

## → Fire ground health and safety

*The wellbeing of firefighters during bushfire suppression is the subject of ongoing research*

▶ The many factors that contribute to the health and safety of Australian and New Zealand firefighters during tanker-based bushfire suppression are being investigated by this Bushfire CRC research project.

Firefighters' health and safety on the fireground is largely determined by the interplay between the stresses they encounter during their work, their behaviour, and their physical condition. The main physical stresses faced by bushfire fighters are the intensity and duration of the work, and heat from their exertion, the weather and the fire. These fireground stresses can lead to increases in energy expenditure, heart rate, sweat rate, and the firefighter's sense of effort and thermal discomfort. If the stresses are too severe or prolonged, fatigue and/or impaired judgement, unsafe behaviour, accidents and, in very rare cases, death can occur.

The stress endured by the firefighter may be modified by their type of work, their work-rate and proximity to the fire. Further, a firefighter's health and fitness, and their energy and hydration levels may all influence their responses to bushfire suppression work.

### BEYOND THE AGE OF AQUARIUS

The project builds upon the leading research into bush firefighter stress - Project Aquarius. At a recent meeting with Program D researchers, the lead investigators in Project Aquarius, Professor Grahame Budd and Dr John

Brotherhood, supported this research as a worthy sequel to their seminal work.

This project will extend the Project Aquarius research in five major ways:

- Focusing on bushfire suppression using fire tankers rather than handtools.
- Studying the stress encountered by volunteer firefighters as well as paid personnel.
- Conducting research using fuel-reduction burns, accidental bushfires, as well as experimental burn plots.
- Evaluating a wide range of firefighter demographics.
- Trialling strategies to limit firefighter fatigue during bushfire suppression.

### OUTCOMES

The research will provide Australasian fire agencies with guidelines to make informed decisions regarding:

- Specific physical stresses faced during bushfire suppression.
- Effects of work on a wide range of age groups and demographics.
- Fitness requirements for specific fireground duties.
- Hydration strategies to delay and manage the fatigue incurred on the fireground.
- Nutritional strategies to sustain firefighters during intense, prolonged, and/or consecutive work shifts.
- The fitness of their firefighters before work deployments.



### → ABOUT THE PROJECT

Bushfire CRC Project D2.1, Firefighter Health and Safety, is lead by David Nichols from the Country Fire Authority of Victoria.

His research team includes Dr Brad Aisbett and Dr Glenn McConell, and PhD student Matthew Phillips from The University of Melbourne.

▶ LEFT: RESEARCHERS ARE USING LABORATORY FITNESS TESTS TO DEVISE AN APPROPRIATE FIELD FITNESS TEST FOR TANKER-BASED FIREFIGHTERS.