HYGIENE LOGGING TRIALS
RESULTS OF MONITORING
AUTUMN/SPRING 1984

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HYGIENE LOGGING TRIALS:

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SUMMARY

The five hygiene logging trials undertaken between 1980 and 1983 were monitored in autumn and spring 1984. This involved extensive sampling of roads, snig tracks and landings. Five coupes in the Dwellingup trials were intensively surveyed using a ground monitoring technique and another four, initially sampled using this technique in spring 1983, were re-sampled in a less intensive manner. The in-coupe surveys involved the identification and sampling of recently dead indicator plants.

Phytophthora cinnamomi has again been recovered from two roads within the Beaton trial at Nannup and P. citricola from three snig tracks and one washdown ramp in the same area. All samples from snig tracks and landings in the Dwellingup and Manjimup trials have been negative for P. cinnamomi, the only positive recovery being that of P. citricola from a landing at Warrup (Manjimup).

P. cinnamomi has been found within only one coupe of those surveyed. This was a control coupe and it is certain that the infection is not a result of logging, but is due to spread from an adjacent dieback area which was cleared and planted with exotic eucalypts in 1970.

Resampling of coupes intensively sampled last year revealed no new infections three to four years after moist soil logging. Inspection of the sites within the Dwellingup trial coupes which were positive for P. cinnamomi in 1983 indicated that no disease extension had occurred in the ensuing 12 months.

To date, 12 coupes totalling over 1500 ha and including 3 control coupes have been fully monitored on one occasion. Four coupes (557 ha) have been resampled on a 20% grid.

These results give cause for optimism but further monitoring of all trial areas in future years is necessary to test their reliability.

In addition to the resampling programme, a short evaluation of the Dwellingup trials was undertaken to indicate which Havel site types occurred in the areas and to examine any early signs of correlation between site-type and disease introduction or impact resulting from logging.

The six sites (5 in-coupe, one snig track) from which P. cinnamomi has been recovered were on S or WS types. In general Taree Block tended towards the more susceptible PS and S types, whilst Amphion seems to mostly have the less susceptible O, OT and TS types.

INTRODUCTION

In order to determine whether logging could take place, using conventional equipment, in all seasons, and without unacceptable introduction or spread of dieback, five hygiene logging trials have been undertaken in various parts of State Forest since 1980. These trials are located at Amphion, Taree and Inglehope in Dwellingup Division, Beaton in Nannup, and Warrup in Manjimup Division. Further background to, and details of the trials, is contained in 'Hygiene Logging Trials: Preliminary Results', printed in May 1984, to report the results of monitoring to November 1983.

This interim report contains results from monitoring during autumn and spring 1984, which was done as part of the continuing programme of monitoring in the logging trial areas, together with those of a short site-typing survey in the Dwellingup trial areas.

MONITORING 1984

During autumn 1984, Taree Coupe 4 was surveyed using the GRIM System. Monitoring of the trials in spring included extensive sampling of roads, snig tracks and landings in all trial areas, and ground intensive monitoring (GRIM) of one cut-over and three control coupes within the Amphion and Taree trials. Four coupes in Taree (Coupes 5, 8, 9 & 10) which were surveyed using the GRIM system in 1983 were resampled at 20% intensity. In addition the four sites in Taree which were identified as Phytophthora cinnamomi during the 1983 survey were checked for disease extension.

RESULTS

Roads: Extensive sampling of roads in Beaton again resulted in the recovery of P. cinnamomi at four sites on two roads.

Snig Tracks and Landings: Extensive sampling of snig tracks and landings in all five trial areas has been undertaken. The results from the Beaton trial show that no P. cinnamomi has been recovered from any snig tracks or landings. However, P. citricola was recovered from three snig tracks and one washdown ramp, none of which had been identified as infected previously. Similarly, P. cinnamomi was not recovered from any snig tracks or landings in either the Dwellingup or Manjimup trials, but P. citricola was recovered from one landing in the Warrup trial at Manjimup.

Within Coupes: Systematic surveys of two cut-over coupes (Taree 4 and 14) and three control coupes (Taree 7, Amphion 5 and 7b) in the Dwellingup trials were conducted using ground intensive monitoring. Within these five coupes 74 recently dead indicator plants were sampled for processing at the Dwellingup laboratory.

Of these only two yielded positive results for presence of P. cinnamomi. Both of these were in Coupe 5 at Amphion, adjacent to a dieback gully in Amphion planted with exotic eucalypts, Plot 2. Coupe 5 is a control which was intentionally not logged as part of the trial.

A similar GRIM survey (but at a 20% intensity) was conducted in Taree coupes 5, 8, 9 and 10, all of which were the subject of the full GRIM process in spring 1983, to establish whether there has been any further disease expression during the intervening year. Only three recently dead indicator plants were sampled and none of these yielded any evidence of P. cinnamomi.

The four in-coupe sites from which P. cinnamomi was recovered in 1983 (two in Taree 10, one in Taree 5 and one in Taree 9) were visited again this year. There was no evidence of any further disease expression at any of these sites.

Procedural Control: During the monitoring period control samples were taken to test sampling and laboratory techniques. Samples were taken from known dieback sites and sites considered to be dieback free. All laboratory results relected the status of the sites (dieback-positive, dieback free-negative) so sampling and laboratory procedures are considered quite acceptable.

Site-Type Survey: A three-day preliminary survey of the Dwellingup trial areas was undertaken to give a general indication of the Havel site types in Taree and Amphion blocks and the relationship between site-type and disease occurrence.

The six sites where P. cinnamomi has been recovered during GRIM surveys in 1983 and 1984 (5 in-coupe sites, 1 snig track) were visited and assessed. Of these, the site in Amphion coupe 5 was WS, as was the site in Taree 5 discovered in 1983. The other three in-coupe sites and the snig track, all in Taree, from which P. cinnamomi was recovered in 1983, were on S types.

A general survey of both blocks was also carried out using ground transects and aerial photographs. This revealed that, in general terms, the more susceptible S and PS types were dominant in Taree. Amphion tended more to the less susceptible O, OT and TS types, although S was also present.

DISCUSSION

The methods used this spring for monitoring, the sampling technique and the laboratory methods, all parallel those outlined in the booklet 'Hygiene Logging Trials: Preliminary Results'.

Of the five coupes which were intensively monitored this year, Taree 4 and 14 had been logged. Taree 4 was logged during spring 1981. In Taree 14, the operation was conducted in autumn under dry soil conditions and was completed in May 1981, so that the time between logging and sampling was almost 3½ years. This period should be sufficient for disease expression to be evident, so lack of P. cinnamomi recoveries at this stage is encouraging. Nevertheless the area will be further monitored for more deaths in the future.

The remaining three coupes were controls which were not logged as part of the hygiene trials, so infection by dieback should not be due to logging operations unless close to a haul road. However, the only two samples yielding P. cinnamomi were in the control coupe Amphion 5, well away from any used log roads. The sites were adjacent to a cleared dieback gully in Amphion planted with exotic eucalypts, Plot 2, where disease extension would be difficult to see.

It is probable that these infections are an upslope extension of the existing dieback. Even if these infections spread, a negligible amount of dieback-free forest is at risk. Evidence of feral pigs was noticeable throughout the Dwellingup trial areas.

The lack of evidence of new disease expression in the Taree coupes monitored last year is heartening. It is now almost three years, and up to and over four years, since these coupes were logged, and the disease should have expressed itself by now, especially as all four coupes were logged in winter. However, the resampling was only at a 20% intensity, so further monitoring of these coupes is warranted.

There were no recoveries of P. cinnamomi from snig tracks or landings at Beaton, a similar result to that of 1983. However, the discovery of three new infections of P. citricola on snig tracks indicates the possibility of more recoveries in the future. P. cinnamomi presence on roads in Beaton (4 sites, 2 roads) was identical to results obtained last year. These recoveries support the case for low profile roading as an important aspect of hygiene logging.

The recovery of P. cinnamomi from dieback affected controls was good, so the very low recovery of the fungus during monitoring is not considered to be due to weaknesses in sampling or laboratory procedures.

The results of the site-typing survey support previous indications that WS and S types are susceptible to disease infection, especially in winter operations. P. cinnamomi has so far been recovered from three winter-logged coupes (4 sites), a control coupe and a snig track in a coupe logged under dry soil conditions, and all were on WS or S types.

The survey also revealed that quite accurate site-typing of Taree block could be achieved through the use of aerial photographs, but that much more groundwork would be required to obtain the same standard in Amphion, due to a lack of indicator species.

In all, the results available to date are as encouraging as were last year's. The only new in-coupe infections found are not the result of logging and virtually no dieback-free forest was found to be at risk. Follow-up monitoring in these coupes, and those not yet monitored, is necessary to further test the good results obtained over the last two years, and the success of the hygiene logging trials as a whole.

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