IMPACTS OF ALTERED FIRE REGIME ON HEALTH AND MANAGEMENT OF TUART FORESTS

Abstract

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Fire histories reconstructed from Grasstree fire scars for Tuart forests have confirmed historical and anecdotal evidence that aboriginal burning practices maintained the open grassy tuart savannahs prior to European Settlement in the 1800's. The fire regimes were characterised by very frequent, patchy fires that were short enough to kill emerging woody seedlings, and mild enough not to stimulate germination of deeply buried seed, whilst encouraging regeneration of grasses. The frequent burning was maintained to a variable degree by European grazing leases until upto 1960's when the Yalgorup National Park was declared.

The change in fire regimes has resulted in the replacement of the Tuart savannahs to one that is dominated by more or less dense understorey of peppermint and/or banksias, and a lack of tuart regeneration. This change appears to have begun to occur since the 1850's, which coincided with the demise of the Aboriginal traditional burning. Since 1960, substantial parts of Yalgorup National Park have not been burnt for 20 to 40 years.

The increase in density of peppermint understorey may have resulted either as a reduction in frequent, low intensity fires, leading to a period of irregular and severe fires in some areas. These wildfires would have promoted woody understorey thickets. The exclusion of fire will also result in establishment and further development of peppermint seedlings and rootstock.

The dense woody understorey impacts on tuart overstorey through increased competition for moisture and nutrient, thereby affecting the vigour and health of the standing trees, and preventing establishment of tuart seedlings.

Fire Management and understorey treatment options for the maintenance of tuart are discussed. These include the mechanical removal of peppermint and the regeneration of tuart seedlings without significant disturbance of standing tuart trees. Future fire management options may depend on whether to maintain a tuart savannah or to allow the woody understorey to re-establish to present condition.

There is a need for urgent decision-making and action because recent severe insect attack is seriously limiting the opportunities for successful re-establishment and maintenance of a healthy tuart ecosystem.

RICK SNEEUWJAGT

Rick Sneeuwjagt is the Manager of Fire Management Services for the Department. He has been leading the fire section since 1989. Rick began his career in 1969 with the Forests Department. He studied fire behaviour in karri forests and pine plantations in his capacity as Fire Research Scientist, and is responsible for the development of the forest fire behaviour prediction system in 1976 which is still in use today.

Rick Sneeuwjagt has 36 years experience in a broad range of fire management and land management roles, and his expertise is recognized at national and international levels through the involvement in National fire authorities, and with FAO and United Nations Environmental Program (UNEP). He has strongly supported research studies undertaken by CALM scientist David Ward on the fire history reconstruction of tuart forests and other southwest ecosystem using fire scars on Grasstrees (Xanthorrhoea spp.).

LACHLAN McCAW

Academic Record

1979 Bachelor of Forest Science (Hons.), University of Melbourne
1997 PhD, Department of Mathematics, University of New South Wales

Professional achievements

Dr Lachlan McCaw has 21 years experience as a Research Scientist working on applied land management issues in Western Australia, and has acknowledged expertise in bushfire science and the implementation of ecologically sustainable forest management. This expertise is recognized at the national level through publication of scientific papers and review articles in national and international journals, chairmanship of a national working group, presentation of invited papers at workshops and seminars, and by representing the Department at national forums held to review research priorities and decide on future directions. He also regularly reviews scientific manuscripts for national and international journals.

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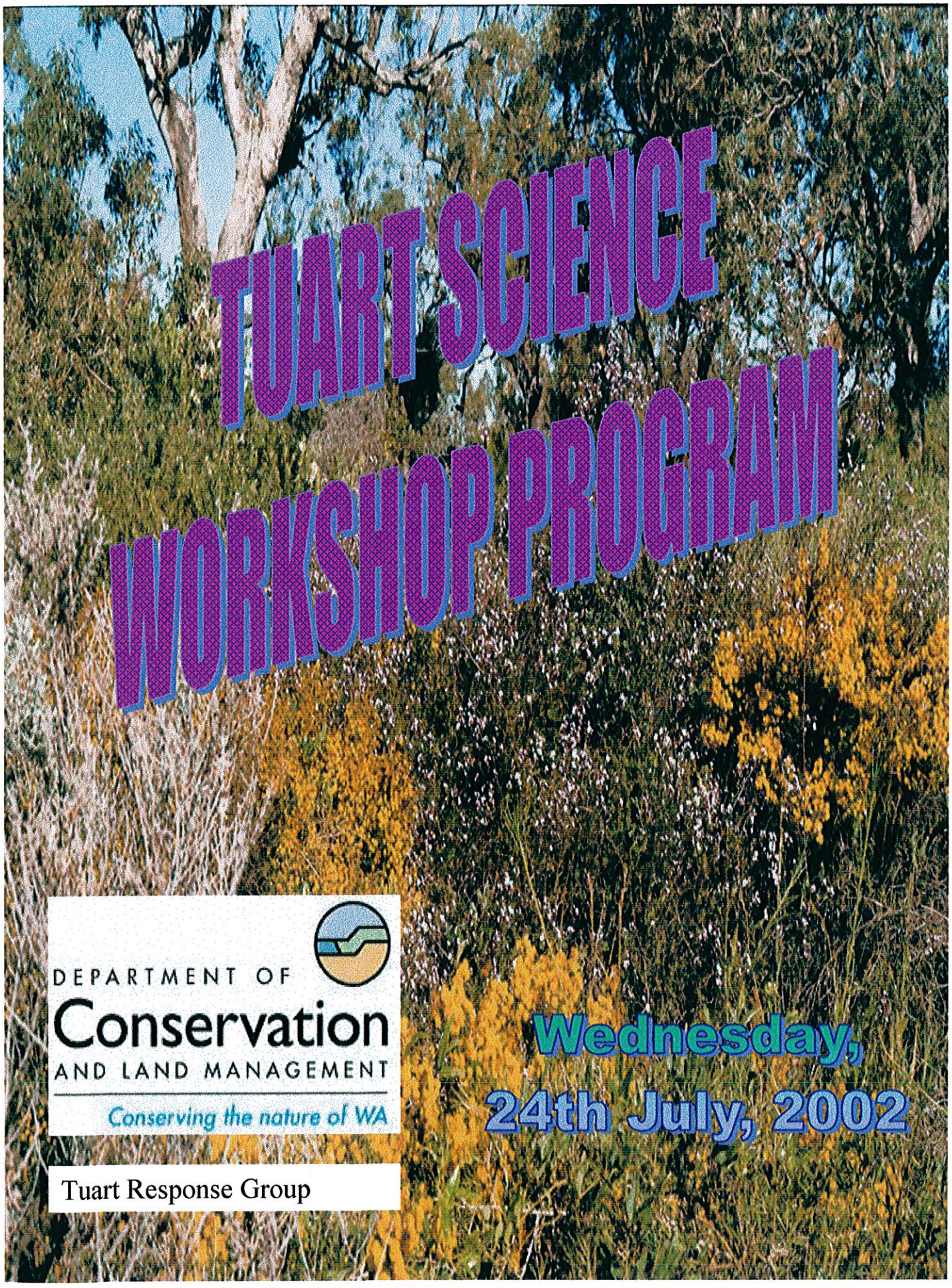

TUART SCIENCE WORKSHOP PROGRAM

DEPARTMENT OF
Conservation
AND LAND MANAGEMENT
Conserving the nature of WA

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Tuart Response Group