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NITROGEN BUDGETS IN REGROWTH KARRI FOLLOWING THINNING AND FUEL REDUCTION BURNING

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The Department of Conservation and Land Management is undertaking an experimental program to investigate the feasibility and impacts of burning slash fuels created by thinning operations in young regrowth stands of karri (*Eucalyptus diversicolor*). Potential constraints on prescribed burning of thinning slash include damage to retained crop trees and losses of nutrients, particularly nitrogen, from the ecosystem. The amounts of nitrogen volatilised during fuel reduction burning of thinned karri forest are significant and for the most intense of eight experimental fires corresponded approximately to the amounts of nitrogen in growing vegetation (about 180 kg/ha). Compared to the total nitrogen in the ecosystem (vegetation + litter + soil) these amounts are small so that a single fire event is not likely to have a large impact on total nitrogen stores. However, inputs and outputs of nitrogen as a result of regular burning will affect the balance of nitrogen in the long term. Minimising volatile losses of nitrogen will help to maintain this balance. This is best achieved by burning under conditions when the lower part of the fuel profile is moist (litter profile moisture content > 80%), resulting in reduced combustion of the litter layer - the main compartment of nitrogen storage in fuel. Such conditions are also likely to minimise damage to retained crop trees.

ABSTRACTS

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