FIRE BEHAVIOUR STUDIES IN WESTERN AUSTRALIAN MALLEE-HEATH :

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The ability to reliably predict the likelihood of fire spread, and the subsequent rate of spread and intensity of a fire are important elements in the safe and effective application of prescribed fire in mallee-heath communities. Fires in mallee-heath are prone to sudden and violent changes in behaviour, a phenomenon shared with discontinuous shrublands elsewhere in Australia and overseas. A program of experimental burning in *Eucalyptus tetragona* mallee-heath at the Stirling Range National Park has demonstrated that litter moisture contents below 8 percent appear critical to sustained fire spread. Air temperature, relative humidity and other indices of fuel dryness did not satisfactorily discriminate between failed and successful ignitions. The forward rate of spread of fires which met the fuel dryness threshold was strongly related to wind speed.

Fire spread predictions from models developed for other shrub fuel types consistently underpredicted the rate of spread in mallee-heath and did not discriminate those fires which failed to spread. This suggests that in mallee-heath and similar discontinuous fuels, prediction of the probability of fire spread should be separated from prediction of subsequent spread rate. Simple but reliable methods for estimating the moisture content of the shallow litter layer in mallee-heath are required for prediction of fire behaviour in the field situation.

ABSTRACTS

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