LORD HOWE ISLAND: a northern outlier of New Zealand?

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"Tufted heads of Dracophyllum interspersed with emergent crowns of Cyathea, scrambling Metrosideros, Blechnum 'capense' on a nearby slope, the air moist from recently lifted clouds..." No we were not standing on the summit of Little Barrier but some 1300 Km northwest on Lord Howe Island. Following the XIII International Botanical Congress at Sydney, Jessica and I were fortunate to be members of a field trip to this isolated oceanic island. It has many features of interest to the naturalist, including the world's most southerly coral reef and some of the world's rarest birds. Our interests, however, were primarily botanical. Despite being politically part of Australia, and rathor closer to that country than to New Zealand, the flora has many New Zealand affinities. Although not included in the New Zealand Botanical Region as defined for the purposes of the "Flora of New Zealand", M.M.J. van Balgooy in a comprehensive review of Pacific plant biogeography places it as a district of the New Zealand sub-region.

We were only on the island for 3 days, but thanks to the able planning of our leader Tony Rodd of the Royal Botanic Gardens, Sydney, we were able to see a good sample of the flora. With an area of 1455 hectares the island is only about half the area of Little Barrier. It consists of a northern lowland region, which partially encloses the lagoon, and a southern upland region dominated by the towering peaks of Mt. Lidgard (777 m) and Mt. Gower (875 m). For comparison, the summit of Little Barrier is 722 m.

The indigenous vegetation of the lowland region has been substantially altered by one hundred and fifty years of European settlement, although some areas are reserved and recently attempts have been made to remove the goats and pigs. Fortunately the vegetation of the mountains has been rather less modified, their rugged topography restricting the movement of even these feral animals.

The distinctive plants of Lord Howe are its palms which belong to the endemic genera Howea (2 species), Hedyscepe and Lepidorrhachis. The thatch palm (Howea forsterana) and the curly palm (Howea belmoreana) are both very common at altitudes below about 300 m. Hedyscepe canterburyana is also very common, but is restricted to altitudes above 300 m whereas Lepidorrhachis mooreana is restricted to the high summits. Export of palm seeds (Howea and Hedyscepe) to European and American nurseryman has provided a major island income for many years. The floristic affinities of the palms are a puzzle. Although Hedyscepe is grouped with our Rhopalostylis in the Archontophoenix alliance, the relationship is apparently not very close.

Almost all the names of the fern genera had a familiar ring, even including Platycerium which is sometimes cultivated here. We saw some old friends such as Adiantum hispidulum and Asplenium polyodon but but did not come to grips with the four endemic Cyathea species. Both Psilotum and Tmesipteris are present. Monocots apart from the palms include Cyperus lucidus looking remarkably like Cyperus (Mariscus) ustulatus, Gahnia xanthocarpa, the "real" Dianella intermedia, some danthonias, Echinopogon ovatus (hedgehog grass), Oplismenus imbecillis and Spinifex hirsutus. The sole member of the Pandanaceae (screw pines) is Pandanus forsteri, an endemic species with a tall thin free-standing "trunk"

supported by an enormous array of prop roots. Although it is allied to our Freycinetia, seeing this in the lowland forest abruptly reminded us we were not back home. Not unexpectedly a number of the dicots common to Lord Howe and New Zealand are from coastal communities and are good candidates for long distance transoceanic dispersal. Avicennia marina, Apium prostratum (A. australe), Calystegia soldanella and Lobelia alata (L. anceps) fall into this category. In the coastal scrub, Melicytus novae-zelandiae was readily recognised although it is placed in the endemic subspecies centurionis. Proceeding inland and upwards New Zealand affinities are more frequently at the generic rather than the specific level. Elaeocarpus, Dracophyllum, Corokia, Sophora (section Edwardsia), Geniostoma, Dysoxylum, Metrosideros, Pittosporum, Melicope, Exocarpus, Planchonella and Elatostema are all represented by endemic species or varieties. Coprosma has 3 endemic species, the coastal C. prisca a vicariant with our C. repens, and two forest shrubs. Carmichaelia exsul, the only representative of the genus outside mainland New Zealand is rare and we did not see it but for recompense Senecio insularis, a distinctive shrub close to our S. kirkii, was in flower and fruit. Seeing this plant was a particular highlight for another member of the party, Bertil Nordenstam from Sweden, because although he has recently segregated it into the monotypic genus Lordhowea he had not previously seen it in the field. (He has also transferred our S. kirkii but that's another story.) High up the slopes of Mt. Lidgard we saw the curious endemic gesneriad Negria rhabdothamnoides, distantly related to Rhabdothamnus but forming a stoutly branched small tree with large soft leaves. One plant I was particularly keen to see was Macropiper excelsum, as the Lord Howe plant is referred to the large-leaved var. psittacorum (var. majus). Plants seen at lower altitudes (c. 150 m) differed little in leaf size from mainland New Zealand plants although they lacked the purplish pigmentation usually found on the petioles and young stems. However at higher altitudes (c. 300 m) we saw plants with enormous plate-like leaves.

What are the origins of this Lord Howe flora? The island lies on the Lord Howe ridge, a submerged continental fragment extending north-west from New Zealand. Geologically the island is the eroded top of an undersea volcano which geologists tell us was never connected to other land masses. However, as argued by W.R.B. Oliver in 1917 in his classic account of the island, long distance transoceanic dispersal seems inadequate to account for the ancient affinities between the floras. It seems more plausible to suggest some form of land bridge but the most that geologists will admit to at present is the possibility of some now sunken island stepping stones. Even if one accepts such hypotheses puzzles still remain. For example how does one account for the distribution of the iroid Dietes robinsoniana, a distinctive plant superficially resembling Phormium in vegetative appearance, which has close relatives in southern Africa but nowhere in between!

MID-YEAR EDITION

Already I have sufficient material to indicate that a Newsletter, Vol. 37, No. 2, July 1982 will be possible. Articles for the next edition should be sent to the editor before 4 June, 1982. - Ed.