photo: LC. **10.** Looking south from Malabar, from L to R: Transit Hill (121 m), Intermediate Hill (250 m), Mt Lidgbird (777 m), Mt Gower (875 m) beyond the Lagoon. Settlement area in foreground. Photo: EC. **11.** The endemic *Korthalsella emersa* on *Drypetes deplanchei* subsp. *affinis* (Euphorbiaceae) on windswept Kim's Lookout, Malabar. Photo: EC. **12.** Teepee tree (*Pandanus forsteri*), stilt roots growing down from the trunk as the tree grows. Photo: ML. **13.** *Polyscias cissodendron* (Araliaceae) with large compound leaves. A close relative of *Pseudopanax*. Photo: EC. **14.** Mike Rowledge using the phytophthora cleaning station. These were at the start of all tracks. Photo: JC.





Scrambling through all of this was *Trophis scandens* (sandpaper vine), *Parsonsia howeana* in fruit and *Muehlenbeckia complexa*. On the sides of the track in places were patches of *Microlaena stipoides* with the weedy veldt grass, reminiscent of some bush tracks in Auckland. I wonder how long before the *M. stipoides* is outcompeted by the veldt grass? Continuing on, we spotted *Peperomia tetraphylla* on some rocks in the shade and *Cheilanthes distans* in the sun with dry remnants of *Briza minor* and *Crassula sieberiana*. At the top of Malabar Hill, we were rewarded for our climb with stunning views and seabirds galore. It was quite a sight to see all the red-tailed tropic birds, welcome swallows and sooty terns enjoying the updrafts by the cliffs. Alas, they were all too quick for my camera.

The track continued from Malabar Hill along the ridge to Kim's Lookout. Here we saw some familiar looking trees: *Dodonaea viscosa* subsp. *burmanniana* (akeake) and *Myoporum insulare* (ngaio), with *Smilax australis* winding its way through them to remind us we weren't at home. This reminder was compounded by the *Jasminum simplicifolium* subsp. *australiense* and *Pandorea pandorana* subsp. *austrocaledonica* scrambling through endemic *Drypetes deplanchei* and *Cassinia tenuifolia*. We also spotted a *Baloghia inophylla* with its shiny opposite leaves and green fruit capsules, and *Marsdenia rostrata* (Apocynaceae), a scrambling vine, which looks like the related moth plant (*Araujia hortorum*) - even down to the milky white sap and fruit capsules with fluffy wind-dispersed seed. It took a bit for me to remember that this wasn't a weed but a native in this forest.

As we reached Kim's Lookout, we spotted *Korthalsella emersa* on a *Drypetes deplanchei* (Fig. 11). Again we stopped to enjoy the stunning views and watch the seabirds, before starting on the track down through forest. The canopy was about 6 m tall, in contrast to the lower canopy we had along the ridge. Amongst the forest vegetation were curly palm, *Coprosma prisca*, *Alyxia ruscifolia*, *Pandanus forsteri* (teepee tree) (Fig. 12) and *Polyscias cissodendron* (Fig. 13). Scrambling through it all were the *Geitonoplesium cymosum*, *Smilax australis* and the interesting *Flagellaria indica* (bush cane) which twists the tips of its leaves around other plants to climb.

The track came out to a narrow boardwalk down to Old Settlement Bay. We noticed that the curly palm had been replaced by its cousin, kentia palm, which prefers the lowland sandy soils. At the side of the boardwalk we spotted *Oplismenus hirtellus*, making us think of home, growing alongside the endemic fern *Asplenium milnei*, which reminded us that we were not at home.

The Malabar Track ends in a paddock behind Old Settlement Bay. From here we wandered along a sandy track in the dunes behind the beach to Lagoon Road. A short signposted detour provided those who were interested with a view of the wreckage of an ill-fated R.A.A.F. Catalina which crashed in 1948 after clipping the ridge we had walked along, due to a faulty hydraulic system. From here it was a pleasurable stroll along the coastal road back to our accommodation.

Intermediate Hill (Monday 20 Oct 2014) – by Janeen Collings

This account covers the track from the airstrip which rises gradually to 250 m asl then follows the Smoking Tree Ridge track southwards to drop down the south western flank of Intermediate Hill to Lagoon Road. As with most tracks on the island at the beginning of the track opposite the island's airstrip all must pass through a footwear cleaning station. The combination of brushes and a dipping area with a biocide (Fig. 14) is to minimise the spread of the plant pathogen *Phytophthora cinnamomi* which, along with other *Phytophthora* species, has been recorded in the settlement area (Auld & Hutton 2004).

At the edge of the forest in rough pasture the weedy *Ageratina adenophora* occurs in large patches, and occasionally at track margins. Transitioning from rough pasture into forest are meadows of the native *Carex brunnea* beneath an *Olea paniculata* (maulwood) dominant canopy. *Olea paniculata* is common throughout lowland forest and has a characteristic bark with many raised white lenticels, making it easy to distinguish. It was once used for building timber (Hutton 2010b). *Coprosma putida* (stinkwood), *Ochrosia elliptica* (red berry wood), *Alyxia ruscifolia* (Christmas bush) and the liane

Figures 15-24: **15.** Soft fern *Christella dentata*. Photo: JC. **16.** Large buttress roots of scalybark (*Syzygium fullagarii*) with curly palms and *Carex brunnea*. Scale: Janeen. Photo: JC's camera. **17.** Hopwood (*Dodonaea viscosa* subsp. *burmanniana*). Photo: JC. **18.** In the short vegetation on Mt Eliza, Doug, Ian and Maureen sharing a joke. Photo: EC. **19.** The group at the ephemeral wetland at North Bay. A large native swamp lily (*Crinum asiaticum* var. *pedunculatum*), next to Ian (2nd from left). Photo: MR. **20.** 6.3 million-year-old dyke cutting through an earlier lava flow (6.9 mya), west side of the Old Gulch. Photo: EC. **21.** Sharing Anthony's customary G&T's with sliced lemons, but no natural ice this time. Photo: SR. **22.** Island apple (*Dysoxylum pachyphyllum*), similar to New Zealand relative (*D. spectabile*) with clusters of fruit attached to the trunk, but fruit 4 cm diam. Photo: AW, near Goat House Cave. **23.** *Dietes robinsoniana* (Iridaceae). Large flowers that only last a day. Its closest relatives are in Africa. Photo: LC, upper Smoking Tree Ridge. **24.** The final haul up to Goat House Cave, with three of our group shown here, thankful for the ropes. Photo: LC.

Trophis scandens subsp. *megacarpa* (Moraceae) all occur in the understorey along the forest edge.

Into the forest interior ascending the NW slope the canopy becomes increasingly diverse and taller, with the common dry forest species, *Drypetes deplanchei* (greybark), *Cryptocarya triplinervis* (blackbutt), *Celtis conferta* subsp. *amblyphylla* (cotton wood) and the occasional *Syzygium fullagarii* (scalybark). The sub-canopy comprises *Olea paniculata*, curly palm (*Howea belmoreana*), kentia palm, and the local kowhai (*Sophora howinsula*) (En). We had missed the kowhai's main flowering season but there was a wealth of green seed pods. The kowhai, a durable hardwood, was once used for house piles and fence posts (Hutton 2010b). The understory comprises *Planchonella howeana* (axe-handle wood), *Xylosma maidenii*, *Sarcomelicope simplicifolia* subsp. *simplicifolia* (yellowwood), *Baloghia inophylla* (bloodwood), *Myrsine platystigma*, *Coprosma putida*, *Alyxia ruscifolia*, many *Sophora howinsula* saplings and the occasional *Pisonia brunoniana* that is curiously called punkwood.

In light moist habitats are occasional fine specimens of soft fern (*Christella dentata*) (Fig. 15), a threatened plant back here in New Zealand; it is uncommon on LHI but distributed widely throughout the tropics and subtropics. Other ferns include: *Adiantum hispidulum*, *Platyserium bifurcatum* (elkhorn fern), *Microsorium pustulatum* subsp. *howense*, *Asplenium milnei* and the fern ally *Psilotum nudum*.

A common climber throughout was *Trophis scandens* subsp. *megacarpa* which is good at grabbing unsuspecting legs with its woody 'claw like' protuberances used as hooks for scrambling. Other climbers spotted were *Clematis glycinoides*, *Jasminum didymium* subsp. *didymium*, *Parsonsia howeana*, and *Pandorea pandorana* subsp. *austroraledonica* (wonga wonga vine).

With increasing altitude we moved through a distinctive band of shrubby forest where the soil is thin over angular basaltic rocks and where the curly palms disappeared. The canopy height is about 3-4 m and characterised by the local *Dodonaea viscosa* subsp. *burmanniana* (hopwood), the scrambling shrub *Alyxia lindii* with its characteristic leaves in whorls of three, *Alyxia ruscifolia* and increasing numbers of *Baloghia inophylla*.

Towards the summit the forest changed subtly with the appearance of plants that require a moister habitat such as *Guioa coriacea* (island cedar), *Zygogynum howeanum* (hot bark), and the vine *Stephania japonica* var. *timorensis*. An exciting find was *Elaeocarpus costatus*, rare in lowland forest as it usually occurs in the much taller southern mountains. Along the ridgeline heading south

Dodonaea viscosa becomes common again, with occasional *Myoporum insulare* (Hutton 2010b).

The track down to Lagoon Road is on the south western flank of Intermediate Hill and the forest here is sheltered. *Drypetes deplanchei*, *Cryptocarya triplinervis*, and *Olea paniculata* (maulwood) are present with an increase in *Pandanus forsteri*, *Syzygium fullagarii*, and banyan. Tree ferns become apparent with occasional *Cyathea robusta* and the more common *C. macarthurii*. *Pandanus forsteri* is a feature on the damp alluvial flats along with some majestic *Syzygium fullagarii* at around 18 m high with impressive buttress roots (Fig. 16).

The descriptive common names are helpful in becoming familiar with the major forest tree species. Once you have your eye in for the bark patterns it becomes easy, e.g. greybark (*Drypetes deplanchei*), scalybark (*Syzygium fullagarii*) and blackbutt (*Cryptocarya triplinervis*). I made up my own descriptive name 'stringy twisty bark' for hopwood (*Dodonaea viscosa*) with its deeply furrowed, fibrous, stringy bark on twisted branches. The usefulness of producing alcohol 'back in the day' is a name not to be trifled with though. The hopwoods in this forest are squat sprawling trees to about 4 m tall and are one of my favourites, laden with glossy pink and cream winged seed capsules (Fig. 17). I wonder if the beer was any good.

North Bay (Tuesday 21 Oct 2014) – by Doug Sheppard and Mike Rowledge

We all boarded a glass bottomed boat at Lagoon Beach, with Ian Hutton as our guide and cook for the day, and cruised straight across the lagoon to North Bay where all except the snorkellers disembarked. Whilst the snorkellers went off in the boat for a short dive, we walked single file through the low dunes avoiding numerous sooty terns strenuously defending their nests. We looked locally around the forest area behind the dunes where there was a cleared BBQ area amongst the kentia palms, *Drypetes deplanchei* (greybark) and *Cryptocarya triplinervis* (blackbutt). We walked up towards Mt Eliza, the upper part of which was closed off because of the nesting sooty terns over the track. Near the start of the track Ian pointed out the two *Howea* palms: *H. forsteriana* (kentia palm) with the longer more drooping fronds, a thicker trunk and multiple flower spikes up to 1 m long; and *H. belmoreana* (curly palm) with more erect arching fronds, a slender trunk and single flower spikes up to 2m long. Ian explained that sometimes when the two palms grow together hybrids may occur with characteristics of both, and pointed out such an example. Vertical grooves on the trunks of older palms were caused by the hobnail boots of seed collectors in times gone by. *Pandanus forsteri*, notable for its long "stilt like" roots, also occurred here.

We passed good examples of the two most common trees on the island, *Drypetes deplanchei* (greybark) and *Cryptocarya triplinervis* (blackbutt). *Syzygium fullagarii* was also present. Ewen and Anthony were pleased to have Ian resolve a mystery sterile shrub from the Malabar Track which also occurred here: *Elaeodendron curtispiculum* (Celastraceae) with opposite, toothed leaves. Further up, the vegetation diminished markedly in height due to the effect of the strong winds that can buffet the island. Amongst the more common trees we saw *Guioa coriacea* (island cedar), *Polyscias cissodendron* (island pine), *Olea paniculata* (maulwood) flowering, *Baloghia inophylla* (bloodwood) and *Melicope polybotrya*. No banyans were observed in this area. Creepers/climbers encountered included: *Alyxia lindii* fruiting (Apocynaceae); the two *Jasminum* species growing together, *J. didymum* (with trifoliate leaves) and *J. simplicifolia* (with simple leaves); *Flagellaria indica* (bush cane) and *Pandorea pandorana* subsp. *australocaledonica* (wonga wonga vine) which was in flower. Higher up on the exposed ridge near where we turned around (Fig. 18) the stunted vegetation was less than 2 m tall and included: *Dodonaea viscosa* (fruiting), *Baloghia inophylla* (flowering), *Sarcomelicope simplicifolia*, *Pandorea pandorana*, *Alyxia ruscifolia*, *Pimelea congesta* (flowering), *Leucopogon parviflorus* (flowering) and *Cassinia tenuifolia*.

We returned to the BBQ area, rendezvoused with the snorkellers and all walked (Duncan managed in his cross-country wheel chair) on the track to the close-by Old Gulch. On the way Ian showed us a natural depression nearby and explained that, in days gone by, a sea captain with his wife Eliza (hence the name 'Mt Eliza') built a 'whare' there and tried farming. After a few floods caused by heavy rain, they gave up and left the island for good. The remains of a well is all that is left to remind us of this bygone settlement. The exotic bleating tree frog occurs in this area. Around the edges of the wetland were large impressive swamp lilies (*Crinum asiaticum* var. *pedunculatum*) with many in flower (Fig. 19). The sedge *Cyperus lucidus* with pale-brown heads was common, as was the creeper *Ipomoea cairica* with mauve flowers. Ian searched for the tiny fern *Ophioglossum reticulatum* and found a few somewhat sad specimens amongst the exotic *Lactuca saligna*. However, we found several more healthy-looking specimens growing nearby amongst *Lobelia anceps* by the track. A somewhat bedraggled specimen of *Lagunaria patersonia* was nearby showing the effects of witchetty and other grubs feeding on it. We continued to the Old Gulch, a rocky inlet open to the north coast with black and white boulders on the foreshore formed from eroded basalt and lumps of coral broken away in storms. Vegetation fringing the inlet was sparse and low, mostly shrubs of *Melaleuca howeana* (tea tree);

Tetragonia tetragonoides was also present. On the west side of the Old Gulch there were vertical dykes of lava (Fig. 20).

Back at the BBQ area Anthony surreptitiously produced a bottle of gin, tonic water and sliced lemons and there followed the usual toasts as is BotSoc custom (Fig. 21). An excellent BBQ lunch followed, much of it supplied and prepared by Ian with some assistance from fellow BotSoccers. Afterwards Ian cleaned the hot BBQ plates with handfuls of the fibre of the kentia palm frond bases and then burnt it.

Arriving back at the beach, we detoured to the far west end of the beach to look at nesting black noddies in a group of Norfolk Island pine trees. Turnstones and godwits were feeding in the exposed *Zostera* beds, and black noddies were collecting seaweed and *Zostera* for their nests and mating on the beach. We then boarded the glass bottomed boat to look for turtles on the way back to base. We were lucky to see several hawksbill and green turtles in the channel area of the reef, including one particularly large green turtle. Also we had good views of the coral. All in all, a very enjoyable day.

Goat House (Wednesday 22 Oct 2014) – by Louise Cotterall

Goat House Cave track (via Boat Harbour track and Smoking Tree Ridge) was named after the goats introduced by passing mariners in the early 1800s for fresh meat supply. They (the goats) were eradicated in 2001 to save the natural vegetation.

Like most tracks on the island, it starts with a boot cleaning station to prevent the spread of *Phytophthora cinnamomi*, (the destructive soil-borne water mould widespread on mainland Australia causing significant damage to native forests) and proceeds along a boardwalk by Soldier Creek flanked with ferns including *Hypolepis elegans*, *Christella dentata* and tree fern *Cyathea robusta*; towering curly palm *Howea belmoreana*; *Melicope polybotrya*; fruiting *Atractocarpus stipularis* (green plum); *Pisonia brunoniana* the 'bird catcher'; *Adiantum pubescens*; pungent *Geniostoma petiolosum* (boar tree) flowering and fruiting; *Psychotria carronis* (black grape); and *Dysoxylum pachyphyllum* (island apple), remarkable for its fruit growing in clusters along stalks on the trunk of the tree (Fig. 22). Broad-buttressed *Syzygium fullagarii* was the largest tree until the track climbs up a ridge of *Cryptocarya triplinervis*, *Drypetes deplanchei* (greybark), and dominantly *Atractocarpus stipularis*, *Guioa coriacea*, *Chionanthus quadristamineus* (blue plum), *Sophora howinsula* (lignum vitae) and *Zygogynum howeanum* (hotbark). This section of track was notable for many large clumps of *Platynerium bifurcatum* (elkhorn ferns).

The ridge forest of Smoking Tree Ridge is drier, with smaller forest species *Drypetes deplanchei*, *Myoporum insulare*, *Dodonaea viscosa* subsp. *burmanniana*, more *Cryptocarya triplinervis*, and *Planchonella howeana*. At the track junction we turned south on to Smoking Tree Ridge track (named after a former large tree under which the early palm seed collectors would stop for smoko before returning to the lowlands with their loads of seeds). The first level section comprises dry forest species *Cryptocarya triplinervis*, *Drypetes deplanchei*, *Celtis conferta* subsp. *amblyphylla*, *Olea paniculata*, *Planchonella howeana* (axe-handle wood), with *Piper excelsum* subsp. *psittacorum* (kava) and *Alyxia ruscifolia* forming the understory. As the slope increases so do the sheltered forest species of *Syzygium fullagarii*, *Guioa coriacea* (island cedar), *Atractocarpus stipularis* (green plum) and curly palm. Further up, *Chionanthus quadristamineus* and curly palms dominate. Next, the track becomes very steep and rocky with some bushes of upland endemics *Coprosma lanceolaris* (with two prominent domatia pits near the leaf centre), *Pittosporum erioloma* and *Elaeocarpus costatus*. Here we were watched by a curious endemic currawong, a member of the crow family. *Diets robinsoniana* (En) (Iridaceae) in flower was a beautiful sight (Fig. 23).

The track has ropes to aid climbing (Fig. 24) up the basalt and scoria base to a ledge c.400 m elevation, below the near-vertical face of Mount Lidgbird (777 m) above. The ledge leads to a grassy spot under the cliff which provided the lunch spot with superb views of the island's lowlands, airstrip, houses that are concealed by vegetation when seen at ground level, and the aqua-coloured waters of the white sandy coral reef-fringed lagoon. Anthony spotted a red-tailed tropic bird nesting in the Goat House cave ledge and Jenni observed them flying before the majority of the team arrived on the ledge. Here *Clematis glycinoides* (Fig. 25), *Parsonsia howeana* and *Pandorea pandorana* subsp. *australcaledonica* were intertwined and all in flower. Further round the corner to the east it was markedly cooler and the track revealed views of Balls Pyramid 23 km to the southeast, above tall stands of *Dracophyllum fitzgeraldii* (Fig. 26), bushes of *Metrosideros nervulosa* (beginning to flower), *Olearia*

ballii in full flower (Fig. 27), *Westringia viminalis*, *Leucopogon parviflorus* (coastal bearded heath), and *Gahnia howeana* named by our own Rhys Gardner (Gardner 1997). Also present was *Zygogynum howeanum* (hotbark) and *Dysoxylum pachyphyllum* (island apple). The endemic *Dendrobium moorei* were in flower clinging to the rock faces (Fig. 28).

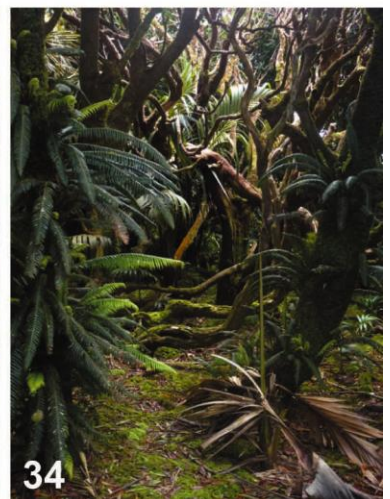
The highlights for me on this track were many: *Diets robinsoniana* flowering; the proliferation of orchids; epiphytic clumps of *Platycerium* (elkhorn fern) and the crimson blooms of *Metrosideros nervulosa*.

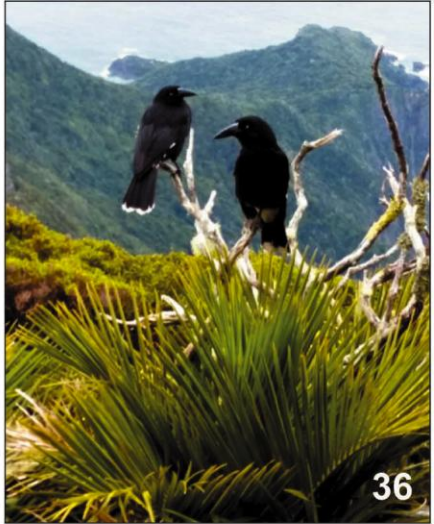
Mt Gower (Thursday 23 Oct 2014) – by Leslie Haines and Colleen Pilcher

We had a perfect day to climb Mt Gower although the top is often in the clouds. The mountain is at the southern tip of LHI and reaches 875 m - the highest peak on the island. There were nine of us (Anthony, Christine, Colleen, Doug, Leslie, Mere, Louise, Peter and Val) and five others, led by Jack Shick. It was a demanding climb often using ropes to scale rock faces, but we had a number of species to see, many that only grow at the highest altitude on Mt Gower. Jack was especially accommodating to our group and knew where to find the unusual and often endemic plants we'd come to see, allowing us some extra time to note and photograph as we went.

We left from Kings Beach soon after 7 am with a walk along kikuyu grass and a boulder hop to the beginning of the climb. Here the vegetation was scrubby: *Cassinia tenuifolia*, *Cyathea robusta*, *Dodonaea viscosa*, *Lagunaria patersonia*, *Melaleuca howeana*, *Myoporum insulare*, *Pandanus forsteri* and kentia palm together with some wood hens. Our climb was straight up through coastal vegetation we had seen regularly on the lowland, such as *Olea paniculata* and *Cryptocarya triplinervis*. During the cliff walk along a narrow ledge called the Lower Road c.100 m asl we all wore helmets in case of falling rocks, and Jack gave a palm climbing demonstration. Splash zone plants were evident up to about 100 m, and coastal forest up to 450 m where some new species appeared. In particular at this altitude was *Hedyscepe canterburyana* (Fig. 29) with the pale

Figures 25-34: **25.** *Clematis glycinoides* sprawling over the rock on Goat House Cave ledge, 400 m asl. Photo: LC. **26.** Leslie amongst 4-8 m tall *Dracophyllum fitzgeraldii* east of Goat House Cave ledge. Photo: LC. **27.** The endemic c.1 m tall shrub *Olearia ballii* in full flower, with leafy stems of *Metrosideros nervulosa*, east of Goat House Cave ledge. Photo: SR. **28.** The endemic *Dendrobium moorei* is used in bridal bouquets for island weddings; epiphyte on Mt Gower. Photo: CM. **29.** One of the four endemic palms on the island, *Hedyscepe canterburyana*, with a glaucous crownshaft; looking north towards Mt Lidgbird from Mt Gower. Photo: DS. **30.** The endemic orange-flowered pumpkin tree (*Negria rhabdanthoides*) Gesneriaceae; leaves fleshy; corolla spotted; common above 500 m asl in cloud forest, Mt Gower. Photo: AW. **31.** *Hymenophyllum moorei*, three of the four filmy ferns on LHI are endemic, including this one; cloud forest Mt Gower. Photo: CP. **32.** *Metrosideros nervulosa* starting to flower; cloud forest Mt Gower. Photo: DS. **33.** *Lordhowea insularis* (Asteraceae) fruiting. an endemic monotypic genus closely related to *Senecio*; Mt Gower. Photo: CP. **34.** Goblin cloud forest on the summit plateau of Mt Gower, with *Blechnum contiguum* and filmy ferns on tree trunks. Photo: CP.





frond base, one of the two higher altitude palms. At about 9 am we stopped for morning tea at Erskine Stream amongst *Dracophyllum fitzgeraldii* and *Machaerina insularis*, having seen *Blechnum spinulosum* (syn. *Doodia caudata*) just before on an open, rocky section of the track.

Above 450 m the vegetation changed and the pumpkin tree (*Negria rhabdotohamnoides*) (En) (Gondwanan section of Gesneriaceae) with rich orange flowers (Fig. 30) and the *Leptospermum polygalifolium* subsp. *howense* emerged. We reached the saddle between Mt Lidgbird and Mt Gower at 500 m and then sidled along a difficult rock ledge and straight up a long rope climb leaving little room for botanising or photography.

As we got above 600 m we began to see more abundant mosses, liverworts and ferns: *Hymenophyllum howense*, *Hymenophyllum moorei* (Fig. 31), *Blechnum fullagarii*, *B. contiguum*, *B. geniculatum*, *B. howeanum*, *B. patersonii*, *Histopteris incisa*, *Cyathea brevipinna* with red stipes and *C. howeana* with white stipes.

Above this the vegetation changed, and here we saw *Metrosideros nervulosa* (Fig. 32) that we had seen the previous day on Mt Lidgbird. Here also was *Cryptocarya gregsonii*, *Cyathea howeana*, *Tmesipteris truncata*, *Pittosporum erioloma*, *Myrsine* ?*myrtilina*, *Lordhowea insularis* in seed (Fig. 33), and the second cloud forest palm, *Lepidorrhachis mooreana*, with a brown stipe base. We reached the top (Fig. 34) (a 27 ha plateau much of which is intensively pest controlled) about midday for lunch amongst some familiar looking species with NZ relatives: *Dysoxylum pachyphyllum*, *Hedyscepe canterburyana*, *Leptospermum polygalifolium* subsp. *howense*, *Metrosideros nervulosa*, *Olearia mooneyi*, and enjoyed a stunning view of the rest of the island (Fig. 35) closely accompanied by a wood hen family and several currawong (Fig. 36).

Just off the summit of Mt Gower, Anthony noticed a pair of adjacent trees of *Zygogynum howeanum* (hotbark) (Winteraceae), one with pure white, and the other reddish-pink, unopened flower buds (Figs. 37, 38).

We came back down via the same track (a test of the knees and arms) and made it back as predicted

by about 4pm, tired, but immensely satisfied and more than ready for a hearty roast dinner at the Museum restaurant.

Rocky Run and Boat Harbour (Thursday 23 Oct 2014) – by Ewen Cameron and Claire Stevens

While the more intrepid did the Mt Gower trip, a party of six (Claire, Diana, Ewen, Maureen, Stella and John) went back up the track that we had done a few days earlier to get to the Goat House, but instead of following the ridge top we went down the eastern side to Rocky Run and then three went on to Boat Harbour. Botanising started by the tidal Soldiers Creek behind Kings Beach, opposite the road where our track began. Along this creek margin was a row of mangroves, *Aegiceras corniculatum* (Myrsinaceae), which had scented flowers and pinkish unripe fruit (Fig. 39). We then began the track, pausing on the ridge crest before progressing down the other side. The track signage at the ridge crossroads was nice and clear, complete with contour lines – typical of all the track signage on the island. Into the damp gully below was the most interesting part of the forest where the very tall *Pandanus forsteri* were supported by numerous prop roots, giving them the appearance of some strange creatures (Fig. 40). This was the most extensive population of these wonderful 'triffids' that we saw. The understorey was curly palms and *Pteris microptera* (En). Along the way we also saw *Exocarpos homalocladus* (En) with its green stems, *Chionanthus quadristamineus* (En) (Oleaceae) with opposite leaves, *Myrsine platystigma* (En) with clear slits (glands) in the leaves. The two clumps of the ground orchid, *Calanthe triplicata*, spotted here turned out to be less exciting because Ian later informed us it had been planted at this site.

Down at Rocky Run by the stream the endemic *Metrosideros sclerocarpa* was in flower – the other *Metrosideros* species on the island (*M. nervulosa*) (En) is confined to higher elevations. By the coast the hardy *Cassinia*, *Melaleuca*, *Myoporum* and *Dodonaea* were all prominent as you'd expect. Also *Lobelia anceps*, *Apium prostratum*, *Triglochin striata*, and *Machaerina juncea* were all spotted in this bay, making us feel at home.

The track branch to Boat Harbour added to our list: *Melicope polybotrya* (En), *Asplenium surrogatum*

Figures 35-43: **35.** View to north from summit of Mt Gower. Mt Eliza (L) and Malabar in distance; Mt Lidgbird near distance (R); *Dracophyllum fitzgeraldii* immediate foreground. Photo: AW. **36.** Lord Howe Island pied currawong checking what's for lunch; summit Mt Gower. Photo: AW. **37.** Hotbark (*Zygogynum howense*) (Winteraceae) with pure white flower buds, near summit of Mt Gower. Photo: AW. **38.** Hotbark with red-pink flower buds, near summit of Mt Gower. Photo: AW. **39.** River mangrove (*Aegiceras corniculatum*) (Myrsinaceae) 3 m tall, lining a tidal creek by Kings Beach; flowering (A) and fruiting (B). Photo: EC. **40.** A tepee tree (*Pandanus forsteri*), east of Smoking Tree Ridge, with a new prop root developing – its tip is spongy to absorb water. Photo: CS. **41.** *Cyrtomium falcatum* naturalised under coastal forest beside Lagoon Road. Photo: AW. **42.** Elkhorn fern (*Platyserium bifurcatum*) juveniles on rock in lower Erskine Valley on Mt Gower Track. Photo: AW. **43.** Compact *Asplenium goudeyi* on exposed rock face at start of Mt Gower Track. Photo: AW.

(En), and the climbing pea *Mucuna gigantea*, with trifoliolate leaves. At the back of the boulder beach we spotted *Ficinia nodosa*, *Ipomoea cairica*, and just to remind us we weren't in New Zealand, the pantropical trailing pea *Vigna marina* with yellow flowers.

Friday (24 Oct 2014) – 'free day'

Eight of the group went out with Jack and Ian to Balls Pyramid. It was a lovely hot clear day so many went kayaking and snorkelling, while others botanised along the NE coast. Two memorable natives seen on the bank at the east end of Ned's Beach were the erect plants of *Atriplex cinerea* (grey saltbush) amongst the sooty terns, and the woody scrambling pea, *Caesalpinia bonduc* (nicker nut) with curved spines on the stems and pods; the seeds are dispersed by seawater giving it its pantropical distribution. The final group meal was at the Museum restaurant that evening.

Saturday (25 Oct 2014)

After breakfast we watched the flat-bottomed MV *Island Trader* berth by beaching itself alongside the wharf. The ship provides a fortnightly regular sea freight service to LHI from Port Macquarie. We were at the airport by 11am ready to depart, where a group photo was taken (Fig. 4).

Ferns and Fern Allies – by Maureen Young and Anthony Wright

Fifty nine species of ferns and fern allies are recorded for Lord Howe Island in the Flora of Australia Volume 49 (Green 1994) while Ian Hutton lists 57 taxa in his useful Field Guide to the Ferns (Hutton 2010c). Five of these have been recorded from only single locations: *Cephalomanes atrovirens* from Soldiers Creek in 1889; *Arachniodes aristata* from the eastern side of Intermediate Hill; *Pellaea paradoxa* from Malabar Ridge; *Sticherus lobatus* from the summit of Mt Gower; and *Pyrrosia rupestris* from the Erskine Valley in 2004. All the 25 species that are listed by Hutton as endemic are from genera that also occur in New Zealand. Two non-native species are grown commonly in gardens: the maidenhair *Adiantum capillus-veneris*, and a large ladder fern from mainland Australia, *Nephrolepis biserrata*; a third, *Cyrtomium falcatum* (recorded in Green (1994) as *Phanerophlebia falcata*), is naturalised under coastal and lowland forest around habitations (Fig. 41). The indigenous ferns could be divided into three groupings: those that grow in relatively dry conditions such as under palms, those that favour the slightly moister areas in the gullies, and most abundantly, those that grow on the cooler, damper southern mountain tops.

Most widespread of all in the drier areas are the Lord Howe Island hound's tongue, *Microsorium pustulatum* subsp. *howense*, a large fern with a creeping rhizome that is terrestrial in habit, and the local version of our shining spleenwort, the tufted *Asplenium milnei*. Ladder fern, *Nephrolepis colensoi* (see de Lange et al. 2005), seemingly without tubers, is a third species commonly found in such areas. Large plants of *Psilotum nudum* are occasional but widespread and they were also seen growing in pots in the settlement gardens. On the dry Malabar Ridge were seen our two 'hot rock' ferns, *Cheilanthes distans* and *C. sieberi*, *Pyrrosia confluens* with a horse-shoe-shaped patch of sporangia on the undertip of fertile fronds, *Pellaea falcata*, *Adiantum hispidulum* and, higher up, *Arthropteris tenella*.

The elkhorn fern, *Platyserium bifurcatum*, is one of the few ferns seen growing epiphytically, though large rocks were also sometimes completely covered by the spreading nests of fronds. Though obviously propagated abundantly around the village, this fern is also very common in nature (Fig. 42). Not so common is the LHI version of the bird's nest fern, *Asplenium goudeyi*, which was only seen growing on the ground or on rocks, albeit more commonly in the south (Fig. 43).

On our guided tour of the North Bay area Ian Hutton showed us his display plot of *Ophioglossum reticulatum*. The names of these adder's tongue ferns are in rather a state of flux, but this is the name given to this population in his 2010 guide to the ferns. Disappointingly, the plot was becoming overgrown by taller vegetation, but we were pleased to count at least another 18 healthy fertile spikes beside the boardwalk to the Old Gulch.

The dominant fern in damper gullies is *Pteris microptera*, most spectacularly beside the Rocky Run Track under the giant *Pandanus forsteri*. This fern, part of the *P. comans* group, can grow to head-height. *Diplazium melanochlamys*, also found in damp gullies, is a larger, more handsome fern than our New Zealand rather weedy *D. australe*. On slightly damp and shady slopes, rather than in gullies, *Adiantum pubescens* with pale hairs on the pinnules, *Christella dentata* and *Hypolepis elegans* were seen. On the Rocky Run Track a few plants of *Asplenium surrogatum* were seen, a fern that is very like the common *A. milnei* but with divided pinnae a little reminiscent of our *A. appendiculatum*. It seems likely that *A. milnei* and *A. surrogatum* might hybridise. Also beside this track were two of the four endemic species of tree ferns, *Cyathea macarthurii* with brown/black scales on the stipe bases, and *C. robusta* with whitish scales. Neither of these reached any great height.

Of the higher altitude ferns, the robust *Polystichum whiteleggei* with large shiny fronds was common beside the track just below the Goat House cave. Also here right on the track was the only small population of *Blechnum parrisiae* (formerly known as *Doodia australis*) we recorded (Fig. 44). Higher up above the cave following the ledge around the flanks of Mt. Lidgbird, we found *Blechnum howeanum* and a small tree fern, *Cyathea howeana*, with a distinctive honeycomb pattern on the trunk where fronds had fallen off (Fig. 45). The glabrous fronds of the smallest of the three endemic strap ferns, *Grammitis diminuta*, covered areas of rock.

The Mt Gower Track saw ferns common from sea level to its summit - the island's highest point. At the top of the boulder beach we found *Asplenium milnei*, *A. goudeyi*, *Microsorium pustulatum* subsp. *howense*, *Platyserium bifurcatum* and *Cyathea robusta*. Just around the corner into Erskine Valley from Lower Road, the only *Blechnum spinulosum* encountered (until recently the fern we called *Doodia caudata*) was found in crevices between large rocks out in the open.

Once Erskine Stream had been crossed, *Asplenium surrogatum* and *Lastreopsis nephrodioides* became common, with *Tmesipteris truncata* appearing as we neared The Saddle. Above The Saddle *Polystichum whiteleggei* became very common, and all five species of *Blechnum* were conspicuous. The true *Blechnum patersonii* (also occurring in mainland Australia, Tasmania and Fiji) with its simple, strap-like fertile and sterile fronds occupied a similar niche to our *B. nigrum* in New Zealand. The remaining four species are all endemic. The rare *B. geniculatum* was pendent on damp, shaded banks. *Blechnum contiguum* has somewhat similar sterile fronds but is normally epiphytic, with fronds densely radiating from a thick climbing rhizome that is densely clothed in rufous hairs (Fig. 46). *Blechnum fullagarii* is a smaller, tufted terrestrial fern with dull muddy-green sterile fronds - a description which does it a disservice since it is a handsome groundcover plant. *Blechnum howeanum* is the largest of the species and is superficially similar to our *B. novae-zelandiae*.

Also becoming common above 600m were the filmy ferns *Hymenophyllum moorei*, *Cephalomanes bauerianum* and *H. howense*, and the remaining two grammitid ferns, *G. nudicarpa* and *G. wattsii*. Filmy fern-like in texture, but much larger, was the tufted *Leptopteris moorei* which is also endemic and confined to the summit area of Mt Gower. Two species also found in New Zealand made their only appearance for us on the summit plateau: *Microsorium scandens* epiphytic climbing trees and *Histiopteris incisa* terrestrial in mossy openings (Fig. 47). All four of the endemic *Cyathea* tree ferns were present on the summit; amongst them was the only sighting of *C. brevipinna* with its distinctive fur of

red-brown scales and hairs densely covering the stipes and midribs of its fronds (Fig. 48).

Planted flora of Cemetery at north end of Anderson Road – by Anthony Wright

Tucked amidst tall coastal forest burrowed by flesh-footed shearwaters (*Ardenna carneipes*) near Ned's Beach is a well-maintained cemetery in two parts, each behind a white-painted post and rail fence. The two parts are separated by a large, spreading banyan fig which until recently straddled the narrow roadway. This emergent fig tree shelters the mixed coastal forest (including thatch palm *Howea forsteriana*) that surrounds the cemetery.

The makeup of the planted flora on the graves is quite different in each of the older and newer parts of the cemetery, loosely reflecting the fashions current in domestic garden plantings of the two periods. The neatly mown lawn between the graves in both parts is dominated by carpet grass *Axonopus compressus* with occasional weeds. The older - and now full - section of the graveyard to the north, some 50 m x 25 m, contains graves dating from the late nineteenth century through to the 1980s and 1990s (Fig. 49). The following species (* denotes non-native species) have been planted on graves:

Aeonium haworthii * pinwheel
Agapanthus praecox * African lily
Aloe arborescens * candelabra aloe
Alstroemeria pulchella * parrot lily
Aptenia cordifolia * heartleaf iceplant
Carex brunnea (Fig. 50)
Catharanthus roseus * Madagascar periwinkle
Chlorophytum comosum * spider plant (not variegated)
Cordyline fruticosa * ti
Crinum asiaticum var. *pedunculatum* swamp lily
Crinum sp.* (single distinctly larger plant with leaves 2m high)
Dietes iridioides * African iris
Gladiolus natalensis * Natal lily
Haworthia attenuata * zebra plant
Hibiscus rosa-sinensis * cv. Chinese hibiscus
*Howea forsteriana** thatch palm or Kentia palm
Kalanchoe fedtschenkoi 'Variegata' * variegated lavender scallops (Fig. 51)
Narcissus tazetta * jonquil
Odontonema tubiforme * fire spike
Oxalis debilis * pink shamrock
Pedilanthus tithymalooides * redbird cactus
Pelargonium peltatum * ivy-leaved climbing pelargonium
Pelargonium x hortorum * geranium
Peperomia glabella * wax privet peperomia
Plumeria rubra * frangipani
Rosa sp* hybrid tea rose
Rosa 'Red carpet' form* (3 cm diameter white double flowers)

Setcreasea purpurea * purple heart
Stephania japonica var. *timoriensis*
Tradescantia spathacea * boat lily
Zantedeschia aethiopicum * arum lily

Living plants are supplemented by a small range of rather tired plastic flowers, including a pair of faded yellow protea-like heads.

By way of contrast, the 'newer' (and current) part of the cemetery (Fig. 52), to the south of the banyan fig, has an almost completely different planted flora. It shares a few species (e.g. *Catharanthus roseus*, *Cordyline fruticosa*, *Kalanchoe fedtschenkoi* and *Peperomia glabella*) with the older part of the cemetery (most as recently planted cuttings). It also has a 2.5 m long brick columbarium wall for ashes and memorial plaques in addition to the individual graves. A 2.5 m high poinsettia (*Euphorbia pulcherrima*) marks the end of the columbarium (Fig. 53). The planted species are:

Begonia × *semperflorens-cultorum* * wax begonia
Caladium bicolor 'Moonlight' * moonlight caladium
Catharanthus roseus * (Apocynaceae)
 Madagascar periwinkle
Chlorophytum comosum 'Variegata' * variegated spider plant
Cordyline fruticosa * ti
Crassula ovata * money plant
Dendrobium macropus subsp. *howeanus* bush orchid
Dracaena deremensis * corn plant
Erigeron karvinskianus * Mexican daisy
Euphorbia pulcherrima * poinsettia
Impatiens walleriana * busy Lizzie
Justicia brandegeana * (syn. *Beloperone guttata*) shrimp plant
Kalanchoe blossfeldiana * flaming Katie
Kalanchoe fedtschenkoi 'Variegata' * variegated lavender scallops
Microsorium pustulatum subsp. *howense*
Nephrolepis hirsutula * scaly swordfern
Ophiopogon japonicum * black mondo grass (Fig. 54)
Peperomia glabella * wax privet peperomia
Piper excelsum kawakawa
Plectranthus saccatus * spurflower
Viola hederacea * ivy-leaved violet
Viola odorata * violet

In further contrast to the older part of the cemetery, live plantings were supplemented not by plastic flowers but by brightly coloured silk flowers in vivid purples, blues, pinks and whites. Many of the more recent graves were marked by plants atop and around their elongated coral sand mounds (Fig. 54) but one stood out: a clean, fresh, unmarked concrete slab on which a stainless steel dive tank was elegantly mounted (Fig. 55).

Additional Records to Green (1994) of wild (presumed naturalised or native) plants from Lord Howe Island – by Anthony Wright

Our field explorations on Lord Howe Island (LHI) (18-25 October 2014) were accompanied by the species list available from *Flora of Australia Online*, derived from Green (1994). This lists a total of 460 native and naturalised taxa. Checking off against the list, Ewen Cameron and I found 336 (73%) of these taxa during our 6 days and 2 part days in the field. An additional 30 taxa of wild plants, most naturalised but a few likely to be native, were recorded (as sight records) and photographed. These are listed in this note as additions to the wild plant flora of LHI recorded by Green (1994). These records were also checked against Australia's Virtual Herbarium (<http://avh.chah.org.au/>) and vouchers were found for 13 of them – all from wild plants except the one for *Harpephyllum caffrum*. Where present, these vouchers are cited at the end of each record; the herbarium acronyms follow Index Herbariorum (<http://sciweb.nybg.org/science2/IndexHerbariorum.asp>). * denotes naturalised plants.

***Acalypha wilkesiana* * (redleaf) Euphorbiaceae**

Widespread shrub to small tree at roadsides and around houses and former habitation sites, to 4 m or more tall. Range of leaf colour variants from variegated purple-red through yellow-green to green. Flowering and fruiting profusely. Recorded as naturalised on Norfolk Island by Green (1994). Collected on LHI by *J.M. Le Cussen 1047* in 2000 (NSW 483543).

***Aira caryophyllea* * (silvery hair grass) Poaceae**

Locally common on track up Mt Gower 4-600 m on clay at trackside; just coming into flower. Not noted in other suitable habitats throughout

Figures 44-53: **44.** *Blechnum parrisiae* (better known to us as *Doodia australis*) on Goat House Track. Photo: AW. **45.** *Cyathea howeana*, with its distinctively patterned trunk, seen here from high on Mt Gower. Photo: AW. **46.** *Blechnum contiguum* epiphytic with conspicuous red hairs on growing tip of rhizome; near summit of Mt Gower. Photo: AW. **47.** *Histiopteris incisa*, only seen in mossy forest openings on summit of Mt Gower. Photo: AW. **48.** *Cyathea brevipinna* crown; in summit forest, Mt Gower. Photo: AW. **49.** View to south-west of older part of cemetery. Anderson Road beyond white post and rail fence. Photo: AW. **50.** Clumps of a native sedge, *Carex brunnea*. Photo: AW. **51.** Variegated lavender scallops (*Kalanchoe fedtschenkoi* 'Variegata'). Photo: AW. **52.** View to north-east of newer part of cemetery. Anderson Road (foreground). Dark 'trunks' at left rear are banyan fig aerial roots. Photo: AW. **53.** Leafless poinsettia (*Euphorbia pulcherrima*) at western end of columbarium wall; with variegated spider plant (*Chlorophytum comosum* 'Variegatum'). Photo: AW.





island despite searching. Green (1994) records the similar *Aira cupaniana* as naturalised on Norfolk Island.

Aspidistra elatior * (cast iron plant) (Fig. 56)

Asparagaceae

Noted by Green (1994) as growing along Lagoon Road in isolated clumps outside cultivation but does not appear to be reproducing itself so not recorded as 'wild'. Now a widespread roadside plant under partial shade. Spreading vegetatively. New plants arising from rhizomes over 2-3 m under forest canopy on corner of Middle Beach and Anderson Roads. Collected on LHI by *J. Conran 636* in 1988 (NSW 241333).

Bidens alba * (beggar's tick) Asteraceae

Uncommon. Scattered plants with prominent white ray florets and mostly simple leaves along some 500 m of trackside, Transit Hill, from open herbicide-sprayed ground on forest margin to below light, low shrub canopy. Illustrated in Whistler (1995).

Canna indica * (Indian shot) Cannaceae

Established clump flowering and fruiting in wasteland on Ned's Beach Road. Recorded as naturalised on Norfolk Island by Green (1994).

Catharanthus roseus * (rosy periwinkle) (Fig. 57)

Apocynaceae

Locally common, naturalised in old portion of Anderson Road cemetery. Large pink- and white-flowered variant plants on graves; young naturalised plants growing in crevices around margins of neighbouring graves. Widespread in older gardens. Collected on LHI by *J.M. Le Cussan 1022* in 2000 (NSW 482645).

Crassocephalum crepidioides * (thickhead)

Asteraceae

Rare. Single wild plant seen as weed in shrubby planter bed opposite Post Office outside The Anchorage Restaurant, Ned's Beach Road. Nodding apricot-coloured flower heads. Recorded as naturalised on Norfolk Island by Green (1994). Collected on LHI by *B. Retmock s.n.* in 2003 (NSW 843997).

Cuphea hyssopifolia * (false heather) (Fig. 58)

Lythraceae

Widely cultivated and seeding into surrounding roadsides and wasteland. Both purple- and white-flowered forms present. Gardner (1998) discusses the naturalisation of this species around Auckland.

Ehrharta erecta * (veldt grass) Poaceae

Locally abundant, first seen around Somerset Apartments as a weed under margins of light

shrubby and in garden beds. Serious weed of forest tracks: to the summits of Transit Hill and Malabar Hill; spreading on Goat House and Mt Gower tracks. Widespread weed along roadsides and in gardens north of the airport. Recorded on LHI and Norfolk Island by de Lange et al. (2005). Collected on LHI by: *C.C. Ogle* in 2000 (NSW 439779); *E.A. Brown 2001/351* in 2001 (CANB 725251.1)

Erigeron karvinskianus * (Mexican daisy)

Asteraceae

Flowering and fruiting, forming dense cover on a single grave in new part of Anderson Road cemetery. Also escaping from gardens at entrance to Bowling Club. Recorded as naturalised on Norfolk Island by Green (1994).

Euchiton japonicus (creeping cudweed)

Asteraceae

Uncommon in steep, moist, open rocky places along rock ledge to the east and south beyond the Goat House and on the upper parts of Mt Gower track (Fig. 59). Presumed native. Collected on LHI by *J.P. Fulagar s.n.* date unknown (det. 2005) (MEL 283729A).

Euphorbia paralias * (sea spurge) (Fig. 60)

Euphorbiaceae

Common along seaward margin of dune vegetation in Old Settlement Bay amongst *Spinifex sericeus*. Collected on LHI by *J.M. Le Cussan 1142* in 2001 (NSW 673171).

Gamochaeta subfalcata * (silky cudweed)(Fig. 61)

Asteraceae

Occasional plants to 20 cm tall on rocky outcrops amongst tufts of *Lolium rigidum* on lower Malabar ridge.

Gastridium ventricosum * (nit grass) Poaceae

Locally common annual weed at sides of track in open, dry places; Transit Hill, Malabar Hill. 10-15 cm tall. Pale green before browning off.

Gladiolus natalensis * (Natal gladiolus) Iridaceae

Occasional in gardens but widespread clumps around habitation sites and scattered along roadsides. Clumps enlarging through production of smaller secondary corms.

Harpephyllum caffrum * (Kaffir plum)

Anacardiaceae

Several seedlings and saplings around 12m adult tree at southern end of Ned's Beach Road; several more seedlings and saplings in bush on loop track between Middle Beach Road and Anderson Road. The mature tree opposite Joy's Shop on Middle Beach Road may be the source of bird-borne seed

Figures 54-64: **54.** Black mondo grass (*Ophiopogon japonicus*) border to a grave; naturalised ivy-leaved violet (*Viola hederacea*) in foreground and on grave. Photo: AW. **55.** Unnamed recent grave marked by stainless steel dive tank. Photo: AW. **56.** *Aspidistra elatior*, Lagoon Road. Photo: AW. **57.** *Catharanthus roseus*, Anderson Road cemetery. Photo: AW. **58.** *Cuphea hyssopifolia*, end of Soldiers Creek Road. Photo: AW. **59.** *Euchiton japonicus*, Goat House. Photo: AW. **60.** *Euphorbia paralias*, seaward dune edge, Old Settlement Bay. Photo: AW. **61.** *Gamochaeta subfalcata*, Malabar Hill Track. Photo: AW. **62.** Black noddies on nests <1 m above the ground on low Norfolk Island pine branches, North Bay. Photo: EC. **63.** Beds of bright green algae: sea grapes (*Caulerpa racemosa*) and the naturalised *C. taxifolia* behind; just off Ned's Beach. Photo taken underwater: EC. **64.** The endemic *Plantago hedleyi* with *Coprosma lanceolaris* (at left) on the rocky outcrop just east of Goat House. Perhaps this is where Captain McComish collected his specimen? Photo: EC.

for the latter population. Collected on LHI (collector unknown) in 1959 (CANB 77050) "only one plant on island" – presumed cultivated.

Lolium perenne (rye grass) Poaceae

Common in mown lawn and rough wasteland with white clover behind Power Station. Recorded as naturalised on Norfolk Island by Green (1994). Collected on LHI by *J.M. Le Cussan 818* in 2000 (NSW 448700).

Nicandra physalodes * (apple of Peru) Solanaceae

A few large plants flowering and fruiting on top of weedy spoil heaps behind Power Station. Recorded for Norfolk Island by Green (1994).

Osteospermum fruticosum * (trailing African daisy) Asteraceae

Commonly cultivated and relict in older gardens. Naturalised in nearby rank grassland and wasteland. Ray florets white above, purplish-blue below.

Osteospermum jucundum * (African daisy, freeway daisy) Asteraceae

Less commonly cultivated and naturalised than *O. fruticosum*. Ray florets purplish throughout.

Oxalis exilis (creeping oxalis) Oxalidaceae

Widespread weedy species, closely appressed, in northern modified areas: lawns, gardens, crevices on basalt outcrops in pasture. Also in rock crevices to 450 m on Goat House and Mt Gower Tracks. This taxon is discussed under the *O. corniculata* complex by Green (1994) but he did not divide it into the several taxa recognised today. For example see Sykes (1999) who treats it as indigenous to Norfolk Island along with New Caledonia, parts of Australia and New Zealand.

Parietaria judaica * (pellitory-of-the-wall)

Urticaceae

Locally abundant at sides of Lagoon Road under shade of overhanging trees; also at start of Transit Hill Track at end of Bowker Avenue. Collected on LHI by *J.M. Le Cussan 1072* in 2000 (NSW 483536).

Senecio skirrhodon * (gravel groundsel)

Asteraceae

A dozen large abundantly flowering and fruiting plants on weedy spoil heaps behind Power Station.

Sisyrinchium rosulatum * (blue-eyed grass)

Iridaceae

Locally common over 2 x 2 m in mown roadside turf on Middle Beach Road. Flowers sky blue.

Solanum lycopersicum * (cherry tomato)

Solanaceae

Occasional wilding plants on margins of forest canopy; e.g. among flesh-footed shearwater (*Ardenna carneipes*) burrows at start of Malabar Hill Track, and back of boulder beach below Lower Road to Mt Gower. Freely flowering and fruiting. Common on spoil heaps behind Power Station. Recorded as wild on Norfolk Island by de Lange et al. (2005). Collected on LHI by *B.J. Conn 4357 & E.A. Brown* in 2000 (MEL 2236529A).

Soliva sessilis * (Onehunga weed) Asteraceae

Locally common in mown turf along Ned's Beach Road and in pasture and around rocks at start of Malabar Hill Track. Fruiting profusely! Green (1994) records *S. pterosperma* as naturalised on Norfolk Island. Collected on LHI by *B.J. Conn 4278, E.A. Brown et al.* in 2000 (NSW 446684).

Trifolium arvense * (haresfoot trefoil) Fabaceae

Locally common around and on rocks in pasture and amongst shrubs on reserve margin at start of Malabar Hill Track. Collected on LHI by *J.M. Le Cussan 1529* in 2004 (MEL 2313281A).

Viola hederacea * (ivy-leaf violet) Violaceae

Flowering and fruiting on and around grave in new part of Anderson Road cemetery. Wild plants appearing in surrounding lawn. Also naturalised in gardens of nursery next to Somerset Apartments on Ned's Beach Road.

Viola odorata * (sweet violet) Violaceae

Flowering and fruiting on grave in new part of Anderson Road cemetery. Persisting and spreading from old cultivation sites.

Vulpia myuros * (hair grass) Poaceae

Locally abundant around rock outcrops in pasture and at start of Malabar Hill Track. Recorded as naturalised on Norfolk Island by Green (1994). *Vulpia myuros* f. *megalura* was collected on LHI by *M.D. Crisp 4523* in 1978 (CBG 7809934).

Birds Noted on ABS Trip to Lord Howe Island 18-25 October 2014 – by Stella Rowe

We saw 38 bird species altogether, 16 sea birds and 22 land birds including 6 Arctic migrants. Pelagic species were seen on two boat trips, one around the main island and one to Balls Pyramid and around the main island.

Wandering albatross (*Diomedea exulans*). A regular visitor. One was seen briefly on the Balls Pyramid trip.

Shy albatross (*Thalassarche cauta*). A vagrant. One stayed around the boat while we were 'chumming'. (When chum, a liquid mixture of fish, squid, etc, is released into the sea, it attracts seabirds which can detect the strong oily smell from many kilometres away).

Pterodroma sp. Near Balls Pyramid there was much discussion from our bird experts, Ian Hutton and Jack Shick, on a distant petrel with white underparts. Was it a pale morph Kermadec petrel (*P. neglecta*), or a Herald petrel (*Pterodroma arminjoniana*)? We will never know for sure.

Wedge-tailed shearwater (*Ardenna pacifica*). Breeds on LHI and off-shore islands. Several were attracted to the chum and others were seen off Balls Pyramid.

Flesh-footed shearwater (*Ardenna carneipes*). Seen commonly at sea. A colony in the forest behind

- Ned's Beach was only 5 minutes from our accommodation. Many of our group watched them gather on the sea at dusk to fly inland and crash through the forest canopy on to the sandy soil to reach their burrows. While we were on the island, Jennifer Lavers, working from the University of Tasmania in conjunction with the Universities of Carolina and Paris (France) was carrying out fieldwork with flesh-footed shearwaters to determine radiation levels. These birds spend the non-breeding season, June to August, in the North Pacific including the seas around Japan. Think Fukuoka. John and I, at Ian Hutton's invitation, were able to join Jenny's team on three evenings to catch birds that had had dosimetric tags placed on their legs a year previously. Of the 27 or so of these birds, 9 had been recaptured before we left. Old tags were removed for testing, weights recorded, blood samples taken and new tags attached. A similar number of birds were to be tagged in this continuing study.
- Short-tailed shearwater (*Ardenna tenuirostris*). The Australian mutton-bird but a vagrant to LHI. A few were seen at sea.
- White-bellied storm petrel (*Fregetta grallaria*). This tiny 48 gm seabird breeds on Roach and other Islets. We saw two birds, one dark phase, the other pale phase.
- Red-tailed tropicbird (*Phaethon rubricauda*). LHI is said to have the largest breeding population in the world. These large white birds with their elegant red tail streamers and scarlet bills were just arriving for the breeding season. We saw them gathering on the cliffs below Mt Eliza and around Balls Pyramid. Five were doing wonderful aerial passes when we were having lunch at Goat House Cave.
- Masked booby (*Sula dactylatra tasmani*). The largest of LHI's nesting seabirds. We saw them on nests dotted about open grassland at Muttonbird Point, the south side of Mt Gower, Roach Island, etc.
- Pied cormorant (*Phalacrocorax varius*). Vagrant that we saw on the rocky stack in the lagoon.
- Little black cormorant (*Phalacrocorax sulcirostris*). Another vagrant. Two seen on the lagoon near the pied cormorant.
- White-faced heron (*Ardea novaehollandiae*). A few single birds seen by the lagoon and in wet paddocks.
- Cattle egret (*Ardea ibis*). A regular visitor. Two were seen in Pinetrees Paddock below Transit Hill.
- Pacific black duck (*Anas superciliosa*). Several families of ducklings were in the pools by the airport.
- Buff-breasted rail (*Gallirallus philippensis*). This attractive little rail became abundant after cats were eliminated in 1979. They were seen sometimes with chicks, in the settlement and in damp paddocks near Mt Lidgbird and the golf course.
- Woodhen (*Tricholimnas sylvestris*). This flightless rail, a true endemic of LHI, is reminiscent of but smaller than the NZ weka (*Gallirallus australis*). Once restricted to the mountain tops, woodhens are now wide spread since a successful captive breeding programme in the 1980s and the elimination of cats. Mere, one of our group, enjoyed watching interactions between adults and chicks.
- Purple swamphen (*Porphyrio porphyrio*). Colonised LHI in 1987 and is now commonly seen in paddocks and wetlands.
- Bar-tailed godwit (*Limosa lapponica*). Seen in small groups of up to 11 on sandy shorelines at low tide and at the airport.
- Whimbrel (*Numenius phaeopus*). A single bird seen on the tide line near Cobby's Corner.
- Wandering tattler (*Tringa incana*). One seen on the rocky shore line of Roach Island.
- Ruddy turnstone (*Arenaria interpres*). Seen in small groups of up to 14 at Old Settlement, North Beach and the airport.
- Red-necked stint (*Calidris ruficollis*). Seen in ones and twos at the airport and North Beach, this is the smallest wader to visit LHI.
- Pacific golden plover (*Pluvialis fulva*). Seen in small numbers on the sea shore at low tide, and on road verges and grassland at the airport.
- Masked lapwing (*Vanellus miles*). A few seen of this most recent coloniser to LHI, breeding here since 1991.
- Sooty tern (*Onychoprion fuscatus*). The most numerous of LHI's seabirds. We saw eggs and downy chicks in dune colonies at North Beach and Ned's Beach.
- Brown noddy (*Anous stolidus*). Breed around the cliffs and we saw them up close at the Old Gulch and at sea.
- Black noddy (*Anous minutus*) (Fig. 62). Not as numerous as brown noddy. Ian Hutton showed us these birds on well splattered nests low down in Norfolk Island pines at the western end of North Beach.
- Grey ternlet (*Procelsterna cerulea*). Flocks of these small sea birds were feeding between the island and Balls Pyramid; also seen on the black basalt cliffs of The Gulch.
- White tern (*Gygis alba*). Seen drifting over the settlement amongst Norfolk Island pines, the horizontal branches of which they favour for placing their single egg.
- Emerald ground dove (*Chalcophaps indica*). Seen quietly foraging in gardens and open lowland forest.
- Shining bronze-cuckoo (*Chrysococcyx lucidus*). Classed as a vagrant to LHI. We watched one on pasture at the Settlement for about 15 minutes. It was very active, zig-zagging in wing-flick-assisted leaps among heaps of cattle dung searching for invertebrates. From its plumage it could well have been on migration to NZ.

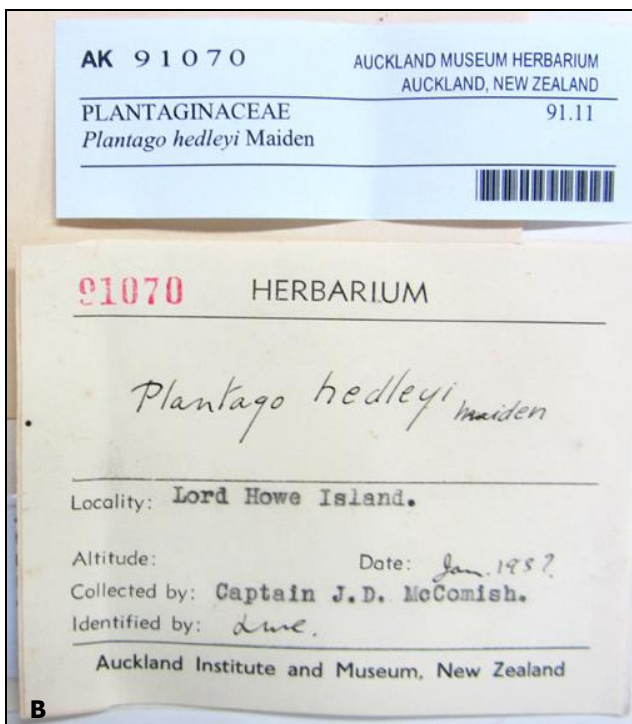


Fig. 65. A typical Captain McComish LHI specimen in the Auckland Museum herbarium: *Plantago hedleyi* collected in Jan 1937. (A) herbarium sheet, (B) detail of herbarium label (AK 91070).

Sacred kingfisher (*Todiramphus sanctus*). Often seen sitting on fence posts around the airport. Ewen scored the highest count with nine seen at one time.

Lord Howe golden whistler (*Pachycephala pectoralis contempta*). Widespread and common. The beautiful song from both the colourful black and yellow male and his less conspicuous mate was heard at all times of the day.

Magpie lark (*Grallina cyanoleuca*). Introduced from Australia nearly 100 years ago, this black and white bird was commonly seen in grasslands.

Lord Howe Island pied currawong (*Strepera graculina crissalis*). Widespread but not common in forested areas. Anthony reported several on top of Mt Gower while they were having lunch (Fig. 36), and we noted another at Goat House Cave, also at lunchtime.

Welcome swallow (*Hirundo neoxena*). Another recent coloniser that has become common and widespread.

Lord Howe Island white-eye (*Zosterops tephroleurus*). Commonly seen in small groups. Ian Hutton told us they use the matted material in the *Howea* leaf-bases as nesting material.

Blackbird (*Turdus merula*). One of the most common birds seen in the settlement.

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Some marine plants – by Ewen Cameron

The clear water around LHI with its sheltered lagoon, protected biota, coral reefs and more than 490 species of fish (Hutton & Harrison 2012) make it a diving paradise. I managed only a short snorkel off Ned's Beach on the Friday, which revealed rich green beds of algae, especially beds of the native *Caulerpa racemosa* (sea grapes) (Fig. 63) and the naturalised *C. taxifolia*. I have never seen such rich beds of *C. racemosa* before; in the SW Pacific coral reefs it is often keenly collected and eaten raw, presumably reducing its abundance. In the shallow coral sand the bright green, creeping flowering plant, paddle weed *Halophylla ovalis* (Hydrocharitaceae) was abundant and stood out. Plenty of fish were present and the larger ones in the shallows were mainly

drummer waiting to be feed by the tourists, but a small Galapagos shark was the largest fish I saw. Others in our group saw large rays and had several encounters with small sharks. The fine green alga *Chlorodesmis major* (turtle weed) with long hair-like, bright-green filaments was present in the deeper water. At the beach in North Bay were beds of *Zostera muelleri* with turnstones feeding amongst it, and balls of the green alga *Codium spongiosum* (c.20 mm diam.) commonly washed up.

**Ida and Captain James D. McComish FRGS
– by Ewen Cameron**

Watercolour painter Ida McComish (1885-1978) (nee Evans) and botanist James "Mac" McComish (1881-1948) lived in Auckland in the early part of their lives. James was injured during WW1 and when he left the army he had reached the rank of captain. On his herbarium specimens he is recorded as Captain J. D. McComish. They were married in 1932 in Papeete, and they travelled together in the Pacific to discover, collect, paint and record plants. They would often trek over rough terrain and camp out while exploring. In their quest for botanical specimens they visited Fiji, Tonga, Tahiti, Rarotonga, Norfolk and Lord Howe Islands. The flora of Norfolk Island provided inspiration for Ida's first album in 1928, based on frequents trips to the island. Her paintings were assembled into albums and are now held in the National Library of Australia. Ida and James travelled to LHI in 1936 and during their stay collected many plant specimens, including the endemic *Plantago hedleyi* (Figs. 64, 65). In 1937 James discovered two

endemic LHI tree species: *Elaeocarpus costatus* and *Myrsine mcomishii* (we saw the former on Intermediate Hill and the latter on Transit Hill). The subspecific epithet of the endemic *Melicytus novae-zelandiae* subsp. *centurionis* (not seen by us) honours the military Captain McComish. While on LHI, Ida taught the local people to make baskets and other items from *Pandanus forsteri* leaves, a skill she had learnt elsewhere in the Pacific. In later years they moved to Sydney. Plant specimens collected by them were sent to various herbaria including: Sydney (NSW), Hawai'i (BISH), Kew (K), British Museum (BM), Te Papa Museum (WELT) and the Auckland Museum (AK) (partly from Vegter 1976). The latter holds at least 163 of their herbarium specimens (some of the algae specimens include Ida as the collector; many are duplicated): 2 from New Zealand collected in 1940, 16 from Norfolk Island in 1937-39, and 145 from LHI collected 1936-37 (81 vascular, 63 algae, 1 moss). Many of the specimens are rather poorly pressed, probably reflecting the difficult conditions that they would have been collected in (Fig. 65).

The main reference for this section is McComish (2010), a delightful facsimile of Ida's original diary while on LHI 1936-37, containing historical photographs amongst her writing (Fig. 66), a few sketches and four plant images that were greeting cards painted by Ida. The booklet can be purchased from the LHI Museum, where the original is kept. There is also a book (not seen by me) on botanical art in Australia by women, which includes a chapter on Ida McComish (Norton 2009).

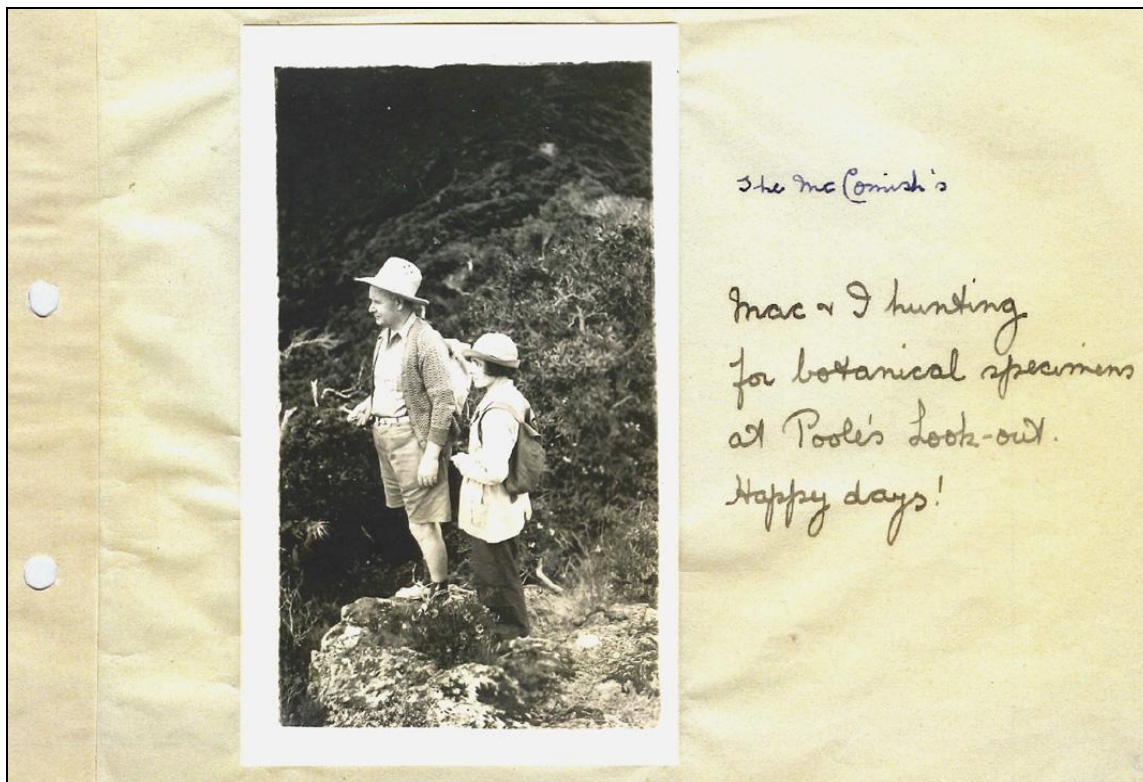


Fig. 66. Ida and Captain McComish "hunting for botanical specimens" on Lord Howe Island, 1936-37. Page from Ida McComish's diary, reproduced with permission of LHI Historical Society and Museum.

Some notable species – comments from our group

- Aegiceras corniculatum* (Myrsinaceae) (Fig. 39) – the mangrove in the tidal creek was an unknown surprise to me. Its distribution spreads from India into the W Pacific – Ewen Cameron.
- Dendrobium moorei* (Orchidaceae) (Fig. 28) – “my favourite plant; such a delicate flower with almost translucent petals” – Christine Major.
- Ficus macrophylla* subsp. *columnaris* (Moraceae) (Fig. 7) – “for its wonderful stilt roots” – Diana Whimp.
- Lordhowea insularis* (Asteraceae) (Fig. 33) – “prize for rarity of genus [a monotypic genus, previously included in *Senecio*] and ease of recognition!” – Colleen Pilcher; and “apart from being a wondrous plant, I love the name” – Maureen Young.
- Negria rhabdothermoides* (pumpkin tree) Gesneriaceae (Fig. 30) – “my favourite” – Maureen Young.
- Pandanus forsteri* (Pandanaeae) (Figs. 12, 40) – “prize for the maddest plant” – Colleen Pilcher; and “it is an evolutionary dead end and looks like a triffid” – Peter Scott.
- Smilax australis* (Smilacaceae) – “prize for the cutest plant” – Colleen Pilcher.
- Zygogynum howeanum* (hotbark) (Winteraceae) (Figs. 37, 38) – “handsome tree flowering from 3–13 m height and found from lowland forests to the highest peaks. Bark a distinctive red-brown; leaves bright dark green (paler beneath) in rosettes; flowers in terminal rosettes of cymes, white.” – Anthony Wright.

Acknowledgements

We thank local resident Ian Hutton for his wealth of knowledge, especially on natural history, so willingly shared, also for guiding us up Transit Hill, around the North Bay area, for assisting during the two boat trips, and for the several evening lectures at the Museum; Jack Shick for skipping the two outer reef boat trips and for guiding up Mt Gower; and Christine Major and Jenni Shanks for organising such a rewarding and enjoyable trip. Leslie and Colleen thank Christine for fern identifications from near the summit of Mt Gower. Anthony thanks Botany Bill (W.R. Sykes) for confirmations and identifications of cemetery succulents, Ewen and Mei Nee who accompanied his second of four visits to the cemetery, and Ewen for adding the records from the Australian Virtual Herbarium to his Additional Records article. Stella thanks Ian Hutton and his excellent field guides for information on many of the birds, and Claire Stevens for typing up the draft of her list. Ewen thanks the LHI Historical Society and Museum for allowing the reproduction of Fig. 66; Rhys Gardner for extra McComish information; Sandra Jones for locating and databasing the McComish herbarium specimens in the Auckland Museum herbarium (AK); Louise Cotterall for the maps; Helen Cogle for information on the 1993 LHI trip; and Joshua Salter and Anthony Wright for comments on a draft of this article. On the suggestion of Anthony Wright the remaining kitty of \$223.27 was donated to the Lucy Cranwell fund. The whole party thanks Ewen for the mammoth task of collating and editing the individual contributions to this account.

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Appendix

Bot Soc members on the Nov-Dec 1993 trip to Lord Howe and Norfolk Islands (Helen Cogle pers. comm.): *Dorothy Bagnall, Catherine Beard (collected 58 vascular specimens for the AK herbarium while on Lord Howe Island), Daphne & Quentin Blackshaw, Helen Cogle (organiser), Anne Fraser, Graeme Hambly, Fran Hintz, Gordon Perry, Juliet Richmond, Marie & Lawre Taylor, Alison Wesley, Barbara & Bob White.*

Field Trip to Woodcocks Kawaka Reserve, Woodcocks Road, Warkworth, 14 March 2015

Maureen Young

Participants: *Colleen and Warren Brewer, Lisa Clapperton, Bev and Geoff Davidson, Frances Duff, Sharen Graham, Leslie Haines, Philip Moll, Colleen Pilcher, Juliet Richmond, Joshua Salter, Jenni Shanks, Doug Shaw, Doug Shephard, Bryony Smart, Lydia and Ian Smith, Vijay Soma, Lyn Wade, Maureen Young (leader).*

This 12.14 ha reserve, lying on the NW side of Woodcocks Road 9 km from Warkworth, was given to the Rodney County Council by Mr E. J. Woodcock's estate in 1979. The name of the reserve reflects the pride felt by the donor in the kawaka (*Libocedrus plumosa*) trees found growing quite commonly therein (Figs. 1, 2). Bot Soc has visited on three previous occasions; a brief visit in 1958 (Anon. 1958) when the undergrowth was recovering from cattle

grazing; in 1966 (Horsman 1967) when it was explained that the area of young pole trees resulted from a fire c. 100 years previously; and briefly in 1989 (Baker & Young 1989) when three areas in Kaipara Flats were explored in one day.

The reserve is divided by a low ridge into two contrasting vegetation types. To the west is a steepish slope on the flanks of Conical Hill with mixed podocarp/broadleaf forest with emergent kahikatea (*Dacrycarpus dacrydioides*) and rimu (*Dacrydium cupressinum*) (Fig. 3). To the east the bush consists of a dense stand of pole conifers, mainly rimu, but with some kauri (*Agathis australis*) and tanekaha (*Phyllocladus trichomanoides*), and the kawaka for which the reserve is named. The forest floor of this part of the reserve is remarkable for the

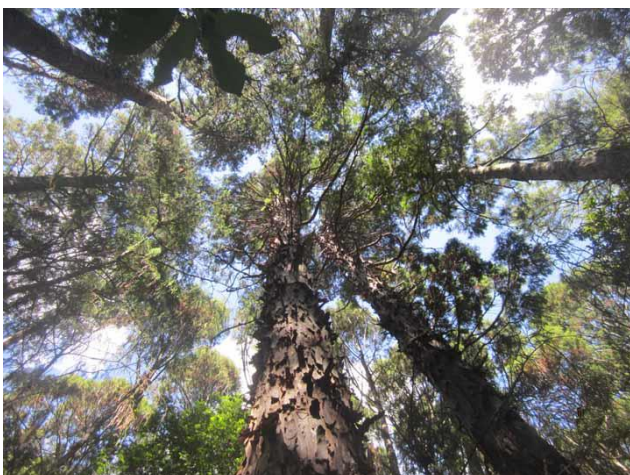


Fig. 1. Tall kawaka amongst other pole conifers. Photo: Vijay Soma. All photos taken on 14 Mar 2015.

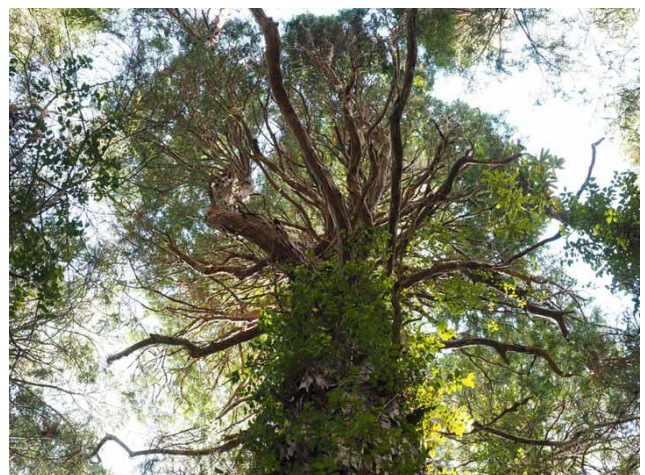


Fig. 2. Characteristic branches of a large kawaka, its trunk clothed with supplejack. Photo: Philip Moll.