HEDGES BLOCK 1975 HOT SPRING BURN

Hedges Block, on the eastern boundary of Dwellingup Division was aerially burned on the 11-11-75. Weather conditions during the fire were generally mild with a mean temperature of 26°C, a mean relative humidity of 35% and very little wind.

After the burn it was reported that several areas of severe scorch were observed on the south eastern slopes near the eastern boundary of the block in the vicinity of Bunnings forest.

The area was inspected during January 1976. Several spots of complete defoliation were observed. These spots were mainly restricted to the steep upper slopes of south easterly aspect and estimated to cover a total area of about 4 ha. Another 20 ha were estimated to have received full scorch.

VEGETATION BEFORE THE FIRE

The overstory was predominantly pole and pile-sized jarrah with the occasional marri present. Banksia grandis and the odd Persoonia longifolia provided understory cover whilst the shrub layer consisted mainly of Xanthorrhoea preissii, Macrozamia reidlei, Hakea lissocarpa, Hibbertia spp, Bossiaea ornata and Lasiopetalum floribundum.

Very little evidence of Acacia or papillionate fireweed species having recently colonized the area was observed. One small patch of ten to fifteen year old A.myrtifolia on a moderate southerly mid slope was recorded. This area, however, was no greater than .05 ha.

VEGETATION AFTER THE FIRE

The area was re-inspected during January 1977. Some fourteen months after the burn. For a fire of such intense proportions, permanent damage to overstory species was surprisingly small. All areas of jarrah, including the defoliated areas, exhibited dense, lush green epicormics and new growth. Even in the hottest spots, bole damage occurred in a very small percentage of overstory jarrah only. The overall state of the upper canopy in the hot burned area was one of health and vigour. This was in marked contrast to the mild burned areas on the southern and western slopes where the unscorched canopy remained sparsely foliaged and in an apparent general state of slow decline.

Many small jarrah saplings were killed, however one metre high coppice growth was observed in each case.

The survey also revealed excellent regeneration of fireweeds, in particular A.strigosa. The approximate area estimated to be covered by fireweeds (predominantly A.strigosa) was 15 ha. Coverage was not dense and assessed at an overall stocking rate of two healthy seedlings per square metre. Other Acacias observed were A.drummondii on the upper slopes and ridge tops and one small patch of A.myrtifolia.

In places where full scorch (but not defoliation) occurred, the subsequent leaf fall provided excellent protection for fireweed germinants during the summer months. Permanent wilting of some A.strigosa seedlings on exposed ground beneath a fully defoliated overstory appears likely.

slides = Data. 225.48

Good regrowth of many other shrub layer species (including Bossiaea ornata) was observed.

The wide spread germination of acacia seeds is most interesting, because, as mentioned previously, no evidence (in the form of old stems etc.) of either A.strigosa or A.drummondii occurring prior to the burn, existed. It appears that viable seed has remained in the soil for a very long period (perhaps ten years or more) and the intense heat of the burn stimulated germination. The heat generated from previous cyclic mild burns was apparently at an intensity level too low for fireweed seed germination.

DISCUSSION

The effect on the forest of mass germination and survival of acacia fireweeds can only be beneficial. Firstly, the availability of nitrogen, through fixation, will be increased significantly. The marked response by jarrah to nitrogen, in terms of growth rate, has already been demonstrated. Secondly, the high degree of tolerance of A.strigosa and A.drummondii to P.cinnamomi attack should significantly reduce rate of spread if any dieback infections were likely to occur.

Glasshouse pot trials have clearly indicated that jarrah seedlings raised in association with A.strigosa in dieback infected soil stand a much greater chance of survival than those raised in association with Banksia grandis in dieback soil.

As research findings have also produced evidence that crown scorch actually stimulates jarrah growth rate, one can only conclude that the overall effect of this hot burn on the forest has not, as initially thought in some quarters, been detrimental, but generally beneficial.