

The Bot. Soc. went bush along the Lonely Track, which was for the once, rather less lonely than usual. As an orchid hunt the trip was quite successful, for we found no less than 19 of the 25 species recorded from the area. The day could have been better - the wind was cold and there was a fair amount of cloud, which was a pity since the Thelymitras seldom open fully unless there is bright sun and a still air. Odd flowers on the spectacular Thelymitra pulchella however, obliged the photographers by opening slightly, which was some consolation.

The reserve is typical gum-scrub, and has been dug over pretty thoroughly, judging from the pits and hummocks that remain. The white clay is acid and on the poor side, saturated almost to bog in winter, and bone dry in summer. The plant cover reflects these conditions. Rushes and sedges abound. There is a high proportion of mycorrhizal species, Hakea, Pomaderris, heather (Calluna vulgaris), numerous orchid genera, teatree, Dracophyllum sinclairii, Prosera auriculata, and among the ferns Gleichenia, Lindsaea and Schizaea. In the steep gully remnants of the original kauri-taraire forest, with an unusual mixture of the clinker-beech, Nothofagus truncata. Pterostylis barbata was much looked-for and much discussed, but unfortunately not found. In 1960 I found a single plant here in the middle of the track, and in 1958 a group of 2 plants on the embankment and another group of 13 plants on the edge of the scrub. These last were obviously 'takes' from a single seed dispersal. Pt. barbata does not spread vegetatively like the trullifolia complex, throws but one large tuber at a time, and seems to rely on seed alone. It requires a definite amount of light and space and appears at its best on near-bare sun-drenched patches. It doesn't stay long in any one place however and is usually rare and solitary. But where conditions are really suitable (as they were at Silverdale in 1947) several dozen plants may grow and flower together - a wonderful sight.

By midday we had exhausted the orchids and Mr. Warren took the party into the bush. Schizaea fistulosa drew my attention. On the exposed roadside it was barely 2' high with quite large fertile segments, but in the bush the fronds were upwards of a foot in height with relatively small tips. I found some kidney fern (Trichomanes reniforme) too. Dracophyllum sinclairii behaved much as the Schizaea did, and trees of the former which had penetrated down into the shaded gully from the scrub above, were perhaps the largest I have seen. I noted Meliccytus macrophyllus and the towai (Weinmannia silvicola). An old kahikatea carried an enormous Griselinia lucida with characteristic descending roots, ribbed and tapering. Mr. Lediard found a manuka on which nearly half the normally perfect flowers had no stigma at all. Somewhat naturally these were setting no seed. Hard to know what had gone wrong. Those who are interested in pursuing the Thelymitras further will find descriptions and illustrations in Trans. R.S.N.Z. 79:p386.1952. I am not altogether happy about the plant I was calling Th. caesia. Whether this is actually distinct or is merely a young stage of the rather similar Th. pulchella is something we have yet to decide. E.D.H.

Miss Ella Campbell came up from Palmerston North, from the Massey University, to talk to us on a couple of her specialities, the non-green orchids, and the Waikato restiad bogs. This was good. Colour slides and diagrammatic sketches completed the picture. The lecture divided itself naturally into two parts beginning with the orchids. In the Newsletter for July 1964 I noted 3 of Miss Campbell's papers on the mycorrhizal association in Gastrodia. Additional points of interest were raised - Gastrodia cunninghamii although capable of self-fertilisation is often pollinated by hover flies. At Lake Manapouri G. cunninghamii occurred only under beech (Nothofagus) and G. minor only under manuka, often coming to within a few feet of each other but never exchanging host trees. Gastrodia sesamoides at Foxton was originally plentiful under pines, but when the trees were cut back and the light let in, the orchids tended to disappear. In Trans.R.S.N.Z.:p231.1949 I mentioned, quoting Rogers, the nitrogen-fixing bacteria associated with G. sesamoides. Miss Campbell confirmed this for New Zealand but pointed out that it occurs only when the orchid is growing with leguminous trees, such as the Acacia melanoxylon at Silverdale. (It occurs to me also that the podocarps carry root nodules, and that G. sesamoides was connected at Glorit with Kahikatea - I wonder if there is a nitrifying bacteria complex here too? Might be worth investigating.) The study of Yoania australis is still in the early stages, but it has been established that the fungal hyphae both penetrate the roots of the taraire, and swarm round and penetrate the rhizome of the orchid. I was particularly fascinated by the flowers of our only Burmanniad, Cheeseman's Bagnisia hillii, another rare, red and peculiar plant, non-green but not quite an orchid, which I had never seen before.

The restiad bogs are dealt with in some detail by Miss Campbell in Trans.R.S.N.Z.:#16.p219.1964, and more briefly by Butcher (as I mentioned in the newsletter for November 1965). The peat bogs of the northern hemisphere, formed largely of Sphagnum moss, are familiar to most, by hearsay if not from experience. Similar bogs are formed in New Zealand by two members of the Restionaceae, one, Sporodanthus traversii providing shade, shelter and support, while the other, Hypolaena lateriflora, produces masses of water-retentive roots which act as a substitute for Sphagnum. Two species of Sphagnum moss do occur but only in isolated hummocks and do not form the bulk of the vegetation. From Butcher's paper, which is an excellent summary, I have taken the following notes - Moanatuatua has an extent of some 18000 acres and from this relatively vast area only 23 species of plants above the level of algae and fungi have been recorded. 3 liverworts; 3 mosses; 2 ferns (Gleichenia circinata and Schizaea fistulosa); 2 lycopods (laterale and serpentinum); 3 orchids (Corybas carsei, Microtis unifolia and both blue and white forms of Thelymitra venosa); 2 sedges (Schoenus brevifolius and Cladium teretifolium); 2 restiads (Hypolaena and Sporodanthus - these two forming the bulk of the vegetation);

4 insectivorous plants (2 Utricularias, and Drosera binata and spatulata); and 2 shrubs (Leptospermum scoparium and Epacris pauciflora).

The remarkable association of Corybas carsei with Lycopodium serpentinum which have never so far been found away from each other or from Sporodanthus, never fails to amaze me. The bog flora on the whole reflects the high acidity and low mineral content of the peat. E.D.H.

LABOUR DAY WEEKEND - TE AWAMUTU - M.Barr

Eight-thirty a.m. on Saturday 23 October saw a bus full of Bot.Soc. members commencing another memorable trip. Fine weather accompanied us as we sped through a green countryside, with lambs aplenty gambolling on the hills, and the Waikato looking her best with her banks robed in the spring green of the willows and alders. At 11am we reached our rendezvous at Whata Whata with Mr. Caldwell, our leader for the weekend, and the rest of the Waikato party. Our way now led by devious roads to the southern slopes of Karioi at Raglan, but as we were well in the hills all the way we didn't once catch a glimpse of Raglan Harbour. A welcome stop was made at mid-day for lunch, at the entrance to the farm whose owner's permission we had received to wander up the slopes to Karioi main peak. Luncheon finished we set off on the two mile up hill trek through cleared farm land. Remnants of bush in the gullies told us what had once covered the hill. From the top of the ridge we obtained beautiful views of Aotea Harbour, with Kawhia and its long jutting headland ending in Albatross Point beyond. The bush seemed a long way up but was well worth the climb. Rimu, Hinau, Rewarewa, Manganese, Miro and Kohekohe seemed to be the main trees in the area. The wineberry (Aristotelia serrata) with a myriad clusters of small white and pink flowers was everywhere in the gullies, and on the fringe of the bush the air was sweet with the scent of hangehange (Geniostoma ligustrifolium). Ramarama (Lophomyrtus bullata) was plentiful, there being quite a thicket of it on the main ridge leading to the summit. We found the old familiar Aspleniums, Blechnums and filmy among the ferns which were growing on trees, fallen logs and on the forest floor, while Cyathea smithii, medullaris, dealbata and Dicksonia squarrosa vied for a place among the tree ferns. We were thrilled to find a large patch of Hymenophyllum flexuosum and one only small Trichomanes strictum. This rather rare little fern seems to form the habit of growing by itself, at least I have never found more than one plant in an area, although I have searched carefully. Our orchid lovers were pleased to find large patches of Corybas rivularis, C.trilobus and Pterostylis trullifolia. Blechnum nigrum was discovered in its usual gloomy haunt. Other plants of interest were Olea lanceolata, Pseudopanax edgerleyi, Metrosideros carminea (this last in flower), Olearia solandri and Coprosma colensoi. Unfortunately time did not allow us to reach the top although our advance party made a valiant effort.