

“FIRE BEHAVIOUR IN EXOTIC PINE PLANTATIONS OF AUSTRALASIA”

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The main part of the study is concerned with the conditions required to initiate and the spread of crown fires in exotic pine plantations. The effect of pruning to 5m is thought to reduce the intensity of fires and their size to 1/4.

The author undertook two study burns to determine fire behaviour in pine plantations — an A.C.T. stand of unpruned *Pinus ponderosa* and in Western Australia a stand of pruned and unpruned *Pinus pinaster* and these will be related to behaviour from records in wild fires over the period 1962-1990 in plantations. Data collected from these experiments are still being analysed and used to test models so far developed.

The author is organising the samplings of foliage in all species from all states. He

has found little if any variation in moisture content seasonally, but greater differences by species so that each species needs to be studied separately.

There are other studies to fill in gaps in data for some species for biomass relationships with tree diameters; crown heights at different ages and spacings etc.

Comment by M.J.H.:

The author hopes to complete his studies in April 1992. He has probably correctly, rejected the use of miniature testing in wind tunnels, and has approached the study on the basis of requiring full scale “real” data.

It will provide valuable information on a very pertinent problem which is very difficult to measure through the lack of enthusiasm of owners to provide experimental test sites.

Table 1
Semi-theoretical Comparison of Fire Behaviour in Pruned versus Un-pruned Exotic Pine Plantation under High Fire Danger Conditions

Fire Description and characteristics	Stand A Pruned to 5m	Stand B Unpruned
Type of fire	Surface	Crown
Forward spread (m/h)	300	600
Fuel consumed (t/ha)	18	28
Head fire intensity (kW/m)	2700	8400
Flame height (m)	2	12
Fire area at 1 hr (ha)	4.86	19.44
Fire perimeter at 1 hr (km)	.83	1.65
Percent perimeter contained	91%	55%
Spotting distance (m)	< 200	up to 2000