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Assessment of the general public's perception of rural fire danger communications

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REPORT TITLE	Assessment of the general public's perception of rural fire danger communications
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Scion Contract Report No.	*18088*
DATE	DECEMBER 2010
CONFIDENTIALITY REQUIREMENT	PUBLICLY AVAILABLE
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EXECUTIVE SUMMARY

Research documented in this report follows earlier studies into rural fire danger communication within New Zealand, conducted since 2005. Initiated with a literature review this project progressed to interviews with Rural Fire Authority (RFA) managers to explore expectations of communication of fire danger warnings in two regions – Canterbury (2007) and Northland (2009). The findings from both regions were collated and used as a foundation from which to undertake a survey of the public.

Members of the public were canvassed in the Canterbury and Northland regions concerning their understanding of fire danger communication. A pilot study, including 12 people, was undertaken at the Whangarei Agricultural and Pastoral (A&P) show in December 2009. Subsequently a further 106 adults were interviewed at varied locations in both regions in January 2010.

Three themes were explored during the interviews and the range of question styles provided the opportunity for both 'open' and coded responses. Interviewees were invited to give their perspectives on issues relating to:-

A The fire danger sign - its location; perceived meaning, accuracy and relevance; and ease of understanding.
B Knowledge of fire danger, and behaviour expected under different levels of fire danger.
C Knowledge and perception of publicity initiatives.

Findings indicated that there were varied areas of concern and these are highlighted for further intervention and research:-

1. The range of fire risk factors did not appear to be widely known by the public suggesting the need to provide greater clarity.
2. There was widespread lack of awareness on appropriate behaviour change for each fire danger rating on 'half grapefruit' signs. This indicated a need for guidance on expected behaviour - what the public can or should not do as fire danger increases.
3. The rating 'message' on signs was not clear to the public. Efforts to clarify and simplify information relating to fire danger should be initiated, concurrently with the guidance of recommended behavioural change.
4. The 'fire danger warning sign' and 'fire season' systems operate in parallel, yet there are problems with understanding both the fire danger 'message' and fire permit requirements. Nevertheless, the fire season system is a form of behavioural guidance and the possibility of developing and integrating the two separate methods into a single sign 'graphic' should be explored. Any sign redesign should consider incorporating supplementary symbols to identify acceptable or 'prohibited' activities.
5. The sign location, condition and "up-to-dateness" warrants further consideration to make signs more relevant and visible.
6. TV and radio were the most preferred and memorable publicity initiatives, but the 'Bernie' campaign appeared to have only moderate impact, with limited numbers perceiving guidance on behaviour change. Opportunities exist to develop the media campaign to target specific groups and include guidance on behaviour modification.

Overarching features of the recommendations are their implications for direction, education, and communication at a national level, in order to (i) clarify links between the fire season status, national campaigns and the varied publicity methods of the overall fire prevention objective, and (ii) identify implications for national rural fire sector risk management policy and practice. These aspects should also be accommodated in any further scoping of ongoing research needs.

Contents

1 INTRODUCTION

The main mechanisms to communicate fire danger to the public in rural areas are fire danger warning signs (the 'half grapefruit' sign showing low to extreme fire danger). These are positioned at the roadside in rural areas and other high-risk locations. Other mechanisms include the 'Bernie' national publicity campaign, radio advertisements, pamphlets, and information provided on Rural Fire Authority (RFA) websites. The research documented in this report explores the general public's perception of fire danger communication. This project is the most recent in a programme of social research initiated in 2005. This study has been undertaken by the Rural Fire Research Group, Scion and was supported by the Foundation for Research, Science and Technology (FRST) and various rural fire sector organisations.

1.1 Earlier research in the fire danger communication project

1.1.1 Literature review

As a foundation to this area of research an initial literature review explored communication of fire danger warnings in New Zealand and overseas; it was prepared under a Social Science Research Centre (SSRC) studentship in the summer of 2005/2006 (Bones, Pearce and Langer, 2007). The review established that New Zealand, Australia, and North America used very similar systems for calculating fire danger rating and subsequent warnings. However it also identified that, although some countries in other continents (e.g. Europe / Asia) also adopted this same fire danger rating calculation method, their subsequent warning methods adopted are unknown.

Nevertheless, amongst the valuable material included, the literature review questioned the meaningfulness of conveying information on fire danger classes to the general public (both rural dwellers and urban visitors) "fire danger signs are more useful to fire managers than to the public… " (Bones et al., 2007, p8). It also questioned the media campaign, not in its ability to convey a memorable and consistent image, but to convey important information - 'the message' - to the public. "The message needs to be matched to behavioural changes that the fire authorities are trying to encourage… at present it would appear that the behaviour expected of the relevant public is not sufficiently clarified in the media campaign" (Bones et al., 2007, p v).

1.1.2 Rural Fire Authority managers perspectives

Essentially the literature review highlighted two key areas of interest that were targeted in subsequent research – firstly to identify the intended 'message' and secondly to establish how this was perceived by the public. The study of public perception of fire danger communication reported here was itself informed by intervening research into RFA managers' expectations of fire danger communication. This research of RFA managers was undertaken through qualitative interviews with seven fire managers in the Canterbury region (Langer and Chamberlain, 2007) and with twelve fire and land managers across the Northland Region (Langer, Tappin and Hide, 2009).

Both Northland and Canterbury were targeted because of their high incidence of wildfires (Doherty et al., 2008) and anticipated ease of access by the researchers to both rural dwellers and urban visitors. Each area, however, differed in the way they managed rural fire. Canterbury aimed for a consistent region-wide fire danger communication policy across RFAs (although the region had some different rules and regulations for different jurisdictions). Northland comprised three districts (Kaipara, Whangarei and the Far North) where fire danger communication differed across the region according to land authority or

ownership (such as District Councils, Department of Conservation (DoC), forest companies), with no consistent approach.
Together, significant issues from both the Canterbury and Northland study findings identified three key aspects with areas of concern. These are summarised below:

1. Meaning and relevance of the fire danger warning
   a. Fire danger warning signs provide the public (locals and visitors) with a general indication of the fire risk and potential flammability of vegetation in rural areas.
   b. There was a preference for arrow movement to reflect fluctuations through the seasons rather than day to day changes among Canterbury RFA respondents, whereas Northland RFA felt it important that changing conditions and potential flammability were reflected in timely rating changes.
   c. Fire danger warning signs may differ between or within a region and this can lead to a perception of inconsistent or irrelevant messages, both to locals and summer visitors alike.
   d. Improvements may be made through increasing sign numbers in high risk locations and through novel innovations (e.g. updating signs through use of remote technology) to increase sign accuracy.

2. Fire danger knowledge and expected behaviour
   a. The implication of each fire danger warning rating is unclear. The signs do not direct the public towards recommended behaviour modification and may prompt different behaviours from different groups.
   b. Public confusion with 'messages' depicted is expected and interpretation depends on an individual's understanding of fire safety and their experiences of fire. This perception may vary between landowners and urban visitors to the region.
   c. Ratings on fire danger warning signs do not collate well with guidance concerning fire seasons (and any relevant permit requirements).
   d. The public are confused about what outdoor fire activities require a permit during 'open', 'restricted' and 'prohibited' fire seasons.
   e. The procedures for issuing fire permits could be improved to increase consistency in rules and the process followed across the region.

3. Knowledge and identification with publicity initiatives[1]
   a. A wide range of media (such as radio, TV, newspaper, website, school campaigns) are available. Radio notices timed around weather reports, local newspapers, pamphlets delivered to mail boxes and community notice boards are most effective for a rural audience. Radio, local newspapers and seasonal notices in specialist magazines (e.g. boating, fishing) are also effective in reaching summer visitors.
   b. Campaign messages are not specific enough to generate behavioural change in the general public. More preventative and pro-active messages are required.
   c. The 'Bernie' national publicity campaign is considered to be effective in communicating general awareness of fire danger at a national level.
   d. Fire safety information should be delivered from one "fire authority" in order to provide a consistent message to the public (the subtleties between the messages and rural / urban source of the 'Bernie' and 'Firewise' campaigns are not widely understood).
   e. The 'Bernie' national publicity campaign is widely recognised by the public, but needs to be developed / updated in order to be relevant to different target audiences. It compares poorly with the Firewise campaign, which is probably better known, more appealing and better understood by younger people and urban populations.

[1] Canterbury respondents reported only upon the national 'Bernie' publicity campaign. Other comments concern those from Northland respondents alone

The findings from both regions were used as a foundation from which to direct a survey of the public. The overall aim of the study was to assess the general public's perception of fire danger communications undertaken by RFAs in two regions of New Zealand. Members of the public were canvassed in the Canterbury and Northland regions concerning their understanding of fire danger communication.

This report outlines the methodology applied (section 2), provides a profile of the interviewees (section 3), summarises results and key concerns revealed from the study and analysis (section 4), and draws the main points together with recommendations for further work (section 5).

2 METHODS

As discussed above, three areas of interest were identified among findings of the Northland and Canterbury studies. Varied questions, for use during interview, were developed to explore these themes:-

A Awareness and understanding of the 'half-grapefruit' sign - its location; perceived meaning, accuracy and relevance; and ease of understanding.

A range of questions concerning public awareness and understanding of the 'half-grapefruit' fire danger warning signs were devised. Typically they explored interviewees knowledge and recollection of sign location in either region, their understanding of the meaning and relevance of the sign and captured comments concerning its accuracy and ease of understanding. (See 4.1.1, 4.1.2).

B Knowledge of fire danger, instruction and expected behaviour

Questions were devised to explore the public's baseline knowledge of fire danger; these explored understanding of the individual ratings used on the fire danger warning sign, when a fire permit might be needed, and the meaning of the terms 'open', 'restricted' and 'prohibited' fire season (See 4.2.1, 0, 4.2.6). Ensuing behaviour or likely response to an increase in fire danger rating, identification of fire prone activities (those carrying greater fire risk that would be stopped with increased fire danger), and interpretation of fire season terms were also explored (See 0, 4.2.3, 4.2.5, 4.2.7).

C Knowledge and perception of publicity initiatives

The public's knowledge of alternative means of fire danger communication was explored firstly through an 'open' unstructured question and, secondly, through use of a rating scale to establish the usefulness of varied resources to inform them of fire danger. They were also asked to report on their knowledge of two alternative TV campaigns on fire safety. To complete the interview final thoughts on how fire danger communication could be improved were also gathered (See 4.3.1, 4.3.2, 0, 4.3.4).

A range of question styles were adopted, including both 'closed' and 'open' questions. The closed questions required a coded response from a given set of possible answers, whereas the open questions encourage respondents to compose their own answer. For the later, it was the range of responses to these open questions that informed development of the categories used to describe findings. However, where participants gave supplementary detail in their response to closed questions, these data were also collected.

2.1 Strategy and technique

A list of potential locations/events for conducting the interviews in both Northland and Canterbury was developed. The main criteria for inclusion were that they would permit access to a range of potential participants including rural dwellers, urban visitors and international visitors. Additional criteria were: the anticipated volume of foot traffic, geographical variation – including areas of increased fire risk, suitability for interviews (space, shelter), and the time required for travel and data collection. Five locations which best met these criteria were chosen for each region:

- Northland:
  Two small provincial townships Mangawhai Heads in Kaipara district, Matapouri Bay in Whangarei district, and one larger town, Paihia in the Far North. A rural visitor centre in Waipoua forest (bordering Far North and Kaipara districts) and the Kaikohe Agricultural and Pastoral (A&P) show (Far North).
- Canterbury:
  Three rural recreational areas outside Christchurch - top of the gondola on the Summit Road, 'Sign of the Kiwi' café and Bottle Lake Park, the provincial town of Geraldine, and Kaiapoi (a small town outside Christchurch) farmers market.

Each location was visited during a three day trip to the region (Thursday – Saturday) in January 2010. Between 3-4 hours was spent in each location, with the exception of the Kaikohe A&P show and the gondola which were 8 hours duration. Two researchers set up an information board and chairs in an area where people were able to find out about the study and be interviewed without obstructing traffic flow (Figure 1). Where necessary, permission was gained from managers of the site for the researchers to be present and to interview people.

All interviews were conducted 1:1 with a researcher and interviewees were all aged 16 or over (inferring ability for independent decision making concerning fire danger). Interviewees were given a copy of the questionnaire and relevant pictures to refer to, with the researcher recording their responses on a separate copy of the questionnaire. Interviews lasted between 10-15 minutes per person. As an incentive to participate, each interviewee was offered either an ice cream or a hot drink (based on the weather at the time). This 'offer' was displayed alongside the poster on the information board. Interviewees were also informed that results from the study would be available on the Scion website later this year.

Figure 1: Examples of interviewing set-up at three locations.

2.2 Pilot study

The questionnaire was first developed and reviewed in-house, followed by a pilot study interviewing 12 people at the Whangarei A&P Show (December 2009). As a result of the pilot study the wording of some questions was revised, in order to improve clarity. In addition three new questions were added – two related to 'open', 'restricted' and 'prohibited' fire seasons (as the pilot revealed that these terms were the marker for behaviour change amongst some interviewees). The third new question concerned activities that respondents would cease if fire danger increased (in order to specifically target actions that were perceived as acceptable or not, as fire danger rose). The final version of the questionnaire is shown in 8.

2.3 Critique

Limitations of the methodology include the following:

- All best efforts were made to ensure the selection of suitable locations, but it is unknown how representative they were. Selection of other locations and times may have resulted in different findings.
- Offering an incentive to participate also introduced bias into the sample. However, without the incentive, the number of people participating would likely have been very low.
- Many questions were 'open' and thus responses were entirely dependent on the consideration and account that the interviewee could give at the specific time of interview. They may well have agreed with comments offered by other interviewees, but we recorded only those that they made spontaneously.

3 INTERVIEWEE PROFILE

Interviewee numbers were equal in Canterbury (53 people) and in Northland (53 people) during the principle data collection periods. The pilot study interviews were included in the analysis bringing a total of 118 participants. The numbers interviewed in each location were:

- Northland (including those from the pilot study): Total = 65 people
  Whangarei A&P show (12), Mangawhai Heads township (5), Matapouri Bay (15), Paihia township (6), Waipoua forest visitors centre (7), and the Kaikohe A&P show (20).
- Canterbury: Total = 53 people
  Top of the gondola on Summit Road (18), Sign of the Kiwi (10), Geraldine township (6), Bottle Lake Park (6), and the Kaiapoi farmers market (13).

3.1 Home base and land use of participants

The sample comprised people living locally (either as rural or urban residents) in Northland (N) or Canterbury (C), New Zealanders (from both urban and rural areas) visiting on holiday in these locations, and international visitors. Data concerning ownership of rural land, land use, and length of time living rurally were also collected.

Findings indicated some differences between interviewees in each region. Northland interviewees included a greater proportion of rural residents and urban visitors from within New Zealand (Table 1). In contrast Canterbury interviewees included a greater proportion of urban residents and international visitors. Comparatively few rural dwelling Canterbury interviewees used their land as a farm, forestry or horticultural business (n=5), whereas numbers were higher among Northland participants (n=20) (Table 1). Numbers of participants living on lifestyle blocks were roughly similar for each region.

Table 1: Profile of respondents' home base of 118 participants and nature of land use of rural dwellers Northland (N) and Canterbury (C).

	N	C	All
Area of home base			
a) Urban resident	8	19	27
b) Rural resident	29	12	41
c) Urban visitor from NZ	15	4	19
d) Rural visitor from NZ	9	0	9
e) International visitor	4	18	22
Urban residents - total	26	35	61
Rural residents - total	39[1]	18[2]	57
Land use of rural dwellers			
a) Farm / horticulture / forestry	20	5	25
b) Lifestyle block	15	11	26
c) Native bush	1	1	2
d) House only	3	1	4

[1] includes one international visitor. [2] includes six international visitors

For local residents living rurally the average duration of rural living was 17 years, for both Northland (range 1 – 55 years) and Canterbury (range 3 – 65 years) interviewees (Table 2). Average land area of local residents living rurally was 70.7 hectares (range 0.3 – 480

hectares) in Northland and, in Canterbury 30 hectares (range 0.7 – 308 hectares). Of the international visitors five lived on rural land.

Table 2: Land area and duration of rural living amongst rural dwellers.

	Rural residents			Rural visitors on holiday			International Visitors		
	N	**C**	**All**	**N**	**C**	**All**	**N**	**C**	**All**
	n=29	n=12							
Duration of rural living (in years)	1 – 55 $\bar{x}$ [1] 17	3 - 65 $\bar{x}$ 17	1 – 65 $\bar{x}$ 17	3 – 30 $\bar{x}$ 16	none	3 – 30 $\bar{x}$ 16	7[2]	1 – 5 $\bar{x}$ 2.8	1 – 7 $\bar{x}$ 3.5
Approximate land area (in hectares)	0.3 – 480 $\bar{x}$ 70.7	0.7 – 308 $\bar{x}$ 30	$\bar{x}$ 50.3	1 – 370 $\bar{x}$ 88.5	none	N/A	Not stated	1.5 – 5.2 $\bar{x}$ 2.8	N/A

[1] $\bar{x}$ denotes 'average'. [2] One person.

3.2 Gender and age group

Interviewees included 54 males and 64 females (Table 3). The number of males (n=29) and females (n=24) interviewed in Canterbury were roughly similar, but there was a greater volume number of females (n=40) than males (n=25) in Northland. Ages ranged from 16 to over 60 years.

Table 3: Age and gender of interviewees for each region.

	Age group (years)												**Gender**			
	16-24		**25-34**		**35-44**		**45-54**		**55-64**		**65+**		F		M	
	N	**C**	**N**	**C**	**N**	**C**	**N**	**C**	**N**	**C**	**N**	**C**	**N**	**C**	**N**	**C**
	9	6	9	11	11	5	17	11	13	12	6	8	40	24	25	29
All	15		20		16		28		25		14		64		54	

3.3 Experience of rural fire

As an 'opener' to the discussion, interviewees were invited to describe their experience of rural fire. Many had no experience at all (n=60), whereas 20 described awareness (such as involvement as a family member or near neighbour of firefighters, calling emergency services, receiving training) but no direct experience (Table 4). Twelve had been involved in a controlled fire (such as burning off or burning rubbish) and 26 stated that they previously had been involved in a rural fire that had become out of control.

Numbers involved in an out of control fire were roughly equally between Northland and Canterbury. Five had been involved in out of control fire through their work in the forest and one participant was a former volunteer fire fighter. Three had experience of out of control fire while overseas and a further three had been involved in tackling bush fires of unknown origin. The remainder gave examples where they had dealt with their own out of control fires - such as bonfires, bee smoking, burning off, campfires, or fireworks (n=9). A small number of examples of fire inexplicably arising under power lines, from a caravan tyre catching fire, bulldozer use and from a car backfiring, were also provided.

Table 4: Participants experience of rural fire.

Experience of rural fire	N	C	All
None at all	36	24	60
Awareness (family involved or involvement as a near neighbour, called services, training), but no personal experience of fire	7	13	20
Involved in controlled fire	8	4	12
Involved in out of control fire	14	12	26

4 RESULTS

All data from the pilot study was included in the analysis (118 respondents). However, for those questions used only during the principle Northland and Canterbury data collection periods, findings are limited to responses from the 106 participating interviewees (see 4.2.4, 4.2.5, 4.2.6, 4.2.7).

Responses to 'closed' questions have been collated and percentages have been supplied. For those questions that were 'open' in nature the responses are grouped according to the topics introduced by participants. A minority of respondents gave no answer to some questions, whereas others offered more than one response that was relevant. As such, for these 'open' question types, the number of responses do not necessarily correlate with the total number of participants canvassed.

The percentage response was calculated for 'open' questions where simple definitive responses (e.g. yes/no/do not know) were provided, but not in less specific 'open' questions. A lack of response may have indicated that that aspect was not commented on rather than not agreed with.

4.1 'Half-grapefruit' sign – location, message, accuracy, relevance, and ease of understanding

4.1.1 Awareness and condition of the signs

'Open' questions explored whether and where interviewees had seen the 'half-grapefruit' signs, and if they felt that they were kept up to date. These questions were posed to all 118 participants.

Only a small number of respondents (n=10, 8% of all participants) stated that they were unaware of the fire danger warning signs in either area (seven of whom were overseas tourists) (Table 5). The majority (especially those in Northland) were able to describe at least one location where the fire danger warning sign was situated (n=69, 58%), or that they are aware of their existence (n=39, 33%). Whilst many thought that the signs were kept up to date (n=63, 53%), a large number were unsure about this matter (n=37, 31%). A minority (n=11, 5%) felt that they were not current. Supplementary comments were also made about sign vandalism, showing a high rating despite recent rain, and being tampered with by the public.

Table 5 summarises the range and volume of responses provided by participants to the questions "Have you seen the fire danger warning signs in Northland / Canterbury?" and "Are the signs kept up to date?".

Table 5: Awareness and condition of fire danger warning signs.

Have you seen the fire danger warning signs in Northland / Canterbury?	**N**	**C**	**All**
No idea	2	8	10
Yes but I can't really remember where	25	14	39
Is able to describe at least one location	38	31	69
Are the signs kept up to date?	**N**	**C**	**All**
Yes	36	27	63
No	6	5	11
Don't know/unsure	22	14	36
Not answered	1	7	8

4.1.2 Target audience, intended meaning and understanding of the signs

'Open' questions canvassed the interviewees' perception of the intended audience of the signs, the message they conveyed and whether anybody might have difficulty understanding this. These questions were posed to all 118 participants.

The majority of interviewees felt that the signs were aimed at everybody (n=94), although a reasonable number (n=18) thought that they were primarily for specific groups, such as those driving past or those likely to undertake fire prone activities (activities considered to carry greater risk of causing fire) (Table 6). Many interviewees felt that the message of the sign was to alert the public to the danger or risk of fire (n=78); very few also saw the sign as an indicator of risk and to change their behaviour (n=11), although these responses might feasibly be viewed in combination with those that only stated that the message was to change your behaviour (n=29) – totalling 40 such responses.

Most felt that few would have difficulties understanding the sign, although there was some concern about those lacking ability through literacy, language skills and visual problems (n=26). The possibility of poor interpretation of necessary behaviour change was also noted (n=11).

Table 6 summarises the range and volume of responses provided by participants to the questions "Who do you think the signs are aimed at?", "What do you think the signs are trying to tell you?" and "Do you think anybody would have trouble understanding the sign?".

Table 6: Perception of the meaning & ease of understanding of fire danger warning signs.

Who do you think the signs are aimed at?	**N**	**C**	**All**
Everybody	54	40	94
Specific groups (motorists, campers, smokers, BBQers)	7	11	18
Specific "deviants" (e.g. people that throw cigarettes out of the car window)	4	2	6
What do you think the signs are trying to tell you?	**N**	**C**	**All**
The danger or risk of fire	46	32	78
To change your behaviour	15	14	29
Danger or risk of fire AND to change behaviour	4	7	11
Do you think anybody would have trouble understanding the sign?	**N**	**C**	**All**
No	50	29	79
Possible difficulties – intrinsic (visual acuity, colour vision, literacy, English language skills)	11	15	26
Possible difficulties – interpretation (what does this mean for behaviour)	4	7	11
Blank	-	2	2

4.1.3 Summary and key concerns about the sign

Most participants were aware of the fire danger warning signs in their region (n=108) and over half were able to recall the location of at least one sign (n=69) and thought that they were relevant (n=69) (4.1.1). Many participants (n=94) felt that their message was for everyone and all acknowledged that they conveyed information (at the very least) on danger or risk of fire (4.1.2).
Key concerns arising:-

1 Poor perception of sign currency

- Data collected indicated that many (n=47, 40%) people interviewed in both regions do not know or do not think that the information is current (Table 5). This was reinforced by concerns about vandalism and lack of any visible date indicator to signify when the fire danger warning sign last received attention.

2 Lack of behaviour change guidance

- Whilst a high number (n=78) acknowledged that the sign identified fire danger or risk level, only a third of participants (n=40) reported that this also alerted them to a need to change their behaviour (Table 6). This perception is reinforced by comments made by some that a possible difficulty in understanding the sign concerned interpretation of what behaviour change is necessary.

3 Intrinsic difficulties in understanding the sign

- A number of concerns about interpretation difficulties were made, especially intrinsic problems, such as visual ability or difficulties that might arise from poor English language skills or literacy (Table 6).

4 Poor perception of relevance

- A number of interviewees (n=24) felt that the signs were directed at specific groups (e.g. campers, smokers) or "deviants" (such as those throwing cigarette buts out of car

windows), rather than to themselves (Table 6). This may indicate a lack of understanding of the range of fire risk factors and necessary behavioural adaptation.

4.2 Knowledge of fire danger, meaning and expected behaviour

4.2.1 Understanding of the meaning of each different rating

In an 'open' question interviewees were asked to describe the meaning of each of the different ratings. Some interviewees attributed meaning to each of the ratings, whereas others identified just a few, or were able to speak only in general terms about the meaning of the fire danger warning sign ratings. Nevertheless it was possible to collate four groups defining the range of interviewee responses. These were danger hazard or risk level (Table 7) seasonal or weather conditions (Table 8), some form of behavioural adaptation (Table 9), or no response / uncertainty (Table 10). This question was posed to all 118 participants.

The majority if interviewees interpreted rating 'meaning' in terms of danger, hazard or risk level (Note: participants used these terms interchangeably, hence they are grouped together as one here). However, instead of attributing a specific risk, hazard or danger level to each rating, many provided a general comment that the sign indicated low to high risk, depending on the arrow position (n=36).

When providing a response for each rating 'segment' interviewees were confident in attributing each end of the rating scale to a level of risk, with 'low' being a low danger or risk (n=43) and 'extreme' indicating a very hazardous and dangerous situation (n=33). There were fewer responses concerning risk or danger level for 'high' (n=15), but in contrast to those at each end of the scale very few attributed a level of danger/hazard/risk to either 'moderate' (n=7) or 'very high' (n=7). Terminology offered for each of the middle three segments varied for each rating too (including responses of both low and high risk within each rating), indicating that different levels of danger/hazard/risk were perceived by those few that did respond. Occasionally participants used the term 'medium' when talking about either 'moderate' or 'high' danger / hazard / risk level.

Of further concern and although only a small number of responses, for some the sign indicated the likelihood of a fire getting out of control (ranging from low risk to extreme risk).

Table 7 summarises the range and volume of responses to the question "What do each of the different ratings mean?", to which participants attributed the rating to mean some form of danger, hazard or risk level.

Responses from some interviewees indicated that they interpreted the rating as an indicator of seasonal change and weather conditions. As with the responses concerning danger/hazard/risk, many provided only a general response (n=11) indicating that arrow movement reflects a range of weather conditions such as humidity and temperature (Table 8). Again, the greatest number of responses concerned each of the outer segments, whereby 'low' indicated wet wintry weather (n=22) and 'extreme' indicated the driest season (n=15). The middle three segments received the lowest individual responses indicating that each is interpreted as a season change, although on this occasion both 'high' (n=5) and 'very high' (n=4) were both interpreted as meaning 'very dry and hot'.

Table 8 summarises the range and number of responses to the question “What do each of the different ratings mean?”, to which participants attributed the rating as an indicator of seasonal change and weather conditions.

A minority of interviewees interpreted the ratings in terms of how they would adapt their behaviour and, although few, these indicated a progressively higher number of people that would avoid fire related activities from ‘high’ upwards (Table 9).

Table 9 summarises the range and number of responses to the question “What do each of the different ratings mean?”, to which participants attributed the rating as an indicator of behaviour change.

Reinforcing earlier comments, uncertainty was greatest for ‘moderate’ (n=94) and ‘very high’ (n=92), closely followed by ‘high’ (n= 83) (Table 10). The lower figures for ‘low’ and ‘extreme’ confirm that these were areas of greatest certainty in stating the meaning of each rating.

Table 10 summarises the range and volume of responses to the question “What do each of the different ratings mean?”, whereby participants were either unsure or unable to provide an answer.

Table 7; Levels of danger hazard or risk attributed to each rating.

What do each of the different ratings mean?																					
Danger / hazard / risk level																					
Low	**N**	**C**	**All**	**Moderate**	**N**	**C**	**All**	**High**	**N**	**C**	**All**	**Very High**	**N**	**C**	**All**	**Extreme**	**N**	**C**	**All**	**General**	**N**	**C**	**All**
Low danger/ risk	20	23	43	Could be a bit risky / be careful / potential danger	3	4	7	Chance of / bit risky / be aware	8	7	15	Bit too risky / great possibility	3	4	7	Hazardous / very dangerous / trouble / double risk of low	13	20	33	Low to high risk (dependi -ng on arrow)	26	10	36
Low risk of fire getting out of control	4	1	5	Low danger /risk	3	2	5	Very danger- ous	-	2	2	Very dangero us	1	2	3	Extreme risk of fire getting out of control	4	1	5	Increasin g risk of fire getting out of control	1	-	1

Table 8: Seasonal or weather conditions attributed to each rating.

What do each of the different ratings mean?																						
Season / weather																						
Low	**N**	**C**	**All**	**Moderate**	**N**	**C**	**All**	**High**	**N**	**C**	**All**	**Very High**	**N**	**C**	**All**	**Extreme**	**N**	**C**	**All**	**General**	**N**	**C**	**All**
Wet/ winter	11	11	22	Season has changed	2	5	7	Season has changed	1	3	4	Season has changed	1	1	2	It's the driest season	7	8	15	Low to high risk (depending on weather - humidity, temp, dryness)	4	7	11
								Too hot/ sunny / very dry	1	4	5	Very dry and hot	1	3	4								

Table 9: Behaviour change attributed to each rating.

What do each of the different ratings mean?																							
Behaviour																							
Low	**N**	**C**	**All**	**Moderate**	**N**	**C**	**All**	**High**	**N**	**C**	**All**	**Very High**	**N**	**C**	**All**	**Extreme**	**N**	**C**	**All**	**General**	**N**	**C**	**All**
Ok to have fire	3	3	6	Ok to have fire	2	2	4	No fire / BBQ / careful of lawnmower sparks	3	4	7	Don't consider fire	5	4	9	Don't consider fire	9	8	17	Take care	-	1	1
								Might be ok (e.g. if rained)	2	-	2												

Table 10: Uncertainty of meaning attributed to each rating.

What do each of the different ratings mean?																							
Uncertainty																							
Low	**N**	**C**	**All**	**Moderate**	**N**	**C**	**All**	**High**	**N**	**C**	**All**	**Very High**	**N**	**C**	**All**	**Extreme**	**N**	**C**	**All**	**General**	**N**	**C**	**All**
No answer / unsure	27	15	42	No answer / unsure	54	40	94	No answer / unsure	50	33	83	No answer / unsure	54	38	92	No answer / unsure	32	16	48	No answer / unsure	N/A		

4.2.2 Anticipated behaviour change for each rating

With an open question, interviewees were asked whether they would change their behaviour for each rating; this question was posed to all 118 participants. Reports of proposed behaviour modification were reported only for the ratings 'high', 'very high' and 'extreme' (Table 11). The number of responses was limited, when compared with those offered for the preceding question 'what is the meaning of the rating scale?'.

Overall there was a slightly greater number of answers, by rating, as the risk increased (also reflected in a corresponding reduction in 'no response'). Progressively more people reported 'being careful' or abstaining from fire lighting when the rating was from 'high' upwards. However, there were a few contradictory responses concerning whether fire would be acceptable at 'high' (n=3) or not (n=9), indicating varied perception of acceptability of this level. Only a very small number of interviewees reported getting a permit as part of their behaviour change at 'very high' (n=1) and 'extreme' (n=2). Similarly avoiding driving / use of certain equipment that might generate sparks received low responses, even when added together for each rating or as a general comment (n=12).

Some interviewees spoke only in general terms regarding behaviour change and a large proportion (n=35) felt that they would not change their behaviour as they undertook no risky behaviour. Many others stated that they would change their behaviour (although not attributable to any specific rating) by becoming 'more aware' (n=14) or by being 'more careful' (n=23). A minority stated that, generally, different seasons would denote any behavioural change (n=6).

Table 11 summarises the range and volume of responses to the question "Would you change your behaviour for each rating?"

Table 11: Reports of behaviour change for each rating.

Would you change your behaviour for each rating?																	
Low	**Mod e-rate**	**High**	**N**	**C**	**All**	**Very High**	**N**	**C**	**All**	**Extreme**	**N**	**C**	**All**	**General**	**N**	**C**	**All**
No responses (excepting 9 who would still light a fire)	No responses (excepting 5 who would still light a fire)	More aware	3	1	4									More aware	11	3	14
		More care	4	1	5	More care	4	1	5	More care	6	3	9	More careful. Light fewer fires (esp. If camping)	10	13	23
						Tell others off	1	-	1	Tell others off	1	-	1	Tell others off	4	1	5
		Fire ok (with rain)	2	1	3	No fire/ incinerator/coal (maybe gas?)	9	4	13	No fire	12	4	16	No fire	2	2	4
		No fire	7	2	9									Depends on the season	3	2	6
						Get permit	1	-	1	Get permit	1	1	2	Get permit	2	1	3
		Stop using equipment (chainsaw)	-	1	1	Stop using equipment (chainsaw) / drive 4wd on long grass / going into forest	-	3	3	Stop using equipment (chainsaw) / drive 4wd on long grass / going into forest	-	3	3	Stop certain activities (mowing lawn, travel, burning rubbish, throwing cig butts away, rotary slasher)	2	4	5
		Total			22	Total			23	Total			31	No change as- no risk behaviour	17	18	35
		No answer	51	47	98	No answer	51	45	96	No answer	45	43	88	No answer	N/A		

4.2.3 Attributed ratings for sample activities

A 'closed' question explored each participant's opinion of acceptable activities under different ratings. Interviewees compared a list of activities "a) Have a bonfire on the beach, (b) Have a campfire in the bush, (c) Light a fire on private rural property, and (d) Use fire works" with a picture of the fire danger warning sign and identified the highest rating at which they could still undertake each activity. This question was posed to all 118 participants.

Many interviewees had difficulty in answering this question and were often unable to respond in an assured manner. As the interviews progressed it became increasingly apparent that a large number of interviewees were making a calculated guess when answering this question; participants either stated this outright, gave an estimate of a likely ratings range (e.g. moderate to high) that would be the highest acceptable for each condition, or wavered amongst the selection before opting for a particular one. Even where they opted for a rating many (n=47, 40%) (Table 12) also stated that there would be conditions that would need to be in place to undertake these activities – either independently or concurrently with a particular rating. Typically, for each of the above, the following examples were provided:-

- amount of sand, vegetation, tide level, wind, weather and/or time of year.
- enclosure of the fire (by rocks or within a DoC hut).
- fire type (brazier / open burn), environmental conditions, provision of a permit.
- conditions at the chosen location.

The least acceptable activity was to have a campfire in the bush (b), with 47 (40%) stating that the highest level at which this could be undertaken was 'low' and a further 41 (35%) at 'moderate'. This was closely followed by use of fireworks (d); 15 (13%) stated that fireworks would never be acceptable.

Responses from interviewees from each region were roughly similar for Northland and Canterbury concerning having a bonfire on the beach (a). However, a large number thought that this would be acceptable at 'high' (n=25, 21%), or even 'very high' (n=7, 6%) or 'extreme' (n=5, 4%). Similar data were provided by interviewees when asked about lighting a fire on a private rural property (c), although here 10 (8%) participants were unable to specify a response. For this question seven (6%) interviewees stated that this would be fire permit rather than rating dependent. Findings for (a) and (c) were similar and suggest that participants had greater tolerance for undertaking these activities.

Over all the questions 'moderate' was the most frequently cited response (n=190, 40%), followed next by 'low' (n=103, 22%) and then by 'high' (n=76, 16%).

Table 12 summarises the range and number of responses to the question "Which is the highest rating that you could still do these activities? (a) Have a bonfire on the beach, (b) Have a campfire in the bush, (c) Light a fire on private rural property, and (d) Use fire works".

Table 12: Attribution of acceptable ratings for sample activities.

Which is the highest rating that you could still do these activities[1]?												
	(a) Have a bonfire on the beach			(b) Have a campfire in the bush			(c) Light a fire on private rural property			(d) Use fire works		
	N	C	All	N	C	All	N	C	All	N	C	All
Never	3	1	4	9	4	13	3	1	4	5	12	17
Low	8	8	16	28	19	47	9	5	14	15	11	26
Moderate	28	26	54	20	22	42	31	20	51	24	21	45
High	13	12	25	4	7	11	9	15	24	11	5	16
Very high	6	1	7	-	-	0	3	2	5	3	-	3
Extreme	3	2	5	2	-	2	3	-	3	4	-	4
Not specified	4	3	7	2	1	3	7	10	17	3	4	7

[1] Where a range of possible ratings was offered the highest has been used for calculations

4.2.4 Identifying when a fire permit is needed

With an open question interviewees were asked when they would need a fire permit; this question was posed to 106 participants during the principle data collection period.

Varied responses concerning circumstances indicating requirement of a fire permit were provided, but most commonly interviewees did not know (n=43, 41%) (Table 13). Numbers supplying the same response were roughly equal between respondents from Northland and Canterbury for all response types. The most common concerned specific activity types (n=23), followed, in equal measure, by 'always' (n=15), or when announced using varied media types (n=15). A small number felt that a permit would be required when the arrow was at 'high' (n=8), whereas others felt it related to specific locations (n=6) or when summery / dry conditions prevailed (n=11). Interestingly 10 people felt that a permit should be sought during a fire ban; although it is concerning that some thought that a 'ban' could be over-ridden, the interchangeable adoption of the terminology 'restricted' and 'ban' was noted when talking about fire permits.

Table 13 summarises the range and volume of responses to the question "When do you need a fire permit?"

Table 13: Specification of when a fire permit required.

When do you need a fire permit?	N	C	All[1]
Don't know	21	22	43
In summer / dry	6	5	11
Specific location (public place, private property, near DoC boundary)	3	3	6
When arrow at high	8	-	8
Specific activity (fireworks, public function, burning off private land, tramping / hunting in bush, bonfire, Hangi, rubbish, beach, any fire activity)	12	11	23
When paper / council / signs / radio says so / 'restricted'	10	5	15
When a fire ban	6	4	10
Always (but may depend on size of fire)	6	9	15

[1] Some people gave multiple examples

4.2.5 Activity change during increased fire danger

With an open question interviewees were asked if there were any activities they would stop doing if the fire danger increased; this question was posed to 106 participants during the principle data collection period.

When describing activities they might stop doing interviewees provided a range of responses. The most common was that certain risky behaviour would be avoided - most commonly (and especially amongst Northland respondents) these were bush/camp fires (n=32), BBQs (n=15) or rubbish burning (n=9) (Table 14). In turn interviewees stated that there would be no behaviour change given their absence of fire risk behaviour (n=35); this was slightly more prevalent among Canterbury respondents. A few (n=16) stated that they would change their behaviour but did not provide details.

Additionally some people described the rating at which they might affect change. Amongst those few (n=25) that offered this detail, altered behaviour would kick in at: 'moderate' (7), 'high' (12), 'very high' (5) and 'extreme' (1).

Table 14 summarises the range and volume of responses to the question "Are there any activities that you would stop doing if fire danger went up?"

Table 14: Anticipated activity change for increased fire danger.

Are there any activities that you would stop doing if fire danger went up?	**N**	**C**	**All[1]**
1 Less a-d[2]	2	4	6
2 Change behaviour (be more careful)	7	9	16
3 Avoid …			
3a - fireworks	6	1	7
3b - camping/forest walk	2	1	3
3c - bush/camp/any fire lighting	23	9	32
3d - BBQ	6	9	15
3e - rubbish burning	7	2	9
3f - leaving house	-	1	1
3g - welding	-	2	2
3h - burning off	-	1	1
3i - indoor fire	-	1	1
3j - machinery use / driving over scrub	-	8	8
4 No change as no risky behaviour	14	21	35

[1] Some people gave multiple examples

[2] (a) Bonfire on the beach, (b) Campfire in the bush, (c) Fire on private rural property, (d) Use of fire works

4.2.6 Understanding of the terms 'open', 'restricted' and 'prohibited' fire season

With an open question interviewees were asked to describe what the terms 'open', 'restricted' and 'prohibited' fire seasons mean; this question was posed to 106 participants during the principle data collection period.

Although responses were few amongst those that did not know what each term meant, this steadily increased for 'restricted' and 'prohibited'. For each region there were differences between those who stated that they did not understand 'open' (n=6

but none were Northlanders) or 'restricted' (n=11 but none were Cantabrians), but it is not clear whether this is of any significance (Table 15). For 'open' the majority of the remaining interviewees identified that a fire is permitted (n=84), although (as before) some interpreted this in terms of season, risk or arrow placement on the fire danger warning sign.

For a 'restricted' fire season there were a wide range of responses. Thirty-three identified that a permit is required and the other main responses were that fire is permitted only in certain locations (n=20), under certain conditions (n=16), or when it is of a certain type of fire (n=9), such as using an incinerator, BBQ, or within a contained area or fireplace.

For a 'prohibited' fire season 81 identified that fire is not allowed, yet there were also a small number of outlier comments made by those that interpreted the notice in terms of advice just for the time of year or as an interpretation of the fire danger warning sign information.

Table 15 summarises the range and volume of responses to the question "What do the terms 'open', 'restricted' and 'prohibited' fire seasons mean?"

Table 15: Intended meaning of 'open', 'restricted' and 'prohibited' fire seasons.

What do the terms 'open', 'restricted' and 'prohibited' fire season mean?											
'Open'	**C**	**N**	**All[1]**	**'Restricted'**	**C**	**N**	**All[1]**	**'Prohibited'**	**C**	**N**	**All[1]**
Don't know	6	-	6	Don't know	-	11	11	Don't know	6	8	14
Fire ok	42	42	84	No fire	-	4	4	No fire	40	41	81
Winter	1	2	3	Be careful	1	3	4	Summertime /certain times of year	-	2	2
Need a permit	1	2	3	Certain times only	4	5	9	Extreme	1	-	1
Low risk	2	-	2	Certain places only	12	8	20	Be careful	-	1	1
Low/mod	1	-	1	Permit required	15	18	33				
				Spring/autumn	-	1	1				
				Certain fires only	6	6	12				
				Certain conditions only	12	4	16				
				High / very high	1	-	1				
				With supervision of experienced person	-	2	2				

[1] Some people gave multiple examples

4.2.7 Anticipated behaviour change by fire season

With an open question interviewees were asked to describe whether they would change their behaviour for each fire season; this question was posed to 106 participants during the principle data collection period.

During an 'open' fire season the majority provided no particular comment (n=89, 84%), but this was less so with 'restricted' (n=72) and 'prohibited' (n=70) fire seasons (Table 16). For a 'restricted' fire season a range of examples were given, the most prevalent of which were 'taking more care' (n=6) and 'obtain permit / guidance' (n=7). Respondents also indicated that they would avoid lighting fires (n=4); this was also the most prevalent response for those that commented on their action during a 'prohibited' fire season (n=16). Many interviewees spoke only in general terms (not relating to any of the three 'seasons' specifically); responses primarily concerned raised awareness (n=23), nil specific (generally as undertaking no risky behaviour) (n=23), and taking more care (n=14). A comment from an overseas visitor was that they would turn off electric fences in Australia.

Table 16 summarises the range and volume of responses to the question "Would you change your behaviour for each fire season?"

Table 16: Anticipated behaviour change by fire season.

Would you change your behaviour for each?	**'Open'**			**'Restricted'[1]**			**'Prohibited'**			**General**		
	N	C	All	N	C	All	N	C	All	N	C	All
Nil specific / no risky behaviour	-	-	-	-	-	-	-	-	-	11	12	23
Take more care[2]	1	-	1	4	2	6	2	-	2	10	4	14
Avoid lighting fires	-	-	-	2	2	4	9	7	16	4	-	4
Obtain permit / guidance	-	-	-	3	4	7	-	1	1	-	3	3
Don't know	2	-	2	2	1	3	2	-	2	2	-	2
Advise others re fire prevention	-	-	-	-		-	-	-	-	-	1	1
Avoid certain locations	-	-	-	-	1	1	2	1	3	1	-	1
Yes / more aware	-	1	1	-	-	-	-	-	-	8	15	23
No specific comment	46	43	89	39	33	72	35	35	70	18	15	33

[1] Some people gave multiple examples
[2] Take more care with fire sources, varied activities (e.g. clear rubbish, use machinery) or during certain weather conditions

4.2.8 Summary and key concerns about the fire ratings

There was a variety of interpretations concerning the meaning of the ratings, but information concerning danger, hazard or risk was the most common interpretation.

Key concerns arising:-

1. Poor perception of meaning attributable to each rating
   - Whilst each individual rating may convey a specific meaningful message to those that manage the sign it is not clear that the public "see" each rating stage with any distinction. Many were more conscious of general left to right arrow movement on the sign (Table 7 (n=36), Table 8 (n=11)).
   - 'Low' and 'extreme' are clearly the most meaningful ratings and had the most consistent responses. However, although 'high' generally had a greater

number of responses than ‘moderate’ or ‘very high’, numbers were still comparatively low and included a variety of perceived meanings (4.2.1).
- Occasional adoption of the term “medium” to describe both ‘moderate’ (also beginning with ‘m’) and ‘high’ (possibly due to its placement centrally on the sign and bright colour) (4.2.1) could be confusing and may not convey the intended risk message or elicit the required response.

These data indicate that it is (1) arrow position at the ratings ‘low’ and ‘extreme’ (and to a lesser extent ‘high’) and / or (2) arrow movement across the scale, rather than its specific position, which is the most commonly perceived interpretation by the public.

2. Varied perception of rating meaning
   - Most commonly the rating was perceived as a signal to identify hazard, risk or danger, but others saw the rating as an indicator of prevailing weather conditions or that it inferred to them some form of acceptable or unacceptable behaviour (4.2.1).
   - The varied responses concerning rating meaning indicated the range of perceptions and lack of certainty among the public (Tables 7 – 9). There were a small number of contradictory responses for rating meaning – especially for the three central ratings.
   - It is concerning that a minority saw the ratings as the likelihood of fire getting out of control, as there is no element of inferred behaviour change within this interpretation.

These data indicate that the rating message to the public is not clear.

4.2.9 Summary and key concerns about translating fire danger ratings into behaviour change

Participants were often unsure of necessary behaviour change for each rating (0). Nevertheless, a reasonable number (n=47) described sample conditions that would need to be in place in their own assessment of whether or not to light four alternative fire types (4.2.3); this result suggested some underlying understanding of fire risk factors and behaviour change.

Key concerns arising:-

3. Poor knowledge of rating related behaviour change
   - The number of interviewees that saw the rating in terms of their ensuing behaviour was low. When describing how they would change their behaviour for each rating many were unable to provide an answer (Table 11).
   - Descriptions of expected behaviour for the central three ratings on the fire danger warning sign were quite varied – what was considered acceptable was variably interpreted (e.g. fire considered to be both ‘acceptable’ and ‘unacceptable’ by different interviewees at a ‘high’ rating) (Table 11).
   - ‘Moderate’ ‘low’, and ‘high’ (in order of frequency) were the most commonly cited highest ratings at which four sample fire activities could be undertaken. The variety in responses suggested that it is not known at which rating it is reasonable to continue these activities (Table 12).
   - When attributing ratings for four example risk activities many openly guessed their answer when generating a rating response (4.2.3).

- In spite of good ideas generated spontaneously for mitigating fire risk (Table 14), these did not necessarily link directly with any particular fire rating.
- Interviewees appeared to show greater lenience (against level of fire danger rating) for beach fires and private rural property fires (rather than campfires or fireworks) – it is not known whether this is a reasonable assumption or highlights the need for greater education (4.2.3).

These data indicate that there is widespread lack of awareness concerning appropriate behaviour change for each rating. While many described themselves as being risk aware, it was not apparent that behaviour change would be a rating related response.

4.2.10 Summary and key concerns about fire risk and behaviour change

When describing behaviour change there were a number of participants who felt that they did not undertake fire risk activities at any stage, irrespective of fire danger or fire season (Tables 14 and 16). This response, along with raised awareness and 'taking care' (Tables 11 and 16) were the most commonly reported behavioural changes.

Key concerns arising:-

4. Comparing anticipated behaviour change with specific ratings or with a raised fire danger
    - There was some variation in responses when interviewees were asked about behaviour change according to each rating (Table 11), or if the fire danger increased (i.e. irrespective of rating) (Table 14). For the latter the variety of examples provided was greater and, in some cases, numbers reporting activity avoidance were greater. This suggested that, when not tied to a specific rating, interviewees were able to respond without the constraint of having to divide their answers according to different rating segments. Removing the requirement to respond within each rating may have allowed people to respond more easily, meaningfully and within the context of their own circumstances.

5. Poor knowledge of fire risk activities
    - When describing how they would actually change their behaviour with increased fire danger rating there were also isolated statements about reducing use (sometimes in specific locations) of machinery or equipment that generate heat or sparks (Table 14). The limited number of such responses suggested that, if these are genuine fire risk factors, they are not widely understood.
    - A reasonable number of people stated that they would not light a fire or that they undertook no fire risk activities. However, it is not clear that there is baseline information to the public that defines 'risk activities'.

These data indicate that the fire danger warning sign ratings were infrequently perceived as a means of guiding behaviour change. Fire risk activities were variably understood, but there was inconsistent knowledge among the public.

4.2.11 Summary and key concerns about fire season information

Knowledge of the criteria that defined the requirement of a fire permit was generally fairly low (Table 13). Just over three quarter of the participants understood the terms 'open' and 'prohibited' fire season, but responses were variable for 'restricted' fire season (Table 15).

Key concerns arising:-

6. Varied perception of fire permit requirements
   - Some good responses to circumstances that might dictate the need for a fire permit were provided (Table 13), but it is not known whether all would be considered acceptable to the fire authorities.
   - Relatively few followed the publicity (radio / paper) alerting the public to the need to have a fire permit (Table 13) and felt that this related more to the intended activity types and locations. Only eight identified this with the fire danger warning sign arrow at 'high'. These factors indicated limited understanding of fire permit requirements and lack of association between the fire danger warning sign and fire season information among the general public.

7. Varied perception of the fire season terms
   - Whilst responses for the understanding of 'open' fire season are good, there were mixed responses for 'restricted' and 'prohibited' fire seasons (Table 15).
   - Many interviewees indicated varied conditions that might be present during a 'restricted' fire season, but only a minority indicated that this signalled the need to get a permit (4.2.6). There was limited knowledge concerning expected behaviour for the 'restricted' fire season.
   - A minority of respondents thought a fire permit necessary only during a fire ban (Table 13). This suggested both some limited understanding of the meaning for 'prohibited' fire season and also indicated a preference for the colloquial term 'ban'.

These data indicated that there was limited understanding of fire permit requirements and that this system was rarely associated with fire danger warning sign communication.

4.3 Knowledge of publicity initiatives

4.3.1 Awareness of other information on fire danger communication

In an open question interviewees were asked whether they were aware of information (other than the 'half-grapefruit' sign) on fire danger communication. This question was posed to all 118 participants.

Awareness of other methods of fire danger communication differed between regions, with those in Canterbury reporting less awareness of initiatives (n=23 of all participants, but over 40% of the Canterbury participants alone) than those in Northland (n=8 of all participants but smaller proportion of Northland participants) (Table 17). However, this Canterbury interviewee group also included a large number of international visitors and this may have contributed towards disparity in numbers between each region. The radio or TV was the method most cited (n=64), with 17 reported use only of radio (albeit with some listening only to national stations). Again, awareness appeared much greater amongst Northland

interviewees (n=46, a high proportion of Northland participants) than those in Canterbury (n=18, about a third of Canterbury participants). Following this, with quite a lot of disparity, it was newspaper reports (n=14) followed by catastrophe reports on the news (n=7) that were spontaneously described as an information source for fire danger communication.

Table 17 summarises the range and volume of responses to the question "Are you aware of other information on fire danger communication (such as the news/radio)?"

Table 17: Awareness of alternative means of fire danger communication.

Are you aware of other information on fire danger communication (such as the news/radio)?	N	C	All
Not aware	8[1]	23[2]	31
Catastrophe reports on the news	3	4	7
Radio/TV	46	18	64[3]
Newspapers / local papers	8	6	14
Other signage (fire restriction – by permit only)	2	2	4
Fire service campaigns	2	-	2
Siren / actual fire	2	3	5
Seeks info from Council / friends in fire service	3	1	4

[1] Includes two international visitors. [2] Includes 17 international visitors. [3] Includes 17 who reported radio only

4.3.2 Understanding of cartoon characters messages on fire safety

With an open question, and whilst looking at the publicity pictures for 'Bernie' or 'Flint and Amber', interviewees were invited to talk about the messages of each. This question was posed to all 118 participants.

Many interviewees were unaware of the messages of the fire safety cartoon characters 'Flint and Amber' (n=88) and, less so, 'Bernie' (n=58). However, those that were aware of 'Flint and Amber' identified that their message concerned home fire safety (n=14) and that it was targeted at children (n=15) (Table 18); knowledge, however, appeared more prevalent among Northland interviewees. Slogans such as "get down, get low and get out" or "stop, drop and roll" were spontaneously mentioned by at least five people. 'Firewise' (New Zealand Fire Service education programme on fires in the home for primary school children) was also mentioned by at least five people (across either set of cartoon characters).

Of those aware of the 'Bernie' publicity interviewees from both Northland and Canterbury (n=17) were aware of the 'Keep it green' message; of these respondents 6 identified that this should be through behaviour change (care with / not lighting fire) and three reported that it meant being aware of the sign. A total of 29 interviewees reported that the campaign was to alert the public to hazard, danger or risk, whereas 22 indicated that the message was about behaviour change (care with / not lighting fire).

A small minority (n=5) thought that the arrow position displayed on the advert (which was shown nationally) indicated the current level of fire danger directly affecting them at the time of airing. One thought that it was a temperature level indicator.

Table 18 summarises the range and volume of responses to the question "What messages are provided by the cartoon characters on fire safety (a) 'Bernie' and (b) 'Flint and Amber'?"

Table 18: Understanding of the cartoon messages concerning fire safety.

What messages are provided by the cartoon characters on fire safety?			
'Bernie'	**N**	**C**	**All**
Don't know	30	28	58
Keep it green	9	8	17
Hazard / danger / risk:-			
(a) Danger of fire outside	12	2	14
(b) Take notice of the signs	4	10	14
Change your behaviour:-			
(a) don't light a fire when danger up	8	2	10
(b) be careful	6	5	11
Arrow in advert = current risk level	1	4	5
'Flint and Amber'	**N**	**C**	**All**
Don't know	43	45	88
About home fire safety	12	2	14
Targeted at children	9	6	15

4.3.3 Rating usefulness of fire danger communication

Interviewees were asked to rate usefulness of each resource type to tell them about fire danger; to respond they were asked to provide a rating score between 1 - 5. Available ratings were '1' 'not useful', '2' 'to a slight degree'. '3' neither useful or unuseful', '4' 'fairly useful', and '5' 'very useful'. Mean (average) scores of all responses were calculated. Whilst this was a 'closed' question there were many supplementary comments offering a rationale for answers given; these too are summarised where appropriate.

Data indicate that, for all interviewees, it is the news / weather on the radio or TV, or TV advertisements that would be the most useful resource (mean score = 4.4 – 4.0 'fairly useful') (Table 19). By region, the greatest preference was for the TV news (mean score = 4.5) as a resource in Northland, followed in turn by radio (news / weather), TV adverts, and then (equally) newspapers, radio adverts and school campaigns (mean score 3.8). Canterbury interviewees appeared less enthusiastic about the methods offered; the most preferred were TV news, radio news / weather and then TV adverts (mean score = 4.0 – 3.7).

Table 19 summarises the range and volume of responses to the question "On a scale of 1 to 5 how useful would each resource be to tell you about fire danger?"

Table 19: Rating the usefulness of alternative means of fire danger communication.

On a scale of 1 to 5 how useful would each resource be to tell you about fire danger?																				
	Radio ads		Radio n/w		News-paper		Magazine		Leaflets		TV ads		TV news		School		Text		Website	
	N	C	N	C	N	C	N	C	N	C	N	C	N	C	N	C	N	C	N	C
Mean score	3.8	3.1	4.3	3.7	3.8	3.1	2.5	1.9	3.0	2.6	4.0	3.5	4.5	4.0	3.8	2.8	2.4	2.8	2.8	2.6
All	3.9		4.3		3.7		2.3		3.0		4.0		4.4		3.9		2.3		2.7	

Supplementary comments:

TV – If shown it in association with weather (n=3), or at 8pm rather than 6pm as busy outside until then (n=1). TV a problem as less likely to watch if travelling / on holidays.

Radio – Only useful if listening (n=4) or if necessary information is on local weather (n=1). Radio only useful if there is a special warning (n=1). It is a problem if you only ever listen to national radio (n=4).

School - Not useful (to participant directly) but it would be really useful and important for children (n=11). The value of including information in a school newsletter was also mentioned (n=1). Being away during school holidays was seen as a barrier to the value that might be gained from this source. There was concern that this might give kids the wrong message - show them how to light fires (n=1)

Newspaper - Helpful in the local rather than a paper covering a large area (n=5), or if 'extreme' conditions (n=1), or if on the weather page (n=1). A problem for those that don't purchase a paper when on holiday (2), or for young people that don't read newspapers (n=2). Preference for a story about fire danger (n=2). Concern about it being too slow to be useful (1).

The least appealing methods, with all scores combined and excluding those already identified as preferred by either region were leaflets, website, magazines and text messaging (mean scores = 3.0 – 2.3).

Leaflets – Would be discarded as junk mail (n=4); concern about how up to date they might be (n=2) or that they should only be distributed as a poster or if conditions are extreme (n=2). But could use posters in various high profile public places (n=1).

Magazines - Varied preferences for either trade specific magazines (n=2) or general (n=1). Problems with becoming out of date quickly (n=3), or not relevant for different locations (n=3).

Website - Need to be kept up to date (n=1) and have good publicity (n=3), and would be good for schools (n=1). Could be placed at sign-in pages (1). Off-putting due to search effort (would this be a pop-up advert of have its own website?) and lack of internet access (n=4).

Text messages- Potentially annoying or only appropriate for youngsters (n=4) or high risk circumstances (n=1). Problem in areas with no cell phone coverage (n=2), for those that don't use them (n=1), or for tourists to know about signing up (n=2) - but could be within automatic messages from mobile phone service providers (n=2).

4.3.4 Participant suggestions to improve fire danger communication

With an 'open' question, and to complete the discussion interviewees were invited to suggest ways to improve fire danger communication. This question was posed to all 118 participants.

Recommendations which suggested measures to improve publicity received the most responses (n=58) (Table 20). Ideas such as greater targeting of special groups (young, males, tourists) (n=15), more use of TV/radio (n=14), or just greater overall publicity (n=11) were the most popular suggestions.

The three remaining areas received roughly equal mention – to improve the number of signs (n=34), sign quality (n=33), and guidance provided (n=27). The suggestion that more signs be erected came with the additional recommendation that they were placed where there is greater risk, where people gather etc. The importance of maintaining and/or dating the signs (to show when last given attention) was also noted (n=8). A sign quality improvement idea was that it should include guidance (perhaps through the addition of instructional symbols) (n=13). Where people have talked about general guidance needs, it was for information concerning personal behaviour (n=16) and the nature of risky activities (n=8).

Table 20 summarises the range and volume of responses to the question "How could fire danger communication be improved (e.g. sign style, display locations, guidance etc.)?"

Table 20: Suggestions to improve fire danger communication.

How could fire danger communication be improved (e.g. sign style, display locations, guidance etc.)?	N	C	All
No change - good as is	6	4	10
Improve signage numbers			
Improve signage numbers - put up more signs (where people gather, might light fires, where there is high risk)	19	15	34
	Total		34
Improve sign quality			
Improve sign quality - general	4	5	9
Improve sign quality - provide guidance / symbols	7	6	13
Improve sign quality - maintain and/or date signs	6	2	8
Improve sign quality - superimpose 'Open, Restricted, Prohibited'	1	2	3
	Total		33
Improve publicity			
Improve publicity - more use of all	8	3	11
Improve publicity - more use of TV / radio	8	6	14
Improve publicity - fire authority / rangers visit camps	2	1	3
Improve publicity - more locations	5	3	8
Improve publicity - target specific groups (young, males, tourists)	7	8	15
Improve publicity - texting, internet	1	2	3
Improve publicity - target communities, social functions, schools	3	2	5
	Total		58
Improve guidance			
Improve guidance - risky activities	4	4	8
Improve guidance - where fires are permitted, permit required	5	1	6
Improve guidance - why there is a danger	2	1	3
Improve guidance - personal behaviour + advice	9	7	16
	Total		27

4.3.5 Summary and key concerns about publicity initiatives

Radio and TV initiatives were those most commonly noted by participants (Table 17), were considered the most useful (Table 19) and, of the different publicity initiatives, were the most recommended (Table 20). Recommendations to improve signage numbers, quality and guidance were also made (Table 20).

Key concerns arising:-

1. Poor awareness of fire danger communication amongst international visitors
   - Few international visitors were aware of the range of alternative methods used for fire danger communication (Table 16). This was an area of need identified in improving publicity to specific groups (Table 20).

2. Shortcomings in awareness of the cartoon characters messages
   - Although small numbers were aware of fire communication slogans used on the TV almost half of the participants were unaware of the message of the

cartoon character 'Bernie' (n=58, 49%) (Table 18); even more were unaware of the messages conveyed by 'Flint and Amber', (although some of those that were aware of them thought them more directed at children than adults) (4.3.2).

- Whilst many identified that the 'Bernie' message was to alert them to identify fire danger, risk level or to 'keep it green', fewer reported that the message alerted them to a need to change their behaviour (4.3.2).
- It was concerning that the arrow placement on the 'Bernie' advert was perceived by some as an indicator of fire danger at the specific time of viewing.

3. Awareness and preference for fire danger communication methods
   - Preference for alternative communication modes was, overall, less among Canterbury participants than those in Northland. Reasons for this discrepancy are unknown (4.3.1).
   - Fire danger communications by TV and / or radio were the alternative methods most commonly cited by participants (Table 17) and also the methods reported to be most useful (Table 19). However, only about half of respondents reported awareness of such publicity (Table 17).
   - When describing most useful methods of communication 'newspapers' were ranked quite high (Table 19); however, if this medium is used (details of actual publicity methods in each region are unknown), awareness is relatively low (12%) (Table 17).
   - Even the most preferred methods have drawbacks (0), which reinforced the need to adopt a variety of information dissemination modes.

These data suggested that TV and radio were the most memorable and preferred media; there does not appear to be widespread knowledge of alternative modes in use. The message of the 'Bernie' campaign was known by only half the (adult) participants but still exceeded knowledge of the 'Flint and Amber' campaign (primarily directed at children). This appears to support the underlying preference for campaigns targeted as specific groups. Useful feedback and ideas to improve fire danger communication were provided and may be considered for future initiatives.

5 SUMMARY OF MAIN FINDINGS AND SUGGESTED INTERVENTIONS

Each area of exploration of the general public's perception of rural fire danger communications revealed both positive aspects and a variety of shortcomings.

Positive features are that:

- The majority of participants were aware of fire danger warning signs and all identified that the signs were trying to tell them either of the danger or risk of fire or need to change behaviour (4.1.3).
- When discussing the meaning of fire seasons just over three quarter of participants stated that they understood the terms 'open' and 'prohibited' fire seasons (4.2.11).
- While there was uncertainty about necessary behaviour change for each fire danger rating a reasonable number of interviewees described sample conditions that would need to be in place in their own assessment of whether or not to light four sample fire types (4.2.9).
- Raised awareness and taking more care were amongst the most cited behavioural changes in response to rating changes (4.2.10).
- TV and radio initiatives concerning fire danger were the mediums considered most useful and were also those most commonly remembered by participants (4.3.5). A variety of other useful suggestions to improve fire danger communication were proposed by participants.

Nevertheless the data also identified a range of shortcomings and these data were drawn together as 'key concerns' in the previous sections concerning:

- the sign itself (4.1.3)
- understanding of fire ratings (4.2.8)
- translating fire danger ratings into behaviour change (4.2.9)
- knowledge of fire risk and behaviour change (4.2.10)
- fire season information (4.2.11), and
- publicity initiatives (4.3.5)

In many cases these findings reinforce concerns raised through the literature review (1.1.1) and previous discussions with RFA managers (1.1.2), although there are also a few instances of unexpected outcomes. Common themes arising from collation of these data enable identification of suggested intervention needs:

Recommended Intervention 1 – Publicise risk factors for fire

Define and publicise the range of risk factors for fire.

Rationale:

- Study data indicated that, while many interviewees described themselves as being risk aware, they appeared to have a variable or inconsistent acknowledgement of activities that carry risk of fire (4.1.3, 4.2.9, 4.2.10). Study data indicated that some saw the signs directed at specific groups that light fires, rather than to themselves. A minority however, gave examples of non fire lighting activities that could create a fire risk, such as using machinery or equipment that generate heat or sparks. The limited response suggested that such risk factors and fire prone activities were not widely understood.
- RFA managers – no data.
- Literature review – no data.

Interpretation:
It is not clear whether baseline information exists for the public that defines types of activities that carry a risk of fire.

Recommended Intervention 2 - Provide guidance on expected behaviour

Provide guidance on expected behaviour and link this to the relative fire risk conveyed in fire danger signage and communication, i.e. what the public can or should not do at each level of fire danger.

Rationale:

- Study data indicated that there was widespread lack of awareness of the appropriate behaviour for each rating. Fire danger warning sign ratings are infrequently perceived as a means of guiding behaviour change. When trying to tie behaviour change to a particular rating many interviewees had to guess their answer, whereas more reported avoiding certain activities during a 'raised' fire risk (irrespective of particular ratings) (4.1.3, 4.2.9).
- RFA manager data indicated that the implication of each fire danger warning rating was unclear, that the signs did not direct the public to modify their behaviour and that they may prompt different groups to behave differently.
- The literature review identified that the behaviour expected of the public was not presented sufficiently clearly in media campaigns.

Interpretation:
The study data confirmed the concerns raised in the earlier literature review and interviews with RFA managers. Providing information through ratings of fire danger does not guide the public towards a particular behaviour change for each. In addition, findings suggested a greater range of activities avoided with a 'raised' fire risk than when tied to any specific rating.

Recommended Intervention 3 – Clarify the implication of fire danger information

Initiate efforts to clarify and simplify information relating to fire danger. This should concurrently incorporate guidance for recommended behaviour change as described in recommended intervention 1.

Rationale:

- Study data indicated that although the sign was well recognised, the rating message to the public was not clear. Whilst most considered it some form of indicator of danger, risk or hazard, there are others who saw it as an indicator of weather conditions or the likelihood of a fire getting out of control. Additionally, it was not clear that the public "saw" each rating stage with any distinction. The central three ratings seemed to carry most contradiction in attributed meaning (although there were relatively few responses) and many interviewees identified primarily with 'low' and 'extreme' (and to a lesser extent 'high'), or were more conscious of general left to right arrow movement on the sign (4.2.8).
- RFA manager data indicated that the implication of each fire danger warning rating was unclear.
- The literature review questioned whether fire danger signs were more useful to fire managers than to the public.

Interpretation:
There is uncertainty amongst the public concerning the meaning of the ratings and many attribute any meaning only to the extremes of fire danger in either direction. To a lesser extent there is acknowledgement of the central position(s) of the 'half grapefruit' sign but confusion regarding the intended meaning. Although the implication is that only three rating 'levels' are perceived by the public, the sign itself was well recognised and this aspect must be acknowledged in any potential redesign initiatives.

Recommended Intervention 4 – Create a single sign 'graphic' incorporating both fire danger and fire season information

The 'fire danger warning sign' and 'fire season' systems operate in parallel. Explore the possibility of developing and integrating the two separate methods into a single sign 'graphic'. Consider incorporating supplementary symbols to identify acceptable or prohibited activities, making any sign redesign more user-friendly and informative (irrespective of reading / language abilities). The development process will need to accommodate any statutory requirements relating to fire seasons.

Rationale:
- Study data indicated that there was limited understanding of fire permit requirements and that this system was rarely associated with fire danger warning sign communication. There were varied responses concerning expected behaviour for the 'restricted' fire season and some confusion concerning the meaning of a 'prohibited' fire season (also referred to as a 'fire ban'). Relatively few followed the publicity (radio / paper) alerting the public to the need to have a fire permit and felt that this related more to the intended activity types and locations (4.2.11). With respect to the fire danger warning sign itself, concerns were also expressed about visual ability or difficulties that might arise from poor English language skills or literacy (4.1.3).
- RFA manager data also established that danger warning sign ratings did not collate well with guidance on fire seasons.
- The literature review questioned the value of conveying information on fire danger classes to the public.

Interpretation:
There is confusion over what activities are allowed at different levels of fire danger, as well as in 'restricted' and 'prohibited' fire seasons. Information on fire danger, alone, is not guiding the public towards desirable fire prevention behaviour. The fire season information is a form of behavioural guidance, but was confusing to some. The potential to develop information on regional signage at high risk locations should be considered as relatively few interviewees followed publicity on the need to have a fire permit. The fire season information is an existing and known form of public guidance and, whilst its limitations are acknowledged, it has the potential to be developed to provide the necessary information.

Recommended Intervention 5 – Improve the sign technology, maintenance and placement

Make the sign more user-friendly, informative, relevant and visible through exploring development of its technology, maintenance and placement locations.

Rationale:

- Study data indicated that, in both regions, some people did not know or did not think that the information on the 'half-grapefruit' sign was current. Signs may be subjected to vandalism or give no indication of when the fire danger warning sign last received attention (4.1.3). Various ideas were provided for improved fire danger communication (e.g. including improving the number and location of signs) (4.3.4).
- RFA managers in each region varied in their preference for the frequency of changing the rating, but together they were also concerned about inconsistencies in messages provided when fire danger warning signs differed between or within a region. Innovative ideas (e.g. using electronic technology) were offered to increase sign accuracy.
- Literature review - no data..

Interpretation:

The findings indicated that increasing the number of signs and adopting alternative technologies would be appropriate innovations to improve the perceived relevance and visibility of the sign information.

Recommended Intervention 6 – Develop the media campaign

Develop the media campaign to target specific groups and provide guidance on behaviour change.

Rationale:

- Study data suggested that TV and radio were the most memorable and preferred media to convey fire danger information, even though only just over half the participants were aware of them. Newspapers were also described as a popular resource, yet only a limited number of interviewees were aware of any fire danger information being communicated in this way. Additionally, there did not appear to be widespread knowledge of alternative communication modes in use (especially amongst international visitors) and Canterbury participants were less enthusiastic about all types of media than those in Northland (4.3.5). The messages of the 'Bernie' campaign were known by half the participants but they were aware more of the alerting function of the advert (to 'keep it green', watch the signs and be aware of fire danger), rather than identifying a message to alter behaviour. Nevertheless this number still exceeded knowledge of the Firewise campaign ('Flint and Amber'), although it is acknowledged that this is primarily directed at children who were not included in the participant group of the study.
- RFA managers expected wide recognition of the 'Bernie' campaign, yet greater public preference or identification with the Firewise campaign. There was a call for a consistent message to be provided through one 'fire authority' with more preventative and proactive messages targeted at specific groups.
- The literature review identified that the NZ media campaigns convey a memorable and consistent image.

Interpretation:
Of all the media used it appeared that TV and radio have a monopoly on people's attention and that the alternative means used were not widely remembered (yet might be welcomed). The reason for lesser enthusiasm for different communication modes among Canterbury interviewees was unknown and requires further exploration. The 'Bernie' campaign had moderate success, but only limited number of interviewees saw it as advising behaviour change. Although the Firewise campaign was little known amongst the participant group, this may have reflected the lack of child interviewees and may support the underlying preference for campaigns targeted as specific groups. Useful feedback and ideas to improve fire danger communication were provided and may be considered for future initiatives.

An overarching feature of these recommendations is that the overall fire prevention objective would benefit from clarification of the links and distinctions between fire season status, national campaigns and the varied publicity methods.
Implementation of the recommended interventions may also have implications for national rural fire sector risk management policy and practice. Accordingly further educational work to facilitate understanding may be appropriate.
In the long term interventions affecting both fire prevention objectives and risk management processes will require a robust communications strategy accommodating all affected agencies.

The recommendations also need to be considered in the context of existing or ongoing associated research in the field of natural hazard communication, and be presented to a peer-reviewed journal. To provide greater clarification of future rural fire prevention communication needs in New Zealand, further scoping needs to be undertaken to identify more detailed data requirements on specific aspects, or from specific target groups.

6 ACKNOWLEDGMENTS

This report was financially supported by Scion's Rural Fire Research Group through funding from the Foundation for Research, Science and Technology (FRST) (Contract C04X0403) and the rural fire sector (through members of the Rural Fire Research Advisory Committee). The involvement of the individual members of the public who participated in this study is also greatly appreciated. Without their assistance and contribution this report could not have been completed. Review of the content of the report by Sioux Campbell, Senior Community Relations Officer, Department of Conservation, Northland, Rob Goldring, Manager, National Rural Fire Authority and Tony Teeling, Senior Fire Officer, Department of Conservation, is gratefully acknowledged.

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8 APPENDIX

Questionnaire for Canterbury and Northland interviews

Q1 – Have you any experience of rural fire / bushfire outside the urban areas (eg. burning-off scrub / waste, called emergency services, put out a fire)?

Q2 – Have you seen fire danger warning signs in Northland or Canterbury?
Q2a – Who do you think the signs are aimed at?

Q2b - What do you think the signs are trying to tell you?

Q2c - Are the signs kept up to date?

Q2d - Do you think anybody would have trouble understanding the sign?

Q3a – What does each of the different ratings mean?

Q3b – Would you change your behaviour for each rating?

Q4 – Which is the highest rating that you could still do these activities?

(a) Have a bonfire on the beach

(b) Have a campfire in the bush

(c) Light a fire on private rural property

(d) Use fire works

Q5 - When do you need a fire permit?

Q6 - Are there any activities that you would stop doing if fire danger went up?

Q7a - Are you aware of other information on fire danger communication (such as the news/radio)?

Q7b - What messages are provided by the cartoon characters on fire safety?
(i) Bernie
(ii) Flint and Amber

Q8 – On a scale of 1 to 5 how useful would each resource be to tell you about fire danger

	1= Not useful	2 = To a slight degree	3 = Neither useful or unuseful	4 = Fairly useful	5 = Very useful
Radio adverts					
Radio - news / weather					
Newspaper					
Magazines					
Leaflets					
TV adverts					
TV - news / weather					
School campaign					
Text message					
Website source					

Q9a – What do the terms open, restricted and prohibited fire season mean?

Q9b – Would you change your behaviour for each?

Q10 – How could fire danger communication be improved (e.g. sign style, display locations, guidance etc.)?

Demographic data

- Please circle your age range: - 16 – 24, 25 – 34, 35 – 44, 45 – 54, 55 – 64, over 65
- Gender [M/F]
- Do you live on rural land? – [Y/N] If yes, what is the land used for? ……..
- If so, how long have you lived on rural land?
- What is the approximate size of the property you live on?
- Which area do you live in? …….

Additional information:-