

(2,100ft) where patches of *Hoheria glabrata* mark the end of the open eastern valley with bogs and *Nothofagus cliffortioides* forest, the west coast vegetation appears, as the composition of the *Nothofagus* forest changes to include tree ferns (*Cyathea* spp.) and *Ripogonum scandens* with abundant bryophytes and epiphytes. *Weinmannia racemosa* increases near the head of the sound and tall *Dacrydium cupressinum* and *Metrosideros umbellata* also appear. Patches of small *Metrosideros* were also found on ridges near Lake Manapouri. Two census areas were taken, one at the mouth of the Spey River (Area 3, Plate 1a) to the West Arm of Lake Manapouri (600ft in altitude) and one at the mouth of the Lyvia River in Deep Cove, the head of Malaspina Sound (Area 4, sea level). Area 3 is 50 acres in size, being connected to a patch of *Leptospermum scoparium* on one side and marked by the lake shore, foothills of mountains and the Spey River. *Nothofagus menziesii* and *N. cliffortioides* form the canopy about 50–60ft high and the secondary layer is sparsely occupied by *Carpodetus serratus*, *Griselinia littoralis*, *Elaeocarpus hookerianus*, *Fuchsia excorticata* and *Neopanax* spp. The shrub layer includes *Pseudowintera colorata*, *Neomyrtus pedunculata*, *Coprosma* spp. and *Myrsine divaricata*. It is boggy in places and tree trunks and the ground with decaying logs are covered with moss and ferns. Three counts were made in this area. Area 4 is also 50 acres in size and triangular in shape, surrounded by the head of the sound, the Lyvia River and foothills of mountains. It contains some scattered tall specimens of *Dacrydium cupressinum* and *Nothofagus menziesii* above the normal canopy (about 60ft) of *Weinmannia racemosa* and *Nothofagus*. The secondary layer include *Fuchsia excorticata*, *Aristotelia serrata*, *Griselinia littoralis*, *Neopanax* spp., and *Schefflera digitata*; the shrub layer contains *Cyathea* sp., *Pseudowintera colorata*, and other species. *Ripogonum scandens* and *Rubus* spp. are also common. Two population counts were made in this area.

The region of Lake Monk–Long Sound lies in the southern part of Fiordland where mountain ranges are low with only few peaks exceeding 4,000ft, though deep glaciated valleys run in various directions complicating the topography. Upland *Nothofagus* forest covers valley floors and slopes of mountains up to 2,700–3,000ft. At the head of Lake Monk (2,200ft) this forest forms a narrow belt bordered by the lake shore and bogs at the bottom, and the alpine meadow and subalpine scrub at the low timber line. On the slope a few old slips support *Nothofagus* stands of different ages. In parts of the valley and at high altitudes where there is a strong seepage, *Dacrydium bifforme* and other scrub grow densely in stunted *Nothofagus cliffortioides* forest. In such conditions if the slope is gentle scattered *Nothofagus* forms a parkland, sometimes with a radiating drainage pattern of streams. Towards Long Sound along the Jeanie Burn, *Weinmannia racemosa*, *Metrosideros umbellata* and *Coprosma* increase with the decrease in altitude, developing a typical west coast rainforest near the sound, with abundant tree ferns and *Ripogonum scandens*. In the autumn of 1957 an expedition team spent 11 days in the Lake Monk area, and a report on the relationship of the naturalized Red Deer (*Cervus elaphus*) and birds to the vegetation has been published (Riney, *et al.*, 1959). In the present work two census areas were selected; one at the head of Lake Monk (Area 5, 2,200ft in altitude) and one in the Jeanie Burn Valley (Area 6, 1,500ft in altitude). Area 5 of about 20 acres is covered with mature *Nothofagus menziesii* forest and patches of bog with scrub in between. The secondary layer of this forest is sparsely occupied by *Griselinia littoralis*, *Neopanax* spp., and *Senecio bennettii* at the foot of old slips. The shrub layer is formed by *Pseudowintera colorata* and *Myrsine divaricata*; the latter is often dense in the edge of the forest where *Dacrydium bifforme* also grows on the bog. This area represents a rather unique habitat of upland *Nothofagus* forest between lakes and mountain tops, where there is no extensive unbroken forest due to streams, bogs, slips and the damage by deer. It is not a typical forest habitat but nevertheless common in this part of Fiordland. Area