

ECOLOGICAL SUCCESS OF NATIVE FOREST RESTORATION ON ARTIFICIAL SURFACES AT ARATIATIA, CENTRAL NORTH ISLAND, NEW ZEALAND

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Successional pathways in synthetic native forest, planted 15-30 years ago on reconstructed surfaces to restore aesthetic values destroyed by hydro-electric dam construction at Aratiatia, central North Island, New Zealand, were compared with those on similar surfaces left unplanted. Classification identified three canopy communities and four ground layer communities with significant inter-stratum relationships: *Pittosporum tenuifolium-Sophora tetraptera* short forest with ground layers dominated by litter, and *P. tenuifolium-Kunzea ericoides* short forest over adventive grasses on planted sites; and adventive grassland with stands of adventive *Cytisus scoparius* on unplanted sites. Planted communities mirror the first forested stage of secondary successions on intact substrates in the district but have lower density and basal area than secondary forest elsewhere. Established seedlings of seven planted canopy trees, mostly early successional bird-dispersed species, are reasonably widespread in *Pittosporum-Sophora* forest, of only two species in *Pittosporum-Kunzea* forest, and none on unplanted sites. This first large-scale attempt at ecological restoration in New Zealand by mass planting of new surfaces with early successional native woody species has created aesthetically-pleasing stands of indigenous forest on sites which otherwise remain in apparently static adventive grassland and shrubland communities. Many later successional trees and shrubs typical of the region are still absent and it is too early to evaluate the longer-term success of the project. Only continued monitoring will show whether natural processes are operating at a level sufficient to ensure that artificially initiated successions continue along more-or-less natural pathways or whether further management - beyond the landscape reconstruction and planting already carried out - is necessary.