Box 34/3.1.2
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MANJIMUP.

Deputy Conservator of Forests, 16th July, 62.

PERTH.

KARRI SILVICULTURE - SUMMARY OF ANNUAL REPORTS 1961-62.

Trade Cutting and Regeneration for Stand Improvement

Forest stand improvement is being steadily extended over the whole of the karri forest by way of salvage cutting of nonproductive trees. Regeneration is encouraged to establish in the gaps by burning only when seed supplies are ready.

Seeding and Regeneration

About 15,000 acres of cutover karri stands at present depend upon predicted seed supplies becoming available in 1962-63 and 1963-64. Only ten percent of these stands, cutover during the past 6 years, since the last main seeding of 1956-57, have produced seed-crops adequate for regeneration. 700 acres with seed supplies this autumn were successfully regenerated following mild burning.

Research is being continued into local and widespread, small and large scale fluctuations in the karri floral cycles, blossom, and seed supplies.

Seed is collected when available for ~~direct~~ direct seeding in failed or blank burnt areas. ~~Favourable spots in~~ insect favourable spots in ashbeds and disturbed topsoils are mattocked over. ~~when~~ Then when sowing ~~since~~ after the seedbeds become unreceptive for germinating seed during the first month of the wet season. 8 seeds per spot are adequate at a spacing of six feet between spots in openings between crowns. By pilletting the seed to improve the germinating conditions, costs can be reduced by sowing this seed at a 9-foot spacing.

Protective Burning

The practice of burning to reduce the fire hazard

during the floral cycle before logging should be well advanced, preferably one seeding cycle. Burning otherwise, that is not well advanced endangers karri regeneration by possibly causing,

1. loss of flower buds
2. premature release of seed
3. variation of seeding periods in adjoining stands
4. establishment of undergrowth vegetation in advance of karri
5. restriction by young undergrowth of burning for regeneration.
6. access to trees for removal being impeded.

Top Disposal

Redistribution of the felled tops in the openings at least 3-chain away from the edges of the seed trees before burning for regeneration in the logged stands is desired for the following reasons -

1. to avoid cambial damage of the valuable boles of seed trees
2. to avoid scorching of the crowns and feeding surface roots of the seed trees
3. to distribute plant nutrients concentrated in the crown debris in the available gaps into ashbeds for the regeneration
4. to reduce competition between seed trees and the later regeneration.

Karri nutrient trials

Three types of soils in 180 pots have been tested extensively, with nutrient treatments to determine which nutrients favour karri seedlings. Nitrogen and phosphorus have been shown to be the macronutrients having large effects, producing plants of oven dry weights of 14 grams ~~even dry weights of plants of 14 grs.~~ at 8 months, about 20 times that of the control plants,

but with growth disorders. Heat and ash treatments produced desirable plants of the same height growth (28 ins.) but of 7 gms. O.D.W. Heat and ash with nutrients yielded healthy plants, greater in weight (35 gms.) and height (33 inches), ~~and with shoot per root ratios~~ The shoot-root ratios of treated plants ranged from 2·0 to 4·0, and those of the control-plants under 1·5. ~~or 3·0.~~

The major findings in these trials are being tested in the field this year. A split plot spacing test has ~~also~~ also been initiated to determine possible effects of various spacings at the seedling stage up to 13 feet or more, with fertilisers on the stimulated growth and form of karri.

Chemical Spraying Control of Roadside Scrub

Main results based on 95 spraying trials to keep access tracks open for fire control and management are -

1. Spraying within 2 years of burning achieves the most lasting destruction of competing scrub before it seeds again.
2. Cheapest control of fireweeds, Senecio and Bossiaea sp. is at present 8/- per acre using butyl ester of 2, 4, 5-T at 1⅛ lbs. per acre (0.15 a.e.) applied at 75 gallons per acre.
3. Combined esters of 2, 4-D and 2, 4, 5-T in a 1:1 mixture at 2¼ lbs. per acre (0.30 a.e.) at 75 gallons per acre gave better control of a wider range of species at a cost of 19/- per acre.
4. As proving total costs are below current routine operations, the search for more efficient spraying methods are justified

Fire Damage Appraisal

Following the 1961 wild fires in the karri forest, eighteen, 1.0-acre plots were established and 170 trees individually described. Fire-scarred lesions preceding rot in the valuable butts were recorded in 40 per cent

of trees with defoliated crowns, and in 10 per cent of trees not defoliated by fire. The regenerated competition, and slow recovery in the damaged crowns manifest, loss in vigour and annual volume growth. The outright value of the timber trees killed in two fires was £15,000 : the annual value of the regeneration now devastated for many years was £10,000.

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DIVISIONAL FOREST OFFICER.

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