Managing regeneration burns in aggregated retention (ARN) coupes

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Developing a consistently successful approach to management of harvesting debris is the most significant operational issue associated with implementing aggregated retention (ARN).

While high-intensity convective burns are a proven regeneration technique for clearfelled wet eucalypt forest, the use of high-intensity burning in ARN is constrained by the need to minimise damage to trees retained in aggregates. An alternative method (termed 'slow' burning) has been developed, which relies on sparse lighting of dry fuels under conditions of low but rising relative humidity. Ideally, this leads to an intense but less active fire that spreads slowly and will self-extinguish overnight. The slow-burning prescription has been successfully applied in twelve ARN coupes to date (i.e. in 2007 and 2008) with good results, but relies on specific weather and fuel moisture parameters, and therefore requires close and careful monitoring to identify favourable lighting conditions.

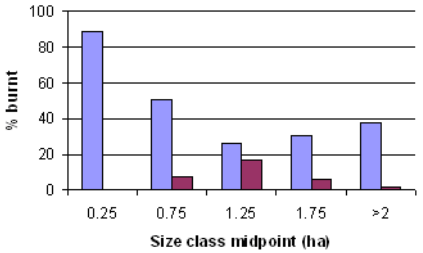
These conditions may not occur often, reducing the burning window for these types of burns and increasing the likelihood that some planned burns will not be achieved. However, several slow burns lit under marginal weather conditions in autumn 2008 have still produced relatively good results. Multiple lighting attempts were required in four of the coupes, and two coupes were lit in two or more stages. Two coupes that had been carried over for several years were mechanically heaped before burning.

Outcomes were generally good, with burnt or disturbed seedbed created over 60-98% (mean = 81%) of the felled area, and with relatively low levels of burn damage to aggregates and edges.

Further experience will help to refine the slow burn prescription. Once lit, slow burns remain alight longer than conventional high-intensity burns, increasing the risk of an escape. The reduced intensity of slow burns may also result in less complete combustion of large fuels, and greater production of smoke and particulate matter.

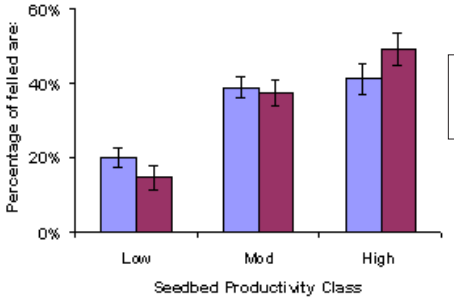
SX020A – large, complex ARN coupe lit to the 'slow' burning prescription.

Percent of aggregate areas damaged in the regeneration burn by aggregate type



Island aggregates, grey bars; edge aggregates, red bars

Seedbed comparison between ARN and CBS (2007 and 2008 coupes combined)



ARN coupes, grey bars; CBS coupes, red bars

Several changes to coupe design and site preparation have been made in order to facilitate burning of ARN coupes.

Current ARN coupes are being planned with fewer, larger aggregates, wider fairways, and reduced site preparation around aggregates. Small coupes containing only edge aggregates have proven easier to burn than coupes containing many island aggregates. Depending on coupe design and constraints, these small ARN 'patchfells' may be burnt using conventional methods.