

A forest regeneration filter: does *Cyathea dealbata* influence native forest, and to what effect?

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Tree ferns are a prominent feature of New Zealand forests and can represent up to 20% of forest biomass and >50% of total basal area. Although tree ferns are culturally and physically significant components of native forest communities, little is known of their aut/synecology. *Cyathea dealbata* is the most well-known of tree fern species in NZ and has a distribution covering most of the NZ archipelago; it is common in forest understories and can represent up to 45% of stem density. We hypothesise that understory *C. dealbata* influence the regeneration niche of canopy species through macro-litterfall and shading; thereby affecting long-term forest structure and composition. Our project aimed to test this hypothesis and assess the relative significance of probable mechanisms.

Survey transects were undertaken at multiple sites across the Waitākere Regional Park, in west Auckland, and Coromandel Peninsula. At regular intervals 1m² seedling plots were established recording species and height classes of seedling populations, and this seedling composition and density were related to the proximity and type of overstorey, canopy cover and other environmental variables. An experimental manipulation of understory tree ferns at University of Auckland forest reserves has also been installed to directly examine the response of the seedling community to the removal of the influence of macro-litterfall and shading effects.

Analysis to date suggests that high tree fern densities reduces seedling densities but does not appear to influence the overall species composition. Seedling trait analysis is being undertaken to identify possible functional trends within the seedling communities in areas of increased tree fern abundance in the understory. The outcomes of the research and analysis to date will be presented with considerations to the importance of including tree ferns in forest restoration and management proposals.