THE EFFECT OF FIRE INTENSITY ON KARRI SAPLING STANDS.

by

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INTRODUCTION

One of the problems associated with controlled burning, is to know to what height the young regrowth has to grow before burning can be carried out without undue detrimental effect.

An experiment has been made to determine at what stage in the growth of Karri saplings a mild control burn can be carried out.

STAND DESCRIPTION

The area contains mainly overmature, defective Karri trees mixed with vigorous young saplings. Canopy cover in the area is 50%.

Scrub coverage on the site consists mainly of Hovea elliptica, Hibertia montana, Bracken and Pimelia, which cover approximately 50% of the site. Scrub height ranges from 6 to 12 feet.

The area was burnt by a wildfire in 1950. Trade cutting took place during Sept.-Dec. 1962.

EXPERIMENTAL TECHNIQUE

The first control burn of a light intensity (14 to 23 B.T.U. per sec. per foot) was carried out in 1966. Forty dominant or co-dominant saplings were observed. The average sapling height at this stage was 12.5 ft with a range of 9 ft to 18 ft.

Headfire flame height ranged from 1 ft to 3 ft while rates of spread varied from 0.6 ft to 2.4 ft per minute.

Out of the 40 saplings only two survived. These had individual heights of 15 ft and 18 ft. The remaining saplings would have most certainly been killed by full crown scorch, although they subsequently coppiced at the butt. From this information it should be evident that saplings 12.5 ft high should be protected for several more years.

The second control burn of a slightly higher intensity than the first burn (19 to 44 B.T.U. per sec. per foot) was carried out in 1969. The average sapling height at this stage was 19.5 ft with a range of 14 to 29 ft.

Headfire flame height ranged from 1 ft to 6 ft while rates of spread varied from 0.5 to 5 ft per minute.

Out of the 40 saplings measured 26 survived, and had a completely normal crown, 4 developed bole epicormics, while the remainder of the saplings died, but then coppiced at the butt. Average scorch height on the measured trees was 15 ft.

Additional information on survival was obtained by measuring the scorch height and total height of all remaining saplings in each plot that were over 6 ft. in height. A histogram with survival details in each different height class is attached. For details see the Appendix. Maximum scorch height ranged from 16 to 21 ft. for the plots. Survival rate was of course greatly increased with trees above 16 ft in height. Average scorch height was 14.5 ft.

CONCLUSION

Depending on site quality, Karri regeneration will have to be protected from fire for at least 7 to 8 years from the time of the regeneration burn or the date of planting.

This period of time would seem to be sufficient for a large majority of the stems to reach a height of 20 ft and so be able to survive mild control burns.

APPENDIX - LEWIN SCORCH PLOT