BUSH FIRE SUBMISSION

Submission No.43

This Submission specifically relates to hazard reduction burning and one consequence of it, that will significantly increase fuel loads of highly flammable organic matter.

Two major invasive weeds are endemic throughout forested areas of southern Australia. They are Blackberry *Rubus fruticosus* L.agg. and Bracken Fern *Pteridium aquilinum* var. esculentum. Both of these weeds contribute to the intensities of fire due to their biology. Both weeds are perennials with biannual foliage, ie the first year's growth is lush vegetation which in the second year becomes hardened and highly flammable and then dies and becomes, if anything, more flammable. So in a normal undisturbed state in the bush, you will have fresh green growth, hardened second year growth, and dead leaves on the same plant. As the years go on, the amount of dead material on the ground increases.

Because they are hardy perennials and have become adapted to the environment, they have become invasive and without any other inputs are slowly spreading throughout bushland. Blackberry is a declared noxious weed in all States of Australia.

Blackberry

The seeds of Blackberry are very poor competitors unless they fall in disturbed soil, ie footprints of stock. The seeds however, readily germinate with the addition of heat. It is a rural myth that if you burn a Blackberry after you have sprayed it, that the regrowth will be harder to kill than the original plant. The truth is that the fire has germinated all the potential seed on the ground and so where once there was one Blackberry, there are now many; it could be up to 20, so visually the site looks worse than it was before the fire. This rapid improvement in germination of Blackberry seeds can now be seen in burnt out areas in southern Australia and will substantially increase the number of Blackberry plants throughout the fire areas. This increase in number of plants, will of course, increase the intensity of the next fire. This same increase in numbers will result from any fire, including fuel reduction fires, due to the intensity of the fire in the Blackberry bush above the seeds.

Unless a program of weed spraying is undertaken in the two years following the fire, then Blackberry will quickly dominate the understorey.

Bracken Fern

Bracken has an extensive underground rhizome system which is an effective storage of water. After fire, the first plant out of the ground will be Bracken Fern. The major concern is that the fronds that emerge are the most carcinogenic plant known, so no native or introduced animal will eat it. Bracken is also allopathic, which means that it exudes a compound which minimises seed germination of most other plants, including Eucalypts. Kevin Tolhurst of the old Victorian Department of C.F.L., found that Bracken "is a major competitor to Eucalypt regeneration", and that fire in spring, over Bracken, changed the densities from one frond per square metre to two, and an autumn burn from one frond to 3.5. So each fire increases the density of Bracken Fern, the emerging Bracken is allopathic, with the end result being a slow change from native species to Bracken Fern. Any inspection of the burnt areas now will show that apart from Tree Ferns the only regenerated plant of any significance is Bracken Fern.

The Bracken fronds in their second and consequent years are highly flammable and contribute significantly to the intensity of fires.

One outstanding feature of this year's fires was the intensity at ground level versus the normal explosion at tree tops. The build up of natural debris plus the contribution from Bracken and Blackberry, were responsible for this. The fires were so hot that soil structure has been destroyed.

These two weeds, if left unchecked, will slowly invade our bushland. Fire will significantly increase their spread and dominance of the understorey. Both are unpalatable to stock and most native animals and so are not impeded in their spread.

Both of these weeds are easily controlled by herbicides. The herbicides can be environmentally friendly if used at the correct time to achieve maximum result in controlling the weeds. If controlled burns are increased without a corresponding increase in weed control programs, then we will inevitably change the consistency of the biomass in the bush, away from native plants.

Donald W Matthews