31.

FIRE AND THE REGENERATION OF KARRI

(EUCALYPTUS DIVERSICOLOR F. MUELL.)

P.C. Kimber and C.J. Schuster

Forests Department of Western Australia

Karri has been observed to regenerate in the absence of fire only where ground disturbance, resulting in the baring of mineral soil, but avoiding soil compaction, has taken place.

Regeneration fails to take place beneath a virgin stand, even when in a state of decline where gaps have formed in the upper canopy, unless fire removes the litter layer, and kills the understorey of shrubs and small trees. Regeneration is found in virgin stands that have have been subjected to wildfires, but persistent regeneration larger than small saplings only survives in gaps created by deaths in the overstorey.

Regeneration in undisturbed virgin stands is probably inhibited by competition from the overstorey and shrub layer. This competition is removed by fire under natural forest conditions.

Fires originating from lightning strikes are a regular feature in the karri forest, have been shown to be randomly distributed. There is thus a high probability that the entire forest will have been fired by lightning over the past few centuries.

The reluctance of karri to regenerate in the absence of fire, and the high probability of fire occurring within the forest, points to fire as a regenerating agent in the absence of perturbation by man.