

Fire Technology Transfer Note

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Fire danger warning communication in New Zealand: Summary of a pilot study of Rural Fire Authority communications in Canterbury

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Introduction

This *Fire Technology Transfer Note* describes research being undertaken by Ensis Bushfire Research to investigate the communication of fire danger warnings in New Zealand. The research is supported by the Foundation for Research, Science and Technology (FRST) and various rural fire sector organisations. It will provide valuable input to ensure successful fire prevention communications are carried out by Rural Fire Authorities (RFAs).

The main mechanisms of communicating fire danger warnings to the general public in New Zealand include the placement of fire danger warning signs (i.e., half grapefruit signs showing low to extreme fire danger) alongside roadsides in rural and other high-risk areas (see Fig. 1), a national fire prevention publicity campaign with the cartoon character named 'Bernie' (see Fig. 2), and other regional mechanisms such as notification of fire restrictions and local publicity campaigns with pamphlets, radio and newspaper advertisements, etc.

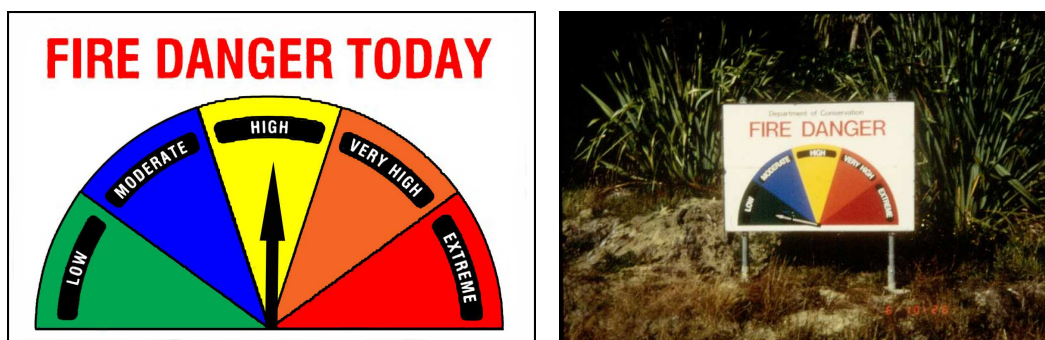


Figure 1. Fire danger warning sign and an example of a roadside display board.

Current research being undertaken by the Ensis Bushfire Research group aims to determine:

- The messages that RFAs intend to convey to the general public through fire danger warning communications in different regions of New Zealand;
- The general public's understanding of fire danger warning communications undertaken by RFAs in the same regions; and
- A comparison between RFA managers' expectations and public understanding of fire danger warning communications in these regions.

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Although focussing on a limited number of regions (due to resource constraints), it is hoped that this research will deliver valuable findings that are broadly relevant to most RFAs across the country.



Figure 2. The current national fire prevention publicity campaign's key fire safety messages, and fire danger sign and 'Bernie' character symbols.

Background

A literature review of existing methods of communicating fire danger warnings in New Zealand and overseas was prepared under a Social Science Research Centre (SSRC) studentship in the summer of 2005/2006 (Bones 2007). Key findings from this review were that:

- Rural fire danger is communicated in similar ways in most Western countries through the use of fire danger warning signs located around the countryside to indicate the current class of fire risk according to a calculated fire danger rating.
- Media campaigns are intended to provide backup and instruction on appropriate behaviour required at different levels of fire danger.
- There are various limitations to these systems, mostly relating to confusion amongst the public.
- Very little assessment of the effectiveness of these methods in changing behaviour and reducing ignitions has been attempted.
- Literature from a wide range of sources, such as risk communication, can be used to identify potential ways of improving the effectiveness of rural fire danger messages.
- The message needs to be matched to behavioural changes that the fire authorities are trying to encourage, and interpretation by members of the public must also be considered.
- The message itself benefits from being communicated through a variety of media in ways that acknowledge a diverse audience.
- In New Zealand, more attention needs to be paid to how effective the rural fire messages are at achieving the aims of the RFAs.

These findings are providing the basis for this ongoing research to investigate the fire danger warning messages being communicated by fire managers, and comparisons with the understandings of the general public of these messages and expected behaviours.

Rural Fire Authority Fire Danger Communications

An initial pilot study of messages that RFAs seek to convey through fire danger warning signs and other forms of fire danger communication was undertaken through a second SSRC studentship during the summer of 2006/2007. The approach followed a qualitative interview structure, and interviews were conducted with seven fire managers in the Canterbury region.

It must be emphasised that this was an initial pilot study and the findings presented below are indications from a limited number of fire managers from one region of New Zealand only. The findings do not necessarily reflect the attitudes of a wide range of fire managers nationally, and ongoing research will attempt to extend this study across other regions of New Zealand.

Pilot Study Findings

Interviews with the seven Canterbury fire managers revealed the following general comments and issues:

Fire Danger Warning Signs

- There was no clear, distinguished information on fire danger warning signs to instruct the public in the behaviour they should adhere to under different fire danger ratings.
- Canterbury fire managers themselves appeared to be confused or unaware of what specific behaviour is expected of the public in relation to the fire danger ratings.
- Sign ratings do not give the public a clear message on how they should modify their behaviour; rather they only convey to the public that they should be aware of the risk and cautious of their activities in rural environments.
- Public confusion with messages depicted on fire danger warning signs was expected.
- Adjustment of the sign's arrow to reflect seasonal fluctuations in the environment was generally favoured by fire managers over day-to-day changes in fire danger class, to ensure accuracy and to deflect perceived public criticism that the signs were inaccurate or infrequently updated. However, public interpretation of the information has not been explored yet.
- Ratings of 'Low' and 'Moderate' were generally associated by fire managers with an Open fire season and that it is relatively safe for fire activity; ratings of 'High' to 'Extreme' were associated with a Restricted or Prohibited fire season, where it is dangerous to have fire activity.
- Many of the messages being associated with fire danger signs and classes by fire managers are at odds with the purpose of the fire danger class criteria as outlined by Alexander (1994): "i.e., to inform the lay person of impending fire danger conditions" (and therefore of the increasing difficulty of controlling fires as the fire danger level increases) "so as to limit the number of potential ignitions".

Fire Restrictions and Permits

- The public are confused with the differences between an Open, Restricted and Prohibited fire season, and have limited knowledge on what and when outdoor fire activities require a permit.
- A degree of personal responsibility was expected from the public, particularly regarding the need to check on the fire season and permit requirement with authorities.
- Communicating a holistic message regarding fire restrictions and permits is difficult as there are varying rules and regulations for different rural jurisdictions.

National 'Bernie' Publicity Campaign

- The 'Bernie' national publicity campaign is widely recognised by the public, and considered to be effective in communicating general awareness of fire danger at a national level.
- 'Bernie' is a generally a popular character.
- The message to 'dial 111 if you see a wildfire' was deemed appropriate.
- However, 'Bernie' is unlikely to be effective at representing all the fire prevention aims of RFAs.
- Updating the 'Bernie' character by redesigning the graphics and developing the meaning of the messages was considered to be important to retain his relevance to different target audiences.
- Campaign messages were not specific enough to generate behavioural change in the general public.
- More emphasis needs to be on preventative, pro-active messages relating to fire danger.
- The campaign needs to be monitored to see if it is reaching intended target audiences, including rural and lifestyle block owners, and urban and international visitors to rural areas.

Pilot Study Conclusions and Future Research Directions

From examination of the collated responses of the limited number of Canterbury fire managers interviewed, it does appear that there is some confusion in the behavioural changes expected by fire managers of the public in relation to fire danger. Hence public confusion with messages conveyed in current fire danger communication is also considered to be highly likely.

The Ensis Bushfire Research group therefore plans to expand this initial pilot study into a more comprehensive study of expected public behaviour by RFAs in response to fire danger communications in at least one other region of the country. In addition, the proposed study will also determine the corresponding understanding of the general public in response to fire danger communications undertaken by RFAs in the same regions. This will allow a comparison of fire managers' expectations with public understandings of fire danger communications in the same two (or more) regions.

To this end, Ensis is offering a Masters scholarship based at the School of Sociology and Anthropology, University of Canterbury to undertake this study under joint University and Ensis supervision. Pending identification of a suitable candidate, it is hoped the project will commence in early 2008 and be completed by December 2009.

This research is essential to both RFA managers and to the Ensis Bushfire research programme. For RFAs, it will guide the future development of more specific and efficient fire danger communication. From the research perspective, identification of new or improved fire danger communication needs could require changes to the basis for the present fire danger class criteria as a public education mechanism. Hence, there is great interest in the outcomes.

References

Alexander, M.E. 1994. Proposed revision of fire danger class criteria for forest and rural areas in New Zealand. National Rural Fire Authority, Wellington, in association with the New Zealand Forest Research Institute, Rotorua. 73 p.

Bones, H. 2007. Communication of fire danger warnings in New Zealand and overseas. Ensis, Forest Biosecurity and Protection Unit, Bushfire Research Group.

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