060615

" KARRI MANAGEMENT TOUR BY SENIOR STAFF "

FUEL REDUCTION BURNING IN KARRI REGROWTH (L. McCAW)

1. Background

Development of the fire protection strategy for regenerated areas of karri forest is summarised in the attached notes prepared by Paul Jones in 1984.

2. Current Research Results

Low intensity fires can be prescribed in regrowth stands 15 years or older (average site quality) with little or no damage to the crowns of the potential crop trees. Although a proportion of these trees will suffer stem damage, sufficient should remain undamaged (at least 350 stems/ha) to allow selection of a good stand at first thinning. Burns can be ignited using combinations of aircraft and ground crews. With careful advance mop up and selection of condition for burning, costs may be comparable with or less than costs for burning mature karri forest.

3. Implementation

3.1 Opportunities for prescribed burning in regrowth are restricted because;

1. fuels are slow to dry and will not be available for burning until well into the fire season,
2. specific conditions of fuel moisture and wind are required for satisfactory burning,
3. when conditions are suitable there is often competition for resources.

3.2 Burning regrowth at a young age will cause some loss of potential wood production because of mortality, and damage to standing trees.

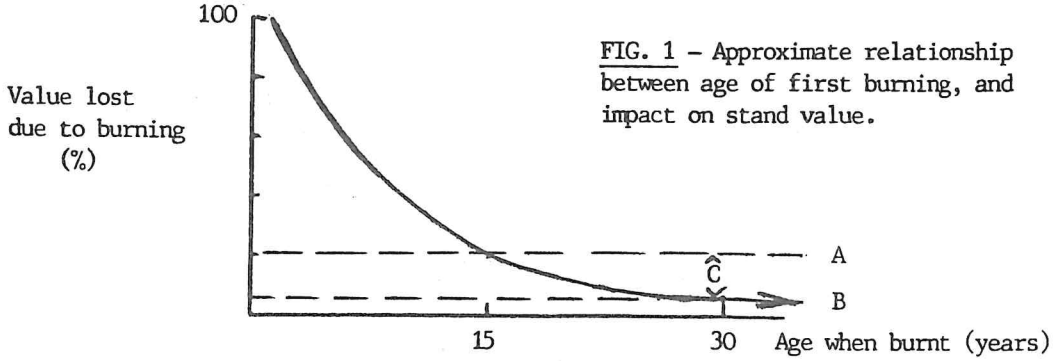
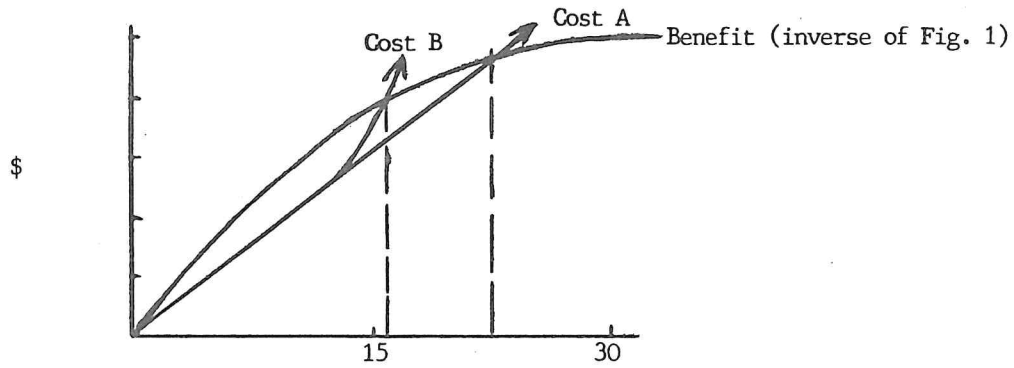


FIG. 1 – Approximate relationship between age of first burning, and impact on stand value.

A = level of damage acceptable if projected sawlog production is to be maintained
B = level of damage acceptable to allow maximum value return from stand
C = value lost due to downgrading of sawlog to chipwood, or to fire killed chipwood.

3.3 However excluding fire from regrowth stands involves
direct costs - (track maintenance, patrol during burns)
Opportunity costs - (fuel accumulation)

FIG. 2 - Cost/benefit balance for fire exclusion.



Cost line A - ideal situation, eg. large continuous stands of similar age regrowth.

Cost line B - small, irregular shaped patches of regrowth adjacent to current burns.

Thus it is likely that the cost/benefit balance for individual stands will have an important bearing on the age at which prescribed burning commences. Examples Weld 2 + 4, Dombakup 7.

How do we reconcile coupe dispersal (for ecological/political values) with practical requirements for fire protection?

4. New Initiatives

- write up existing work during 1986.
- interaction of early thinning and fire.
- regrowth on mixed MK, MKJ sites.

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PROTECTION PROBLEMS IN KARRI FOREST

FOR SEMINAR ON KARRI REGROWTH BURNING - MANJIMUP 8/3/84

Past experience tells us that if a fire occurs on a dangerous day in summer and it runs into a large tract of heavy fuel the result will be an uncontrollable fire causing severe forest and possibly property damage.

The inception to broadscale burning from the air gave a way to bring fuels to a manageable level and its use practically eliminated the large fires of the 1950's and 1960's.

These halcyon days are however slipping by due to the rapid expansion of area cut over and regenerated when karri cutting moved into mixed stands. The area of regeneration is shown on the attached graph.

The protection problems this regeneration has caused are a result of:-

1. The need to exclude fire from the fire sensitive regeneration for a period of 15 to 20 years.

   The effect of this is to restrict the area of forest available for rotational reduction burning and secondly to significantly increase the cost of burning due to the need to construct roads to exclude fire sensitive areas and the added precautions required on the boundaries.

2. The dispersed nature of the cutting coupes has meant that the impact of the regenerated areas on the burning programme has been maximised. Since 1975 the average coupe size has been approximately 100 ha hence the area of regeneration from then until now (18 000ha) represented 180 separate coupes.

This problem was foreseen and burning buffers were strategically instituted in which there would be no cutting so that they would be available for normal rotational burning. This then was to be the fall back situation from the broad area rotational prescribed burning. It is a situation which is rapidly approaching as the cost of burning outside the buffers continues to escalate.

The Future

The existance of the regeneration poses two very significant protection problems for the future.

1. The need to treat the regenerated areas to provide protection for new cutting in the current burning buffers. The long range logging plan details that the current buffers (excluded from cutting at present) must be cut eventually to satisfy the expected demand for karri logs. The protection of the forest from this time on will increasingly rely on the ability of the original regeneration to form a burning buffer. These areas are already conceptually planned and are known as second stage buffers. The entry of logging into the current buffers is planned around the assumption that second stage buffers will be available at approximately 15 - 20 years after regeneration. The demand for sawlogs and the resource availability is such that 15 years is the likely figure.

2. The value of the regeneration in terms of:-

   2(i) financial investment

   2(ii) the need for the late 60's early 70's regeneration to fill the critical shortfall period in the working plan.

2.1 A hundred hectare coupe regenerated at todays values represents an investment in the order of:-

coupe preparation	$50/ha	=	$5,000
burning	$30/ha	=	$3,000

planting	$100/ha	= $10,000
plants	$0.05/each	= $ 6,250
		$24,250

Assuming 10% interest rate the compound value of this coupe for 15 years is:-

YEARS	VALUE ($)
0	24,250
5	39,000
10	63,000
15	101,250

As a consequence we have a very valuable asset to protect (by the buffers) and of more relevance to this seminar an asset that must be treated with the care that its value demands.

2.2 The late 60's early 70's regeneration is the most valuable as it is those stands that will supply the wood to overcome a projected gap between the end of the old growth forest and the oncoming regeneration. Consequently their treatment and protection must be particularly careful.

Summary

(a) The extent of future protection in the Southern Region is going to be dependent on the Departments ability to treat the regenerated stands being produce now.

(b) Wood production demands make it imperitive that the treatment (burning) be carried out at the earlist possible time.

(c) The high value and sensitivity of karri regrowth makes it important that the treatment conditions and their effects are well understood.

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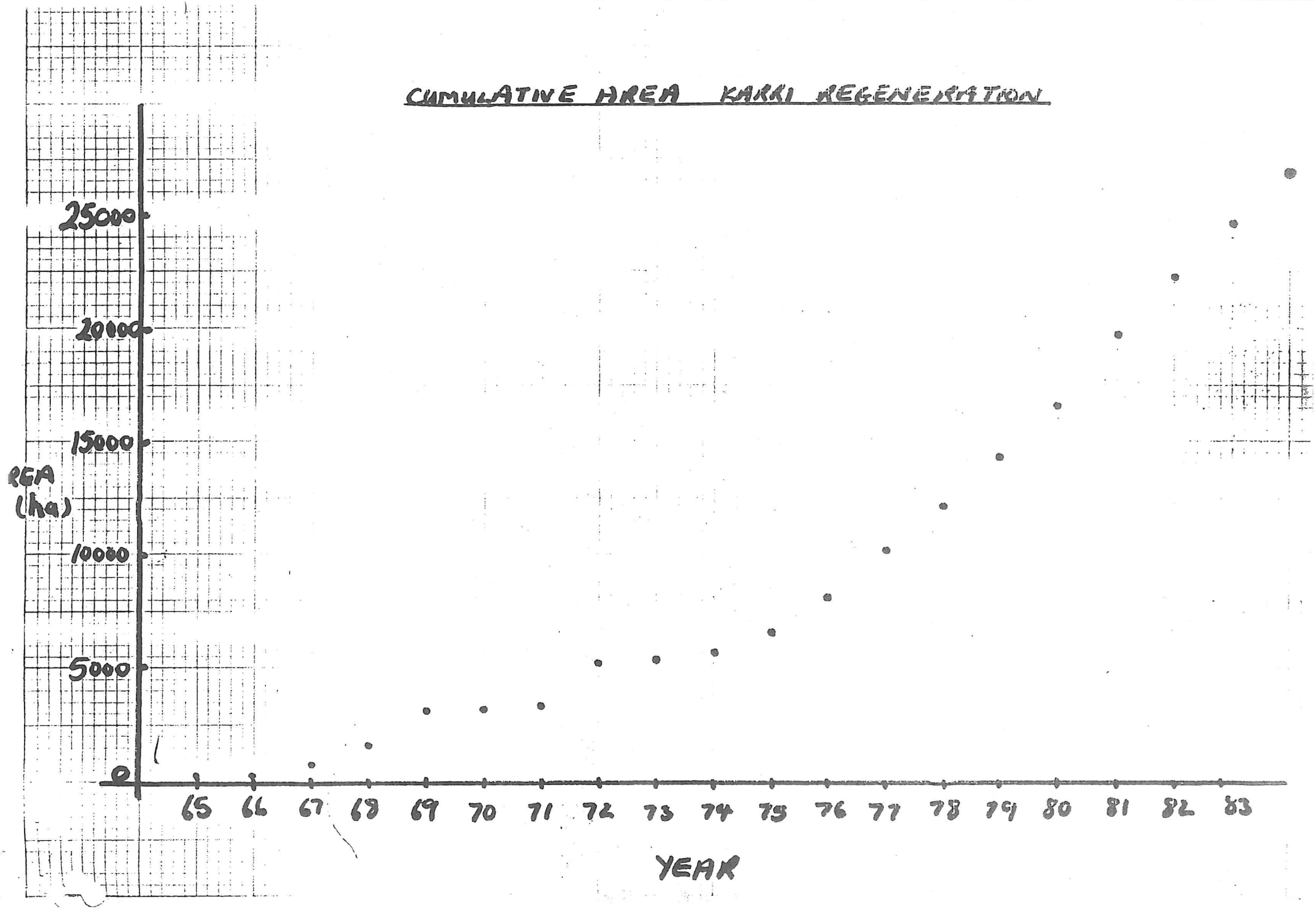
R/L OPERATIONS

PMJ:CP


CUMULATIVE AREA KARRI REGENERATION
25000
20000
15000
10000
5000
0
REA
(ha)
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
YEAR