On bibliography

Victoria University Botany Dept

WAINUI RIDGE ECOLOGY NOTES FOR STAGE I EXCURSION 1960

Tawa Ecol District

A study in succession and two types of climax formation (1) the Sub-Antarctic Rain Forest and (2) the Sub-Tropical Rain Forest. The terms "Sub-Antarctic" and "Sub-Tropical" are not of geographical significance, but refer to the botanical relationships of the components.

1. SUB-ANTARCTIC RAIN FOREST :

The climax formation at the higher levels is probably Southern Beech or Nothofagus Forest. Typically this consists almost wholly of Nothofagus spp. with only a few shrubs and little or no ground flora apart from young seedlings. On this ridge, however, the areas of beech forest are small, and marginal invading species are more conspicuous than usual.

2. SUB-TROPICAL RAIN FOREST :

In the more sheltered valleys and on the lower slopes of the hillsides a mixed subtropical rain forest is the climax formation. In this formation there are several main tall canopy trees, large numbers of lower canopy trees, tree ferns, shrubs, a rich ground flora besides numerous lianes and epiphytes. Typical canopy trees of this formation are the various podocarps (Rimu, Miro, etc.) Weinmannia racemosa, Elaeocarpus dentatus, Knightia excelsa, Beilschmiedia tawa, Metrosideros tree spp. and slightly lower Corynocarpus laevigata. Among the lower canopy are found Carpodetus serratus, Hedycarya arborea, Melicytus ramiflorus and Nothopanax arboreum. For plants typical of lower strata see later floristic list.

These climax formations have been variously damaged and modified by fire, the activities of man and other animals. In some places relics of the original climax formations remain, but in most cases the forest are second growth forests and are not perfectly typical of their respective formations. In some places interesting stages in succession or the developmental history of the plant community can be observed.

PARTICULAR NOTES ON SUCCESSION ON THE WAINUI RIDGE :

(1) A Recent Burn: This is seen at the beginning of the track.

(a) Where gorse had been established before, new shoots can be seen sprouting from the base of old plants, along with seedlings both of gorse and herbaceous plants.

(b) Where gorse had not previously been established: mosses, lichens, young seedlings and bracken (Pteridium esculentum).

(2) The next step in the succession from (1.(b) seems to be the development of Leptospermum scoparium (Manuka) and some Cyathodes juniperina (pungent mingimingi) amongst the bracken, eventually outgrowing it and shutting it off from the light. Several stages in the process will be observed along the track.

(3) If the Leptospermum is not too dense, seedlings of trees from neighbouring communities develop and grow out through it. Weinmannia racemosa (Kamahi), Knightia excelsa (rewarewa), beech seedlings and others will be observed at this stage.

(4) Time alone will tell whether these trees will establish themselves and shade out the Leptospermum.

(5) Older parts of the bush where second growth has taken place

suggest that the quicker growing members of the mixed forest do establish themselves.

The following are conspicuous both on the left hand side of the track going up and in the valley near the end of the track:

Weinmannia racemosa, Brachyglottis repanda (Rangiora) Nothopanax arboreum (Five-finger or Whau whau paka) Coprosma robusta. In the more open community in the valley are found Fuchsia excorticata Aristotelia serrata (wine-berry), Macropiper excelsum (Kawakawa) Geniostoma ligustrifolium (Hangehange) Coprosma grandifolia (kanono) Olearia rani (Heketara) etc. In one place Gahnia setifolia has grown abundantly along the sides of the track.

(6) At a later stage the above trees and shrubs may be added to or replaced by other trees which may eventually restore the climax formation appropriate to the area.

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FLORISTIC COMPOSITION OF THE SUB-ANTARCTIC RAIN FOREST AND SUB-TROPICAL RAIN FOREST OBSERVED ON THE WAINUI RIDGE.

This list is not meant to be complete, but merely to record the more prominent species.

SUB-ANTARCTIC RAIN FOREST.

DOMINANTS : Nothofagus solandri, Nothofagus truncata.

A. GROUND-ROOTED, SELF-UPHOLDING PLANTS :

1. Tall canopy trees: Nothofagus solandri, Nothofagus truncata.
2. Low canopy : Weinmannia racemosa.
3. Small trees and shrubs: Seedlings and young of some of the nearby sub-tropical forest trees, also Cyathodes ~~abrosa~~ Dampieria and Leucopogon fasciculatus with very small leaves.
4. Ground stratum : Numerous Nothofagus seedlings, a few other small seedlings, ~~Trich~~manes reniformes (the kidney fern), other ferns and a few Bryophyta in damper situations.

B. EPIPHYTES, etc. : Rare - Lichens and Bryophyta on the trunks of Nothofagus, also sooty mould Fungi. One or two very old beeches may be seen with epiphytes similar to those mentioned below - these are exceptional.

SUB-TROPICAL RAIN FOREST

A. PLANTS ULTIMATELY ROOTED IN THE GROUND AND SELF-UPHOLDING :

1. Tall canopy trees : Elaeocarpus dentatus (Hinau), Weinmannia racemosa also an occasional Dacrydium cupressinum (Rimu) Podocarpus ferrugineus (Miro) Beilschmiedia tawa (Tawa) Knightia excelsa etc.
2. Low canopy trees : Carpodetus serratus (Putaputaweta); Hedycarya arborea (Pigeon wood or Porokaiwhiri) Melicytus ramiflorus (Whitey-wood or mahoe) Nothopanax arboreum.
3. Small trees forming a ceiling at about 20 feet or lower: Young of the above, Olearia rani (Heke tara) Coprosma australis ~~grandifolia~~ Myrsine ~~salicina~~ australis (Marginal) Brachyglottis repanda, Geniostoma ligustrifolium, Cyathea dealbata (tree fern) Fuchsia excorticata (in openings).

4. Shrubs: Seedlings of above, Coprosma microcarpa.

5. Ground stratum: Freycinetia banksii under less dense parts of canopy. Ferns - Asplenium bulbiferum, A. flaccidum, A. lucidum, Polypodium diversifolium, Blechnum filiforme (terrestrial), Hymenophyllum demissum, H. sanguinolentum, H. multifidum, various Bryophyta.

B. EPIPHYTES AND PLANTS NOT SELF-UPHOLDING THOUGH GROUND-ROOTING :

1. In the canopy : Astelia solandri, seedlings of some canopy trees. Orchids (e.g. Earina autumnalis) Ferns (e.g. Blechnum sp. Asplenium flaccidum) Lycopodium billardieri, Lianes from the ground Rhipogonum scandens (supple jack) Rubus cissoides (=australis Forst.) Occasionally Clematis ~~indivisa~~ paniculata

2. In the small tree stratum and on the trunks of tall trees. Rhipogonum scandens (liane), Metrosideros spp.(climbers, e.g. M.diffusa, M. scandens) Polypodium spp. and Blechnum spp. (climbers), Freycinetia banksii (sometimes climbs), sooty mould Fungi.

3. Various Bryophyta throughout.