



# Fire Technology Transfer Note

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## A close call in Otago – some lessons to be learned

**A review of “Fire behaviour and firefighter safety implications associated with the Bucklands Crossing Fire burnover of 24 March 1998” by H.G. Pearce, R.W Hamilton and R.I. Millman**

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### Introduction

The latest report produced by the Rural Fire Research programme describes and discusses the burnover of eight rural firefighters in 1998 at the Bucklands Crossing Fire. This report follows on from *Fire Technology Transfer Note 19* (Pearce *et al.* 1998), and presents a detailed overview of the fire development and events leading up to and including the burnover of the firefighters. Fortunately no lives were lost as a result of this burnover, but four firefighters were injured, one sustaining serious burn injuries.

This is a well-written report, containing a detailed analysis of the incident, with some key recommendations listed at the end. It is vital that we learn from these incidents in order to prevent them from happening again, and to improve all safety aspects related to rural fire suppression. I urge you to read this report and consider the recommendations and conclusions presented in it.

### Background

The Bucklands Crossing Fire, near Waikouaiti in North Otago, started in the morning of Tuesday 24 March 1998 in strong, gusty winds. The fire spread through pine trees, grazed pasture grasses, native scrub (manuka and kanuka) and mixed scrub (gorse and other woody weed species). Later that morning, a crew of eight firefighters were burned over while attempting to suppress a section of the

fire backburning in scrub vegetation below them on a steep slope. The report contains a detailed description of the fire environment, fire behaviour and events leading to the burnover. The phenomenon that caused this burnover is a key issue discussed in the report, with a number of possible explanations offered.

### Lessons to be learned

The importance of learning lessons from incidents such as these have been well-documented and emphasised in recent years (e.g., DeGrosky 1999, Alexander and Thomas 2003a, Wildland Fire Lessons Learned Centre<sup>1</sup>). It is essential that detailed analysis of such incidents is undertaken so that the key factors contributing to the incident can be identified, and that these lessons are learned and embraced by both individuals and organisations. Modifying behaviours and organisational procedures through learning from these incidents will result in improved safety on the fireground. The value from case studies is therefore not only of use or relevance to fire researchers, but should be read and taken up by all persons involved in fire management and suppression (Pearce and Anderson 2002, Alexander and Thomas 2003b).

The Bucklands Crossing Fire burnover highlights a number of critical issues that led to and contributed to this incident. Whilst there

<sup>1</sup> <http://www.wildfirelessons.net>



are a number of positive aspects relating to the fire suppression operation and the actions taken by the firefighters, there are also a number of negative aspects identified, including the fact that some fundamental and critical principles of safe firefighting were breached. The authors have taken care to point out both these positive and negative aspects without criticising individuals or decisions taken, in the spirit and hope that these valuable lessons are learned.

A number of issues are highlighted in the report, followed by specific recommendations relating to safe fire suppression. In brief, these recommendations cover:

- Fire behaviour – further research to investigate the mechanisms that led to this turnover is required. The importance of documenting wildfire behaviour and learning lessons by producing case studies is highlighted. It is worth mentioning that a lack of reliable fire behaviour observations contributed to the difficulty of determining the exact cause of this turnover incident. Fireline supervisors should constantly be monitoring and recording fire behaviour and weather conditions to ensure safe and effective fire suppression.
- Protective clothing – lessons learned here have increased awareness of the importance of protective clothing. Recommendations include wearing of cotton undergarments, and protecting the hands and back of the neck from radiant heat exposure.
- Training – the importance of a thorough understanding of the fire environment and fire behaviour by fire managers and firefighters cannot be over-emphasised. Some basic safety rules were broken at this incident, and ability to assess the broader fire environment to anticipate or recognise factors that may lead to dangerous situations is essential.
- Operational procedures – a culture of situational awareness, and continual review of tactics based on the fire environment, needs to be instilled. The importance of documenting all safety-related incidents, including near-hits (no matter how small or trivial they are perceived to be), needs to be emphasised and encouraged to facilitate a process of building upon lessons learned.

All suppression tactics and strategies should consider the values-at-risk against the need for suppression. In this instance, the injuries were sustained in attempting to suppress an area of vegetation burning within the fire perimeter. Was it worth attempting to suppress this isolated section of the fire?

## Conclusion

This report is an excellent account of the conditions contributing to the turnover of the crew, and offers explanations for this turnover occurring. Due to a lack of adequate fire behaviour information, it is not possible to determine the exact cause of the turnover. However, it is likely that this incident was a result of a combination of factors, both physical (fire environment) and human. It is hoped that this report will be widely read and circulated, and that the recommendations will be considered at all levels to ensure that such incidents do not occur again in the future. This report should form an integral part of safety discussions and training, and contribute towards developing safe work practices relating to wildfire suppression.

## References cited

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