

account of this wealth of hybrids the vegetation of Rainbow Mountain should be rigidly protected. Dr. A. W. Hill, C.M.G., F.R.S., Director of the Royal Botanic Garden, Kew, collected many of these hybrids, and is now studying intensively the New Zealand species and hybrids of *Gaultheria*—a difficult but much-needed piece of research.

Tall shrubland and low shrub-forest can be dealt with together, the species which compose them being identical, and the latter only a step further on towards forest proper, into which, in course of time, it must develop. It is also to be expected that, as humus accumulates, species absent at present will gain a footing, including various ferns. Certain important members of these communities have already been cited; the following must be added to the list but they are in far less numbers, some local, and others rare: ti-ngahere (*Cordyline Banksii*), turutu (*Dianella intermedia*), rewarewa (*Knightia excelsa*), tawheowheo (*Quintinia serrata*) (upper part of mountain), tree-tutu (*Coriaria arborea*), lancewood (*Pseudopanax crassifolium* var. *unifoliolatum*), korokio (*Corokia buddleoides* var. *linearis*) broadleaf (*Griselinia littoralis*), tall mingimingi (*Leucopogon fasciculatus*), monoao (*Dracophyllum subulatum*), and akepiro (*Olearia furfuracea*).

There now remains to be described only the rain-forest of the crater—one of the most important features of the reserve. It can be viewed from above (Fig. 5) or reached by an excellent track (Fig. 12). According to Mr. Phillips Turner, steam issued from a few places in the forest-floor at the time of his visit, but now this has probably ceased. The area occupied is about an acre. Most of the species are absent elsewhere on the mountain.

The tallest trees are miro (*Podocarpus ferrugineus*), rimu (*Dacrydium cupressinum*), toatoa (*Phyllocladus glaucus*), rewarewa (*Knightia excelsa*), kamahi (*Weinmannia racemosa*), northern rata (*Metrosideros robusta*). There is a dense undergrowth of shrubs and small trees, including silver tree-fern (*Cyathea dealbata*), green tree-fern (*Hemitelia Smithii*), wineberry (*Austotelia serrata*), tree-fuchsia (*Fuchsia ercorticata*), whauwhaupaku (*Nothopanax arboreum*), hangehange (*Geniostoma ligustrifolium*), kanono (*Coprosma grandifolia*), karamu (*C. lucida*), and rangiora (*Brachyglottis repanda*). On the floor there is a close growth of kiokio fern (*Blechnum procerum*) (6 ft. deep or more), some climbing polypody (*Polypodium diversifolium*), some shining spleenwort (*Asplenium lucidum*), and huge tussocks of a species of *Gahnia*, perhaps *G. setifolia*. Where the kiokio fern was thickest water lay on the ground. According to Mr. Phillips Turner there are the lianes supplejack (*Rhipogonum scandens*) and bush-lawyer (*Rubus australis*). The ferns *Polypodium diversifolium* and perching spleenwort (*Asplenium adiantoides*) and thick-leaved polypody (*Cyclophorus serpens*) are apparently the only perching plants, but the former is better classed as a climber.

There yet remains for some one to investigate the other parts of the mountain, especially the portions facing north and east, when possibly a good many species would be added to the list, and the associations be better defined. But, incomplete as is my account, it should show how interesting is the ancient volcano from both the scenic and scientific points of view, and how it should be guarded with scrupulous care. Above all, the vegetation should never be interfered with, nor on any account should any plants either indigenous or exotic be planted in its precincts. The object of scenic reserves is to preserve them intact, but not to “improve” them into something different.

LIST OF THE INDIGENOUS VASCULAR PLANTS.

Species, &c.	Popular Name.	Life-form.	Remarks.
FILICES (FERN FAMILY).			
<i>Cyathea dealbata</i> (Forst. f.) Sw. ..	Silver tree-fern ..	Medium-sized tree-fern ..	Only in rain-forest of crater.
<i>Hemitelia Smithii</i> (Hook. f.) Hook	Green tree-fern ..	Medium-sized tree-fern ..	Only in rain-forest of crater.
<i>Asplenium adiantoides</i> (Linn. f.) C. Chr.	Perching spleenwort ..	Large fern with leaves in tufts	Only in rain-forest of crater.
— <i>lucidum</i> Forst. f. ..	Shining spleenwort ..	Large fern with leaves in tufts	Only in rain-forest of crater.
<i>Blechnum procerum</i> (Forst.f.) C. Chr.	Kiokio fern ..	Fern with enormous spreading leaves	Only in rain-forest of crater.
<i>Pteridium esculentum</i> (Forst. f.) Ckn.	Bracken-fern ..	Large fern, far-creeping and rooting	Only where light is abundant.
<i>Paesia scaberula</i> (Presl.) Kuhn...	Hard-fern ..	Medium-sized fern, far-creeping and rooting	Only where light is abundant; not common.
<i>Polypodium diversifolium</i> Willd. ..	Climbing polypody ..	Medium-sized climbing fern	Only in rain-forest of crater.
<i>Cyclophorus serpens</i> (Forst. f.) C. Chr.	Thick-leaved polypody..	Small creeping, perching fern with thick leaves	Only in rain-forest of crater.
<i>Gleichenia microphylla</i> R. Br.	Scrambling umbrella-fern	Large far-creeping scrambling fern	On warm ground.
<i>Leptopteris hymenophylloides</i> (A. Rich.) Presl.	Single crape-fern ..	Large fern with thin leaves in tufts	Only in rain-forest of crater.
LYCOPODIACEAE (CLUB-MOSS FAMILY).			
<i>Lycopodium cernuum</i> L... ..	Creeping club-moss ..	Semi-woody creeping plant	On warm ground.
— <i>fastigiatum</i> R.Br. ..	Alpine club-moss ..	Semi-woody, erect, far-creeping plant	Very rare.
— <i>volubile</i> Forst. f. ..	Climbing club-moss ..	Slender woody climbing plant	Rare.