FIELD MEASUREMENT OF TEMPERATURE/DEPTH RELATIONSHIP DURING A FIRE

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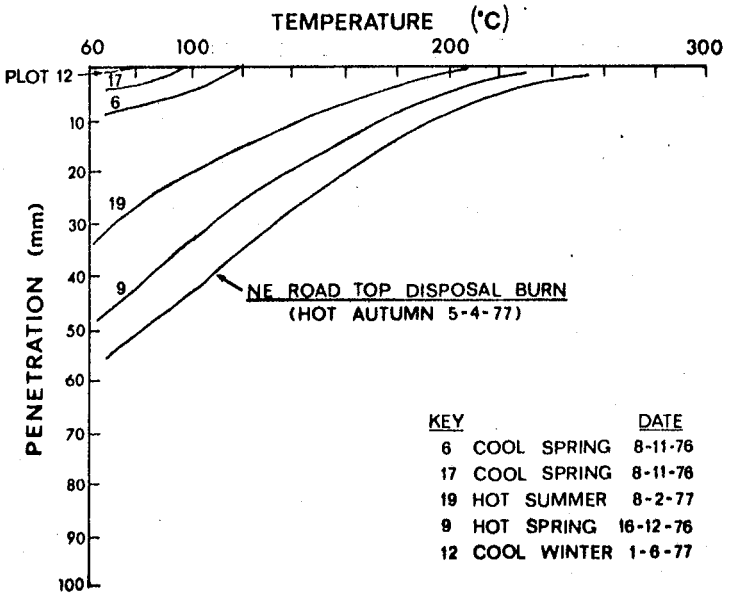
It is know that relatively hot fires are required to prepare native legume seeds for germination. The bulk of these seeds have been shown to be buried between 3 and 6 cm in the soil. Hence, the fires must be capable of producing temperatures approaching 100°C at this depth range.

Asbestos tags have been used at Dwellingup to provide a temperature - depth relationship under field conditions.

The tags, measuring 10 cm x 25 cm were buried vertically, with their 25 cm top edge level with the soil surface. Each tag had eight temperature sensitive chalks drawn vertically upon them, ranging from 66°C to 343°C. One hundred and fifty tags were buried at each of a series of burns between November 1976 and June 1977. The burns were varying intensities in typical Jarrah forest.

Penetration on the tags was estimated by measuring the length of the chalk line that burnt off. The mean of the penetration, at each chalk temperature was then calculated, and subsequently graphed.



CONCLUSION

It can be seen from these field results that the Department's current cool spring burns do not penetrate the soil sufficiently to create dense legume stands. Hot autumn and summer burns have been shown to heat the soil to sufficient depth.

Current research suggests that dense legume stands may inhibit the activity of the dieback fungus, Phytophthora cinnamomi.

In order to bring about areas of dense legume such as Acacia pulchella (prickly moses) it may be desirable to change the current burning policy away from cool spring hours.