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WORKING PLAN - Fire Research.

WP. No 19/78.

1. Title of Investigation.

Fire Hazard Reduction in Radiata Pine Logging Slash.

2. Aim.

(i) To determine the fire behaviour (ROS, flame height, scorch height, intensity and fuels removed) of pine logging slash.

(ii) To determine the limits between which logging slash can be burnt safely and effectively.

(iii) To determine the feasability of other means of treating slash.

3. Principle.

A number of experimental fires over a range of weather and moisture conditions. All weather conditions and fire behaviour to be measured. This should achieve the first two aims

A number of monitored trials and observations should achieve the second aim.

4. Officer in Charge.

A.D.F.O. Burrows.

5. Date of Inuageration.

As soon as weather permits.

6. Location.

Lewana and Grimwade Plantations.

7. Method.

The pine logging slash will be treated in three catagories.

a) Mechanically felled.
b) Chain saw felled.
c) Skyline logging on steep country.

1.

It is felt that the slash in the mechanically felled and treated areas can be burnt quite safely because of the compacting and "windrowing" affect of the machine. Many measurements of fuel quantity, type and distribution in these areas indicate that fuels are concentrated in outrows, are very compacted and have a heavy loading of stemwood. Betweem the outrows, the logging slash is almost non existant.

Such situations could be treated as windrow burns, but on a much milder scale. This study will try to determine the limits between which these windrows can be burnt to remove needles and light fuels only. This can only be done by test fires. Fine material moisture contents will be the most important factor determining the burn, followed by weather conditions, particularly wind. By sampling both aerated fuels, and fuels within the "windrows" before burning and keeping a check on weather variables, it is hoped that a prescription for burning such areas can be developed.

2.

Slash resulting from chain saw felled areas is a much greater hazard. It has been shown from past experience that burning such slash in sites is;

a) Very risky
b) Requires much planning and preparation.
c) Is very limited as far as optimum weather conditions is concerned.

I feel that is is essential to re-arrange the fuel structure by crushing, thus reducing the aerial and flashy fuelds. Following this operation, the hazard is much reduced and the safe burning limits are increased. It is intended that a cost/benefit analysis be carried out on treating chain sawn areas with the following prescriptions;

a) Where slope and topography allow, crush all logging slash using a D4 and a roller currently being designed.

b) From past testing this material should be crushed when the tops have turned red (about six months after falling).

c) This crushing will increase the bulk density by up to 300% and bring up to 95% of aerial needles to ground.

d) The area can then be burnt if so desired or left.

e) Experimental fires under various weather and moisture content conditions are planned to determine the fire behaviour of crushed fuels. This being to determine the limits of burning such fuels.

f) A number of areas will be crushed and a time study made to determine costs of crushing/hectare using a D4.

g) The cost to burn the area without crushing will be determined, not only in tarms ofdollars, but measured in convenience and effectiveness.

As it is now, very little area can be burnt because of the limiting weather factors. Crushing could be carried out in the pines almost all year round, easily keeping abreast of the chain saw felled areas. It is intended to study the feasability and constraints of this operation which could be analogous to scrub-rolling in Karri. The benefits of crushing as apposed to burning need not be mentioned. In particularly high risk areas, fuels can be crushed and then burnt.

3.

Slash on steep slopes - as in areas where wood is snigged using the skyline.

In most instances, the topography of these sites is not conducive to burning or mechanical reduction. I would suggest that;

a) Whole trees be snigged out to the outrows where they are delimbed and topped This concentration of fuels in the accessible outrows may allow the up and down travel of a tracked crushing machine, or make the fuels amenable to burning or allow them to be treated with retardent. The options are increased, as opposed to the situation where trees are delimbed where they are felled. This makes the fuels very inaccessable.

b) Whole trees can be snigged up to near the landing and treated there, thus concentrating the fuels in one area and increasing our options of treating the slash. This system would also make the fallers job much easier because there would not be slash to obstruct him. Thus, increases the safety of the job.

3/....

It would be desirable to undertake a study of the feasability of these methods. I am sure that any probelms encountered can be more easily overcome than the complicated problems posed by designing a burning prescription for these areas.

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