Phytosociological studies in Tasmanian cool temperate rainforest

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with 6 figures and 5 tables

Abstract. Tasmanian cool temperate rainforest is comprised of two alliances, the myrtle-beech (Nothofagus cunninghamii) alliance and the pencil pine (Athrotaxis cupressoides) alliance. The former includes most of the rainforest in Tasmania and occurs from the lowlands to the highlands. The latter is a small group confined to high altitudes, mainly in central Tasmania but also extending further southwards at high elevations.

Floristic and structural characteristics of the vegetation are described and a detailed phytosociological examination of the myrtle-beech alliance is undertaken. This alliance can be divided into three groups (suballiances) termed callidendrous, thamnic and implicate rainforest. Callidendrous forests are characterised by park-like communities, low in diversity with respect to woody species but relatively high with respect to pteridophytes. At the other extreme, implicate forests are characterised by low broken canopies and poorly formed trees. The understorey is tangled, and species diversity is high with respect to woody species and low with respect to pteridophytes. Thamnic forests occupy an intermediate position between the extremes represented in callidendrous and implicate forests. Similar trends are evident in endemism which is highest in implicate forests and lowest in callidendrous forests.

A total of 33 communities are described from the myrtle-beech alliance, based on a combination of understorey types and canopy dominants.

Key words: Athrotaxis, callidendrous, classification, implicate, Nothofagus, thamnic.


Introduction

Cool temperate rainforest is restricted to the Southern Hemisphere where it occurs in Australia, New Zealand and southern South America. Within Australia, it attains its greatest extent and diversity on the island of Tasmania, with only small outlying populations occurring on the mainland. It is regarded as a facies of temperate rainforest which is one of four rainforest types represented in Australia (tropical, subtropical, monsoon and temperate rainforest: Beadle & Costin 1952). In the classification of Australian vegetation by Specht (1970), cool temperate rainforest is encompassed within the closed forest category which includes tall closed forest, closed forest and low closed forest.