

The following tabulation gives the extent of each forest zone:

Forest Zone	North of Divide		South of Divide	
	Sq. mls.	Per cent	Sq. mls.	Per cent
Podocarp	130	58.8	16	7.3
Red beech	54	24.5	32	14.6
Silver beech	37	16.7	171	78.1
	—	—	—	—
	221	100.0	219	100.0
	—	—	—	—

From this it is clear that podocarps (*Podocarpus* and *Dacrydium* spp.) dominate the northern area and silver beech (*Nothofagus menziesii*) the southern area. Red beech (*N. fusca*) is significantly of greater extent north of the divide and particularly is this so on the immediate slopes below the divide. Whereas in like situation on the southern face silver beech forest is dominant.

Mountain beech (*N. solandri* var. *cliffortioides*) is of limited extent, being found mainly on the higher summits of the West Huiarau. The occurrence of black beech (*N. solandri*) is extremely sporadic and remains to some degree unknown; while trees with characteristics intermediate between mountain and black beech are often encountered but cannot be named with certainty (Poole, 1958: 562). Mountain x red beech hybrids (*N. x cliffusca*) have been observed locally down to low levels on the northern face, and it is likely that they are more widespread than at first appears. Hard beech (*N. truncata*) has not been observed in the area by the writer, but it might well be present.

In the podocarp zone the chief species are rimu (*Dacrydium cupressinum*), matai (*Podocarpus spicatus*), kahikatea (*P. dacrydioides*) and miro (*P. ferrugineus*). The high-volume rimu, matai-totara (*P. totara*) and related stands of the Whirinaki Valley are really beyond the scope of this survey but they receive mention in ensuing discussion.

Altitudinal zonation differs markedly between north and south faces and also from east to west (Fig. 4). On the northern face the podocarp zone passes, fairly abruptly, to the red beech zone around 2,400ft, while scattered podocarps chiefly rimu, ascend within the red beech zone to about 2,600ft on the West Huiarau face and to nearer 2,900ft on the East Huiarau face. South of the divide the podocarp zone ascends little above 2,200ft except towards the head of the Waiau River, where the upper zonal limit harmonises more closely, around 2,400ft, with that of the northern face.

The red beech zone of the northern face seems to have its upper limit around 3,300ft in the west and about 3,000ft in the east. On the southern face its upper limit seems to be around 2,900ft to 3,000ft in the west but little above 2,300ft to 2,500ft in the east.

On the East Huiarus the silver beech zone ascends to the tree-line which on Mt Manuoha is little under 4,600ft. In the west it appears to find its upper limit around 3,800ft.

At this stage it is apparent that the major forest zones comprise a mosaic which alters markedly from north to south and, though rather less so, from east to west as a consequence of variation in both areal extent and vertical distribution of the component zones. To understand the full significance of this pattern we must seek to ascertain the controlling factors of both horizontal and vertical distribution—one is not necessarily a function of the other. And in this quest our first thoughts should turn to the existing factors of the environment.