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BOX 9

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CONSERVATOR OF FORESTS
PERTH

PRESCRIBED BURNING STUDIES IN THE STIRLING NATIONAL PARK

ATTENTION: MR F.J. CAMPBELL

During my recent visit to the southern divisions I took the opportunity to inspect research being carried out by ADFO Jones and his staff in the Stirlings National Park. All four areas involved in the study were inspected. These are described in detail in Jones' establishment report. The following aspects need to be re-emphasised before discussing the project as a whole:

There are two major divisions - the southern and the northern flank of the Stirling Range. Within each division one set of plots is located on the broad plain adjoining the range and the second set of plots on the lower slopes of the range itself.

There is marked climatic difference between the two divisions in that the southern slopes receive markedly higher rainfall and lower insolation than the northern slopes. Locally the steep slopes create markedly different micro-climatic conditions from the flats, as well as having considerably different vegetation. In total the study comprised 48 plots surrounded by bulldozed firebreaks. Much of the expenditure on the project went into construction of the firebreak system essential for safe execution of the experimental fires.

The thirty fires so far completed, which cover quite a large range of fire rate of spread, are not equally distributed between the four sections, in fact only the southern plains and the northern slopes have got any coverage worth mentioning. The lack of success on the southern slopes is due to poor insolation, so that the ground fuel, consisting largely of leaves, has up to date not dried sufficiently to sustain fire. On the northern plain the lack of success is probably due to sparseness of fuel and lack of updraft which favour burning on the slopes.

The implication of this on our ability to advise National Parks Board is that only two of the four major types examined have in fact been studied. Even more serious is the fact that these do not represent most critical vegetation types of the Stirling Ranges. Despite the wide range of fire intensities and rates of spread observed the net impact on the mallee-heath vegetation has been essentially the same, namely complete scorching of all above ground parts. / Judging from observation of earlier burnt areas this will result in regeneration of all plants from lignotubers and bulbs, and the overall impact of fires on this type of vegetation appears to be very minor. By contrast last summer's wildfires in the Chester Pass area have led to serious defoliation and deformation of the taller woodland-type vegetation of marri, jarrah, swamp yate and wandoo.

It is my opinion that it is the woodland types rather than the low heath-mallee types that require protection, and it is quite feasible that adequate prediction of fire behaviour in these types would be possible from our own experience in the eastern forest zone. It was also seen from fires so far completed that prescribed burning of the main range at low fire intensities is quite beyond the capacity of the staff of the Stirling National Park, and one may well ask whether this is in fact necessary.

The mallee heath type appears to be fully adapted and not markedly affected by even severe uncontrolled fires. There is of course possibility that it is not the flora but the fauna that is damaged by summer wildfires. It would seem, however, that the only areas in which prescribed burning can be carried out effectively are the plains flanking the main range. Strategically these are also the most important areas in that they generally adjoin private property. Yet another factor requiring consideration is the introduction of dieback into the area, and its possible spread by firebreak maintenance. The alignment of the firebreaks, along the flanks and across gullies

and swamps, would greatly facilitate this. One definite, and several possible occurrences have been noted during my visit.

I therefore recommend that the whole question of prescribed burning for the Stirling Ranges be re-evalued in this light, that is, as tactical prescribed burning to protect areas of woodland which can be damaged by wildfires and to create buffer sone between the main range and the private properties. This would, on one hand, prevent the escape of wildfires from the park into private property and on the other hand minimise the danger of uncontrolled fires on private property entering the park at the critical summer period. Before such prescription is feasible additional experimental work will be necessary because so far no fire data are available for the northern plain.

In view of the considerable expenditure incurred in preparation of the plots and execution of the experimental fires it seems desirable to extend the research to the study of the effects of fires of various intensity on the regeneration of the various plant species.

Inasmuch as the National Parks Board already has an officer working on plant ecology it appears desirable to link his work with the work already completed by us, as these are the only fully documented fires in the area. However, the fires so far completed would provide an unbalanced and inadequat basis for such research. For this reason I wish to recommend that National Parks Board be approached with the view of incorporating further expenditure in their next year's estimate and that additional work be carried out by the department this year to utilise the preparatory work already completed. This would involve firstly the carrying out of some experimental fires on both the southern slopes and the northern plain within the next few weeks and secondly carrying out of autumn fires on all four sites. It would be then possible to compare spring and autumn burning as well as fires of varying intensity.

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It is also desirable to establish what, if anything, is being damaged in uncontrolled wildfires on the slopes. This appears to be critical shortcoming in the whole approach. Study of the fauna population of the National Park would/be involved. It may be feasible for the National Parks Board to obtain co-operation from either Fisheries and Fauna Department, the CSIRO Division of Wildlife Research or the University Department of Zoology. Surely presence of large numbers of fires of known intensity is an ideal opportunity to carry out study on the impact of fire on native fauna. However, I would envisage the studies to go further, in establishing what animals are in fact present in the Stirling Ranges and on what sites they are concentrated.

In conclusion then I recommend that negotiations be resumed with the National Parks Board regarding the possibility of further finance for this project in the coming year and the possibility of carrying some of the work now and some further work in the autumn of 1974.

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