Aerial Suppression Experiments, Ngarkat Conservation Park, March 2008

M. Plucinski, J. Gould

Bushfire Dynamics & Applications, CSIRO Sustainable Ecosystems, Canberra, ACT

E. Pastor, E. Planas, Y. Perez

CERTEC, Universitat Politècnica de Catalunya, Spain

G. McCarthy

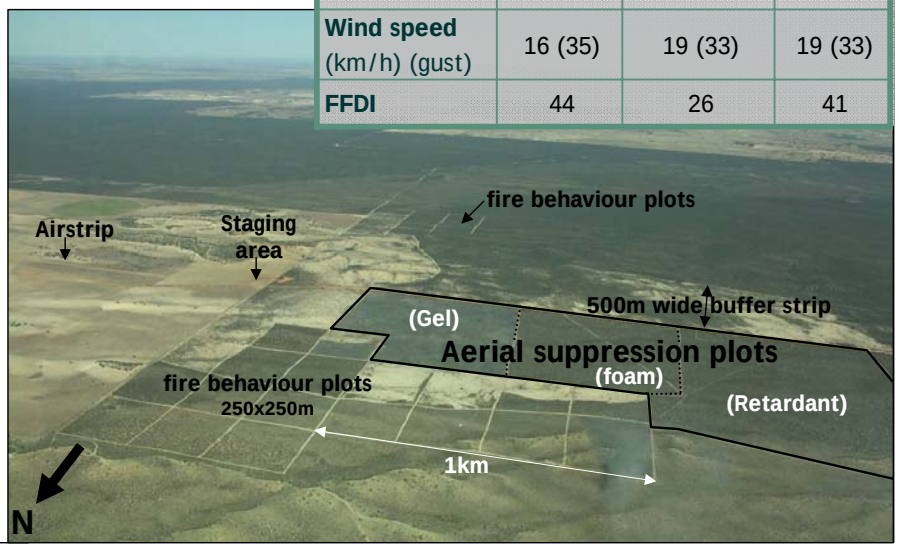
School of Forest & Ecosystems Science, Uni of Melbourne, Orbost, Vic

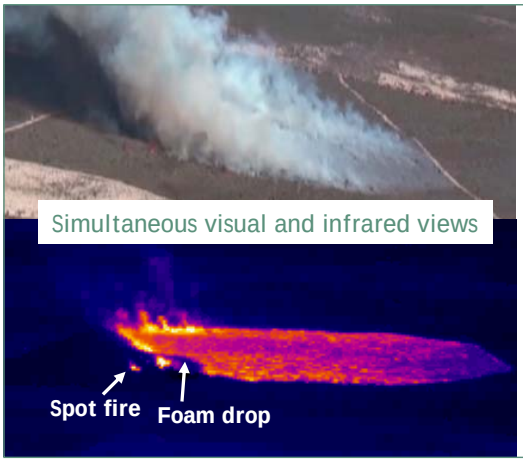
Three aerial suppression experiments were conducted in Ngarkat Conservation Park, South Australia, on 3-5 March 2008. The main aim of these experiments was to evaluate the effectiveness of three different suppressant types (gel, foam and long term retardant) delivered from fixed wing fire bombers (2x AT802F). Each suppressant was trialled on a different fire and day during periods of very high fire danger (see Table). The experiments were conducted on three large (>40ha) plots with 20 year old mallee heath fuels.

	Gel 3/3/08	Retardant 4/3/08	Foam 5/3/08
Max Temp (° C)	35	32	37
Min RH (%)	8	23	13
Wind speed (km/h) (gust)	16 (35)	19 (33)	19 (33)
FFDI	44	26	41

The fires were ignited with 200 metre drip torch lines to allow them to grow quickly. Suppression did not start until the fire perimeters were greater than 400 metres. Gel and foam suppressants were applied directly on the fire edge, while retardant was laid out in lines prior to ignition. These were the only form of suppression during the experiments and concentrated on head and flank fires. An airbase constructed nearby allowed for short turnaround times maximising the number of drops. The effect of the drops were monitored from the air with infrared and visual video cameras and where possible on the ground.

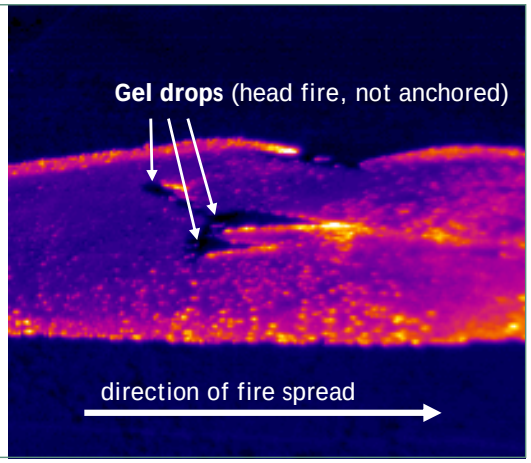
These experiments were conducted in conjunction with other Bushfire CRC projects investigating fire behaviour and fire fighter health. The success of the Ngarkat experiments shows that multidiscipline fire field experiments can achieve mutual goals.

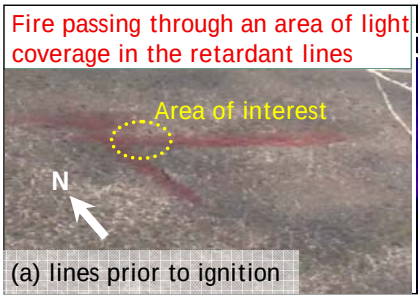




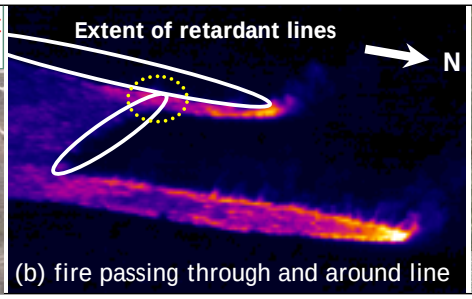
AIRBORNE INFRARED IMAGERY

A research grade infrared camera operated from an observing helicopter was used to monitor fire behaviour and suppression during the experiments. Imagery from the infrared camera could be used to identify spot fires that could not be seen by pilots and areas cooled by drops. The infrared camera allowed the assessment of drops that could not be monitored by other means. It also has important fire behaviour applications such as determining fire perimeters, spread rates and flame geometry.

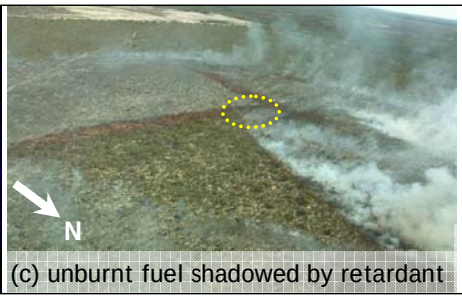




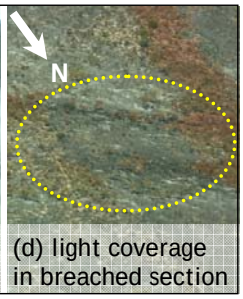
(a) lines prior to ignition



(b) fire passing through and around line



(c) unburnt fuel shadowed by retardant



(d) light coverage in breached section

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