



THE FEBRUARY 2011 FIRES IN ROLEYSTONE, KELMSCOTT AND RED HILL

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Executive Summary

Background

On the weekend of 5 and 6 February 2011, two major bushfires devastated separate areas of the natural and built environments in the Perth metropolitan area. One of the fires took place across the suburbs of Red Hill, Herne Hill, Millendon, Baskerville and Gidgegannup (hereafter Red Hill–Brigadoon fire) (City of Swan), the other occurred in Roleystone and Kelmscott (hereafter Kelmscott–Roleystone fire) (City of Armadale). The Bureau of Meteorology had issued a Fire Weather Warning (FWW) and a Total Fire Ban (TFB) had been declared for all the fire-affected areas prior to the commencement of the fires.

Methodology

After analysis of the fire scars from the Kelmscott–Roleystone fire and Red Hill–Brigadoon fire, interviews were conducted with residents of 425 households in, around or near the fires, with all residents of interviewed households asked to take part in a household member survey. Following the interview process, an extensive questionnaire was mailed out to a random selection of 3000 residents of the affected suburbs, producing a response rate of over 30%.

Findings

Preparatory Measures

Residents engaged in a number of preparatory actions in both the lead-up to and on the day of the fire, including actions such as clearing gutters, discussing the risk with neighbours or locals, having independent power and water supplies, protective clothing and mapping out a fire plan or evacuation route. The most cited source of information used by residents for their bushfire preparation in the mail-out survey was the ‘Prepare. Act. Survive.’ pamphlet sent out by the Fire and Emergency Services Authority (FESA). During the interviews, ‘common sense’ and experience living in the community were very common responses by residents.

Associations between the number of preparatory actions per household and other factors revealed some interesting findings. Residents living on larger block sizes engaged in more preparatory measures than those on smaller block sizes. In conjunction with this, there was a significant increase in the number of actions of residents who were or had been involved in a Bushfire Ready Group (BRG). Perception of degree of threat to life and property was associated with the number of preparatory actions; a high level of threat perception was associated with a greater number of preparatory actions per household. Perception of the likelihood of a bushfire to a resident’s town or suburb did not have any association with the number of preparatory actions per household, demonstrating the importance of asking the right question.

Barriers to Preparation

Residents reported a number of barriers that prevented them from being more prepared than they would have liked to be for possible bushfire. A common response was that monetary constraints prevented households from being as prepared as they would have liked to be: “*Money. I haven’t been able to afford a generator*”. Other barriers included: finding regulations and bureaucracy too difficult to either understand or to work with; lack of time; complacency; lack of experience; age and health-related difficulties; frustration over other residents’ lack of preparation; and being in a rental situation.



Total Fire Ban and Fire Expectations

Awareness of TFB among residents was 67%; however, this wasn't always from definitive knowledge of a TFB. Residents reported a 'common sense' mentality due to prevailing weather conditions or from not knowing the difference between a fire ban and a total fire ban. Interestingly, over 60% of residents reported expecting to receive an official warning if required to evacuate, with some residents not feeling the need to independently consult official sources for further information during a bushfire.

Learning, Information and Warnings about the Fire

The majority of residents became aware of the fire through either seeing or smelling smoke, with the next most important source of information being contact from family, friends or neighbours. When seeking or receiving further information from official sources about the fire, the most accessed sources were StateAlert, ABC Radio, the FESA website, emergency services personnel and other radio stations. However, when residents were asked about the most important official source of information, only 10% of residents responded that the StateAlert was the most important.

Background

On the weekend of 5 and 6 February 2011, two major bushfires devastated separate areas of the natural and built environments in the Perth metropolitan area. One of the fires took place across the suburbs of Red Hill, Herne Hill, Millendon, Baskerville and Gidgegannup (hereafter Red Hill–Brigadoon fire) (City of Swan), the other occurred in Roleystone and Kelmscott (hereafter Kelmscott–Roleystone fire) (City of Armadale).

On the days on which these fires occurred, the Bureau of Meteorology issued a Fire Weather Warning (FWW) forecasting a severe fire danger for areas of the Lower South West, including the Perth Metropolitan area. The FWW stated, *'FESA advises that if a fire starts and takes hold it will be unpredictable, move very fast and be difficult for firefighters to bring under control'*. A Total Fire Ban (TFB) had been declared for all the areas later affected by the fires.

The fire in the City of Swan commenced around 9:00 pm on Saturday, 5 February 2011 and destroyed approximately 1000 ha of bushland. There was no loss of human life or serious injury and no homes or buildings were destroyed but there was significant damage to fencing and electrical distribution infrastructure throughout the area.

The cause of the City of Swan fire was deemed by the Fire and Emergency Services Authority of Western Australia (FESA) as accidental due to a tree branch coming into contact with conductors on electrical infrastructure, causing the resulting sparks, molten metal and embers to ignite the dry vegetation below.

The fire in the City of Armadale commenced around 11:30 am on Sunday, 6 February 2011 and burnt an area of approximately 400 ha. There was no loss of human life, although a firefighter was injured during the suppression response. This fire caused major destruction to property, with 72 homes completely destroyed and another 37 significantly damaged. There was also considerable damage to bushland, fencing and critical infrastructure including electrical distribution networks across the area, and the complete destruction of a major traffic bridge.

The cause of the City of Armadale fire was deemed by FESA as accidental due to sparks from an angle grinder igniting vegetation.

Significant resources and firefighting personnel, including the FESA Career and Volunteer Fire and Rescue Service, Volunteer Bush Fire Brigades and the Department of Environment and Conservation (DEC), were involved in containing and suppressing the fires.

In the wake of these fires, FESA commissioned the Bushfire Cooperative Research Centre (Bushfire CRC) and research partners the University of Western Australia to undertake a research project aimed at gaining a better understanding of the community response prior to, during, and after the 2011 Bushfires in the Kelmscott–Roleystone and Red Hill–Brigadoon areas through a combination of the following methods:

1. Interviews and household surveys with community members ($n = 420$) in and around the fire-affected areas; and
2. A mail-out questionnaire targeting 3000 households in areas near the fire-affected areas.

Both methods collected information on preparedness, warnings and attitudes.

The aim of the project was to provide information on:

- individual awareness of and preparation for bushfire in these areas;
- individual expectations of and responses to bushfire messages and warnings; and
- individual behaviours and decision-making on the day of the fire event.

Methodology

Community Interviews and Household Surveys

Geographic Sampling

Kelmscott–Roleystone

Using maps of the Kelmscott–Roleystone fire provided by FESA, along with a list of properties damaged and destroyed as a result of the fire, distinct areas where residents were directly affected by the fire were charted. On the basis of the mapped area, interviewers approached residents living in properties within the fire scar and in areas close to the fire scar, as well as close to damaged or destroyed properties impacted by embers some distance away from the fire scar (see Appendix 6 and Figure 1).

Red Hill–Brigadoon

Through analysing the fire scar from the map on the FESA website, several streets were identified that were suitable for interviews within the suburbs of Red Hill, Herne Hill, Millendon, Baskerville and Brigadoon. This included a boundary between William Street and Haddrill Road and houses east of Moore Road. Interviews were also conducted further east on Weir Road (including Abraham Close and Daniel Place) to Joshua Mews (see Appendix 6 and Figure 2).

Gidgegannup

The sampled area of Gidgegannup was 4.8 km from the ignition point and not under threat. Using a map of the Gidgegannup area, streets were selected that were close to the fire scar of the Red Hill–Brigadoon fire and could have been affected if the fire had headed in a different direction. On the northern side of Toodyay Road, the area targeted was bordered on the west by O'Brien Road, including those streets coming off O'Brien Road (Burgess Road, Gogulger Stock Route) and bordered on the east by Chandler Loop and Old Coach Road, including those streets. On the southern side of Toodyay Road, the streets targeted were east of Strawberry Hill Drive and west of Richmond Road and Brompton Heights (see Appendix 6 and Figure 3).

Data Collection

An interview protocol was developed with the goal of addressing a set of themes specified *a priori* by FESA. The interview protocol was also based on the protocol used after the 7 February Black Saturday Victorian bushfires to enable comparisons with results from this study. In most cases, the two goals were congruent.

Appendix 1 shows the interview protocol used in the field. Interviewers were encouraged to ask additional probing questions to elicit further information. Although the interviews were recorded on a digital voice recorder (where the participant agreed), to facilitate the timely reporting of data, an interview checklist that complemented the interview protocol was developed. The interview checklist is shown in Appendix 2.

During the data-collection process, trained interviewers went door to door introducing themselves and asking residents to take part in an interview. Prior to commencing the interview, all participants were informed that the interview was voluntary and confidential and that no identifying information would be used in any report written about the study. All interviews were conducted by two interviewers. While one interviewer conducted the interview, a co-interviewer completed the relevant sections of the interview checklist as responses were obtained.

Some residents were unavailable for an interview at the time of the visit. When residents were at home but did not have time for an interview, an attempt was made to establish a future interview time. This was achieved either by booking residents in for a pre-arranged interview appointment or by providing residents with a flyer containing the contact information for the project field co-ordinators. When appointments were made for future interviews, a contact name and phone number was requested from the future interviewee so that these individuals could be phoned to confirm the interview.

When residents were not home, a flyer was left in their letterbox inviting them to contact the project field co-ordinators if they were interested in participating in an interview. Addresses visited were recorded by interviewers to ensure that residents who did not want to take part (4–5% of total houses visited) or houses already interviewed were not visited on multiple occasions.

Owing to the hot weather and conditions of working door-to-door, investigators' physical needs (e.g. lunch, sunscreen) and resources (e.g. equipment and forms) were provided for at a central base location.

When interviews were scheduled, the interview team assigned to the interview was instructed to cease door-knocking at least 45 minutes prior to the appointed time to ensure they could attend the appointment. If an interview ran over time, preventing the assigned team from attending the scheduled interview, the field supervisor was contacted, enabling sending another team to administer the interview or to contact the interviewee to explain the situation and potential delay.

Given the problems with civilians entering the fire-affected areas to look at the destroyed houses and the distress this caused residents, effort was put in to identify interviewers and field supervisors as individuals with legitimate reasons for being in the area. At least one

member of each interviewing team was required to wear a high-visibility vest identifying them as a researcher and the other member was required to wear a Bushfire CRC shirt. Interviewers were instructed to only enter properties that they felt were safe.

After the interview, each household was also provided with one or more household surveys to complete (see Appendix 4). The interviewee was provided the 'Household Member 1' survey while any other household members were provided the 'Household Member 2' survey. The survey was either completed by the interviewee immediately after the interview and taken by the interviewers, or was left with the household with a reply-paid envelope and mailed to the research team.

Timeframe

In the Kelmscott–Roleystone area, interviews were conducted over 22 days. During this time, over 1000 households were approached and 303 interviews were undertaken (response rate 29.1%). A small number of residents declined to participate in a recorded interview but were still willing to speak with the interviewers. As a result, a post-interview checklist was completed for these, providing an additional four households.

In the Red Hill–Brigadoon area, interviews were conducted over 10 days. During the first morning, approximately 200 flyers were dropped into residents' mail-boxes. Interviewers reported that this flyer drop facilitated approaching residents, as they were already aware of the research being conducted in the area. Over the 10-day long data-collection period in the Red Hill–Brigadoon area, 173 households were approached, resulting in 65 interviews (response rate of 37.6%).

Interviews were also conducted in the Gidgegannup area over 7 days. During the data-collection period, 242 households were approached, resulting in 53 interviews (response rate 21.9%). The individuals living in this area were not directly affected by the fire; however, this area provided a sample of individuals who could have been impacted by the Red Hill–Brigadoon fire had the wind changed direction on the day of the fire. Gidgegannup is an area prone to bushfires and provides a different demographic to the other two regions making it worthy of comparison and contrast in regards to bushfire preparation and response.

Overall Sample

Table 1 provides a summary of the composition of the interviews and the locations where they were conducted. Since the samples are very large for the type of research that was undertaken, the final results are expected to be representative of behaviours and attitudes of the broader populations from which they are drawn. It should also be noted that there are important qualitative differences between the three samples:

- The Kelmscott–Roleystone area comprises a mix of small and medium-sized urban blocks. As noted above, this area was substantially affected by the fire.
- The Red Hill–Brigadoon area is mostly rural and was directly affected by the fire; however, there was minimal property damage.
- The Gidgegannup area, which is mostly rural and comprises fairly large properties, was not directly affected by the fire, but could easily have been affected.

Figure 1, Figure 2 and Figure 3 show maps of the three areas that were targeted for the interview component of the project. Figure 4 shows where these three areas are in relation to the Perth central business district.

Table 1. Number of post-interview checklists, interviews and addresses visited during the data collection period for each area.

	Post-interview checklist	Interviews	Addresses visited
Kelmscott–Roleystone	307	303	1041
Red Hill–Brigadoon	65	65	173 (plus flyer drops)
Gidgegannup	53	52	242 (plus flyer drops)
Total	425	420	1456

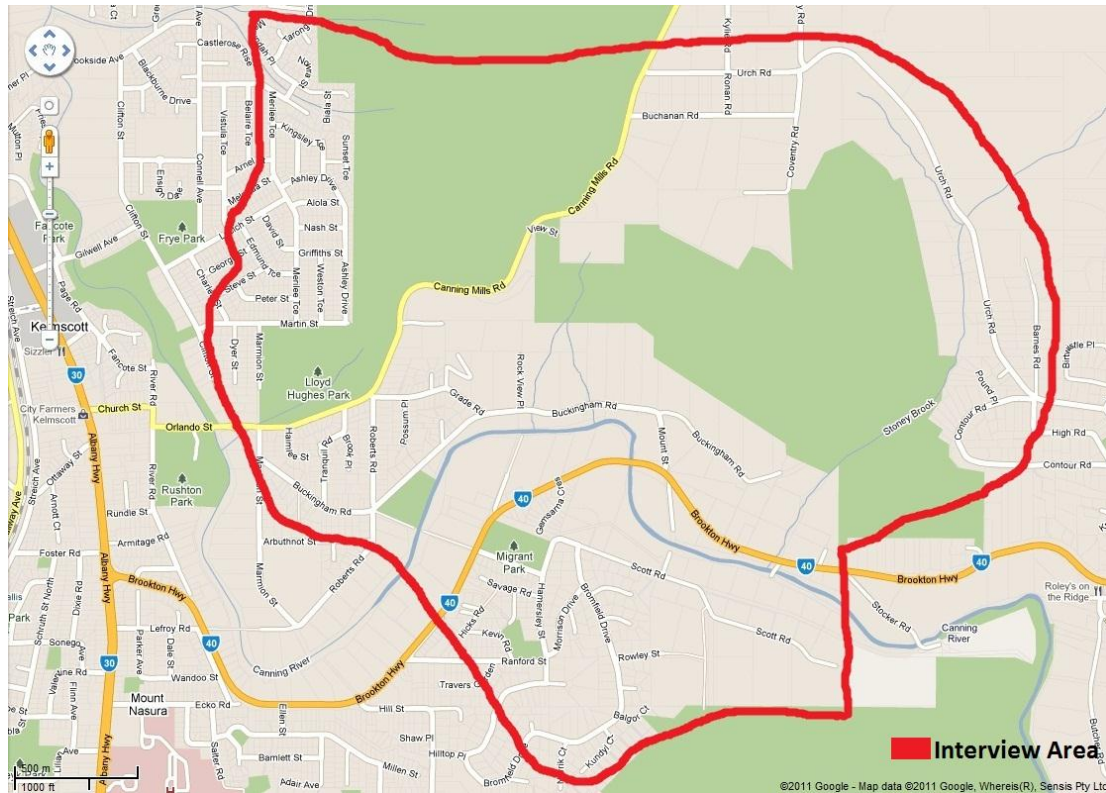


Figure 1. Sampling area in Kelmscott–Roleystone.

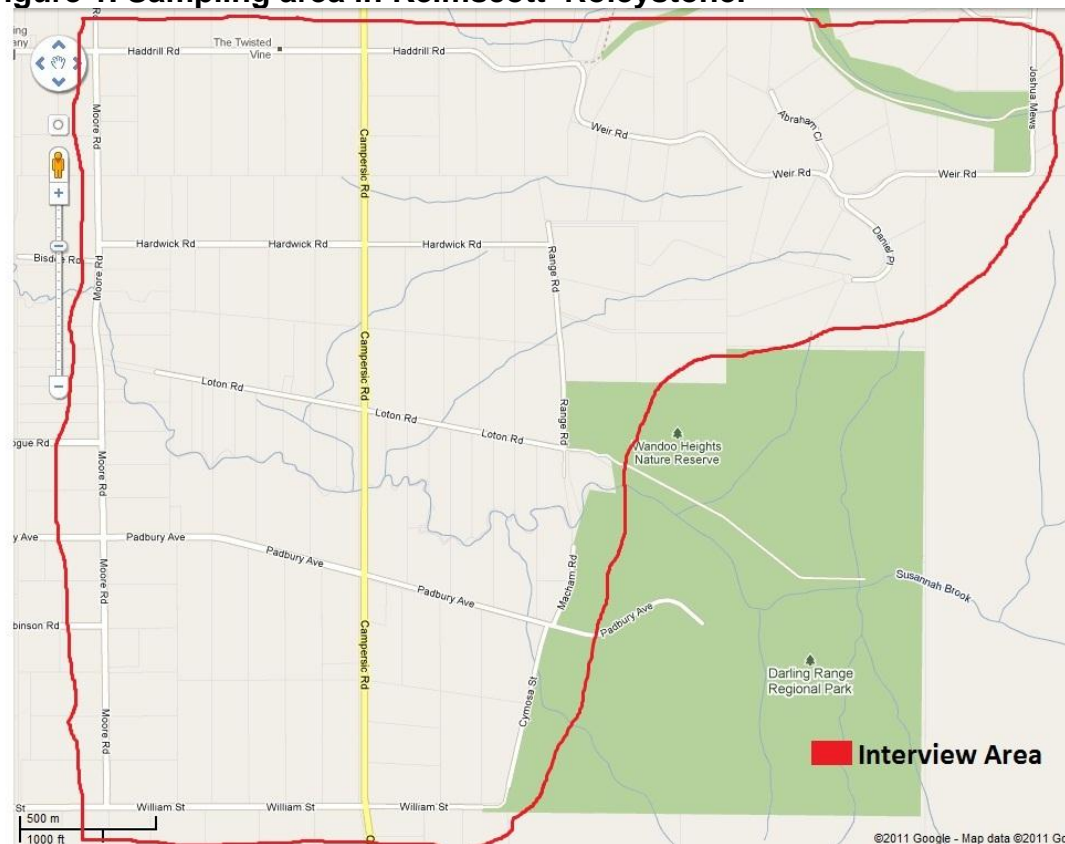


Figure 2. Sampling area in Red Hill–Brigadoon.



Figure 3. Sampling area in Gidgegannup.

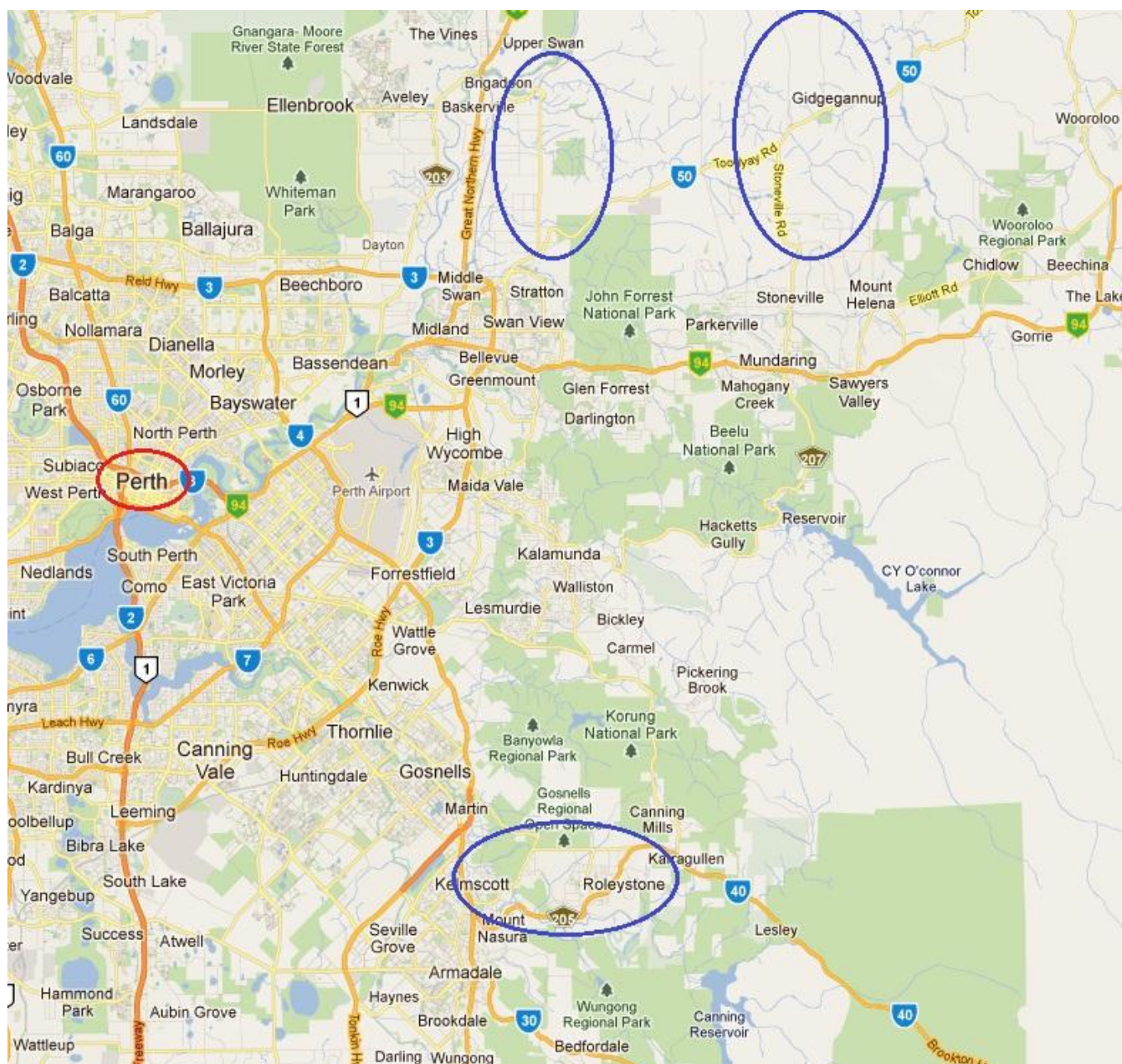


Figure 4. Sampling areas (blue circles) in relation to the Perth central business district (red circle).

Mail-out Questionnaires

Sampling Demographics

A total of 3000 questionnaires were mailed out. The proportion of the total questionnaires sent to each region reflected the relative population of each region. Kelmscott–Roleystone has approximately 2.93 times the combined population of the Red Hill–Brigadoon and Gidgegannup areas combined.

Kelmscott–Roleystone: 2115 questionnaires were mailed to the Kelmscott–Roleystone area using addresses provided by the Armadale City Council.

Red Hill–Brigadoon and Gidgegannup: 885 questionnaires were mailed out to the Red Hill–Brigadoon and Gidgegannup area. These were mailed to residential addresses that listed their suburb as Baskerville, Brigadoon, Gidgegannup, Herne Hill, Millendon or Red Hill selected from a pool of addresses provided by the Swan City Council.

Data Collection

The questionnaire was developed with the goal of addressing a set of themes specified *a priori* by FESA along with a goal of enabling some comparisons with results from the similar study conducted after the 7 February Black Saturday Victorian bushfires. Appendix 5 shows the questionnaire that was sent to households. Upon receiving the questionnaire, respondents had the option of completing the paper questionnaire they received in the mail and then returning it in the provided reply-paid envelope, or they had the option of completing the questionnaire online at:

<http://www.psychology.uwa.edu.au/research/bushfire>.

Timeframe

The questionnaire was sent out with a request that it be completed within the next 7 days. A reminder letter was sent out to each address 10 days later requesting that the questionnaire be completed. Data was entered from all questionnaires that were received up to 5 weeks after the surveys were initially mailed out.

Overall Sample

Based on the postcodes provided by 1032 respondents, 685 (66%) of mail-out questionnaires were completed by residents of the Kelmscott–Roleystone area, 139 (13%) were completed by residents of the Red Hill–Brigadoon area and 118 (11%) were completed by residents of the Gidgegannup area. The remaining 90 respondents did not provide postcodes or provided postcodes that were outside these areas, likely reflecting their home address when they live between multiple properties (see Table 3).

Summary of Findings

Analysis of Data

Analysis of data has been broken down into the two main collections methods: community interviews and associated household surveys, and the mail-out questionnaire. The mail-out questionnaire was created after the interviews and allowed for many additional questions to explore summary findings from the interview process. The questions asked during the interview process and the questionnaires were designed to be used across multiple research projects. For this reason, a certain subset of analyses were conducted that are specific to the scope of this research project. In particular it should be noted that the material collected on 'worries' and 'feelings' (identified as part of the household member survey in Appendix 4) are not addressed in this study but will be incorporated into future Bushfire CRC project work. It is also important to note that the sampled area of Gidgegannup was 4.8 km from the ignition point and not under threat. For this reason, some graphs do not have the information from Gidgegannup as it was not deemed relevant to particular questions.

Furthermore, respondents of the mail-out questionnaires did not always answer all questions. Missing postcode information led to the creation of the other/unspecified area or region which included postcodes that fall outside the fire affected areas (most likely the result of the owner of multiple properties), or where no postcode information was given. Discrepancies in the difference between total respondents and other information (e.g. gender) are usually the result of a respondent not answering that particular question.

Demographics

General Demographic Data

Community Interviews and Household Surveys

A total of 347 questionnaires were completed by residents of the Kelmscott–Roleystone area, 229 of which were Household Member 1. In the Red Hill–Brigadoon area, 58 surveys were completed, 39 of which were Household Member 1, and in Gidgegannup 53 surveys were completed, 40 of which were Household Member 1. Demographic information was obtained from these questionnaires and is provided in Table 2. As can be seen from Table 2, over half of respondents were employed, and over 90% in each sample were the owner of their property on the day of the fire. The disabilities that respondents listed included asthma, chronic depression, heart problems, lung problems, panic disorder, Parkinson's disease and epilepsy.

Table 2. Demographic information of participants in interviews and household surveys

	Kelmscott– Roleystone	Red Hill– Brigadoon	Gidgegannup
Total respondents	347	58	53
Gender			
Male	44.09	39.66	47.06
(n)	(153)	(23)	(24)
Female	55.91	60.34	52.94
(n)	(194)	(35)	(27)
Age			
Average years (SD)	52.75 (15.32)	53.41 (12.91)	55.13 (13.25)
Years in community			
Average years (SD)	17.98 (14.08)	16.74 (12.86)	12.28 (9.51)
Employment status			
Employed	55.94	66.52	58.49
Not employed	13.04	12.07	11.32
Retired	31.01	22.41	30.19
Type of residence			
Owner	93.95	91.38	96.23
Renting – family household	4.90	8.62	1.89
Renting – share house	0.86	0.00	1.89
Disability	15.94	8.62	18.87
Experience in Emergency Services	12.57	18.97	17.64

Note: SD = standard deviation

Mail-out Questionnaires

Demographic information collected from the mail-out questionnaires is shown in Table 3 and Table 4. Approximately 95% of respondents owned their property and approximately 97% of respondents lived at their property on a full-time basis. There was only a handful of respondents ($n = 3$) who did not live on their property at the time of the fire. The largest proportion of respondents had lived at their property for over 21 years and over 40% of respondents had lived within the community for over 21 years.

Table 3. Demographic information from respondents to the mail-out questionnaires.

Values in the cells show the percentage of respondents that fit into that category, values in parentheses indicate the number of respondents who fit into that category.

	Kelmscott– Roleystone	Red Hill– Brigadoo n	Gidgegannu p	Other/ unspecified	All regions
Total respondents	66.38 (685)	13.47 (139)	11.43 (118)	8.72 (90)	100 (1032)
Gender					
Male	39.47 (266)	44.12 (60)	54.70 (64)	43.33 (26)	42.15 (416)
Female	60.53 (408)	55.88 (76)	45.30 (53)	56.67 (34)	57.85 (571)
Age (years)					
18–24	1.17 (8)	1.44 (2)	1.71 (2)	0.00 (0)	1.20 (12)
25–34	7.33 (50)	4.32 (6)	3.42 (4)	5.00 (3)	6.31 (63)
35–44	14.81 (101)	17.99 (25)	19.66 (23)	6.67 (4)	15.33 (153)
45–54	22.43 (153)	28.78 (40)	29.06 (34)	25.00 (15)	24.25 (242)
55–64	27.71 (189)	28.06 (39)	24.79 (29)	33.33 (20)	27.76 (277)
65–74	20.38 (139)	11.51 (16)	16.24 (19)	20.00 (12)	18.64 (186)
75+	6.16 (42)	7.91 (11)	5.13 (6)	10.00 (6)	6.51 (65)
Type of residence					
Owner	94.11 (639)	99.28 (138)	98.28 (114)	93.85 (61)	95.30 (952)
Renting – family Household	5.15 (35)	0.72 (1)	0.86 (1)	6.15 (4)	4.10 (41)
Renting – share house	0.29 (2)	0.00 (0)	0.00 (0)	0.00 (0)	0.20 (0)

Table 4. Demographic information from respondents to the mail-out questionnaires.

Values in the cells show the percentage of respondents that fit into that category, values in parentheses indicate the number of respondents who fit into that category.

	Kelmscott– Roleystone	Red Hill– Brigadoo	Gidgegannu p	Other/ unspecified	All regions
n					
Time spent on property					
Full-time	99.56 (676)	96.40 (134)	89.74 (105)	93.94 (62)	97.60 (977)
Part-time	0.15 (1)	1.44 (2)	4.27 (5)	4.55 (3)	1.10 (11)
Do not live on property	0.29 (2)	2.16 (3)	5.98 (7)	1.52 (1)	1.30 (13)
Years lived on property					
0–5 years	22.71 (154)	27.54 (38)	23.64 (26)	25.00 (16)	23.64 (234)
6–10 years	21.98 (149)	24.64 (34)	26.36 (29)	20.31 (13)	22.73 (225)
11–20 years	21.83 (148)	18.84 (26)	32.73 (36)	20.31 (13)	22.53 (223)
21+ years	33.48 (227)	28.26 (39)	16.36 (18)	32.81 (21)	30.81 (305)
Do not live on property	0.00 (0)	0.72 (1)	0.91 (1)	1.56 (1)	0.30 (3)
Years lived in suburb					
0–5 years	16.05 (109)	25.36 (35)	24.56 (28)	15.87 (10)	18.31 (182)
6–10 years	16.49 (112)	23.91 (33)	24.56 (28)	19.05 (12)	18.61 (185)
11–20 years	21.80 (148)	18.12 (25)	31.58 (36)	12.70 (8)	21.83 (217)
21+ years	45.66 (310)	32.61 (45)	19.30 (22)	52.38 (33)	41.25 (410)

Representativeness of Demographic Sample: Age

Data collected from the community interviews and mail-out questionnaire was compared with available statistics from the Australian Bureau of Statistics (ABS). Using the age categories as defined by the ABS, we can see that the sample collected through both the interviews and the mail-out questionnaire is quite representative of the general population. The age group of 15-24, is underrepresented in both samples which is possibly due to our policy of seeking out the homeowner for an interview rather than their children. This could also provide the explanation for greater proportion of respondents in the older age categories.

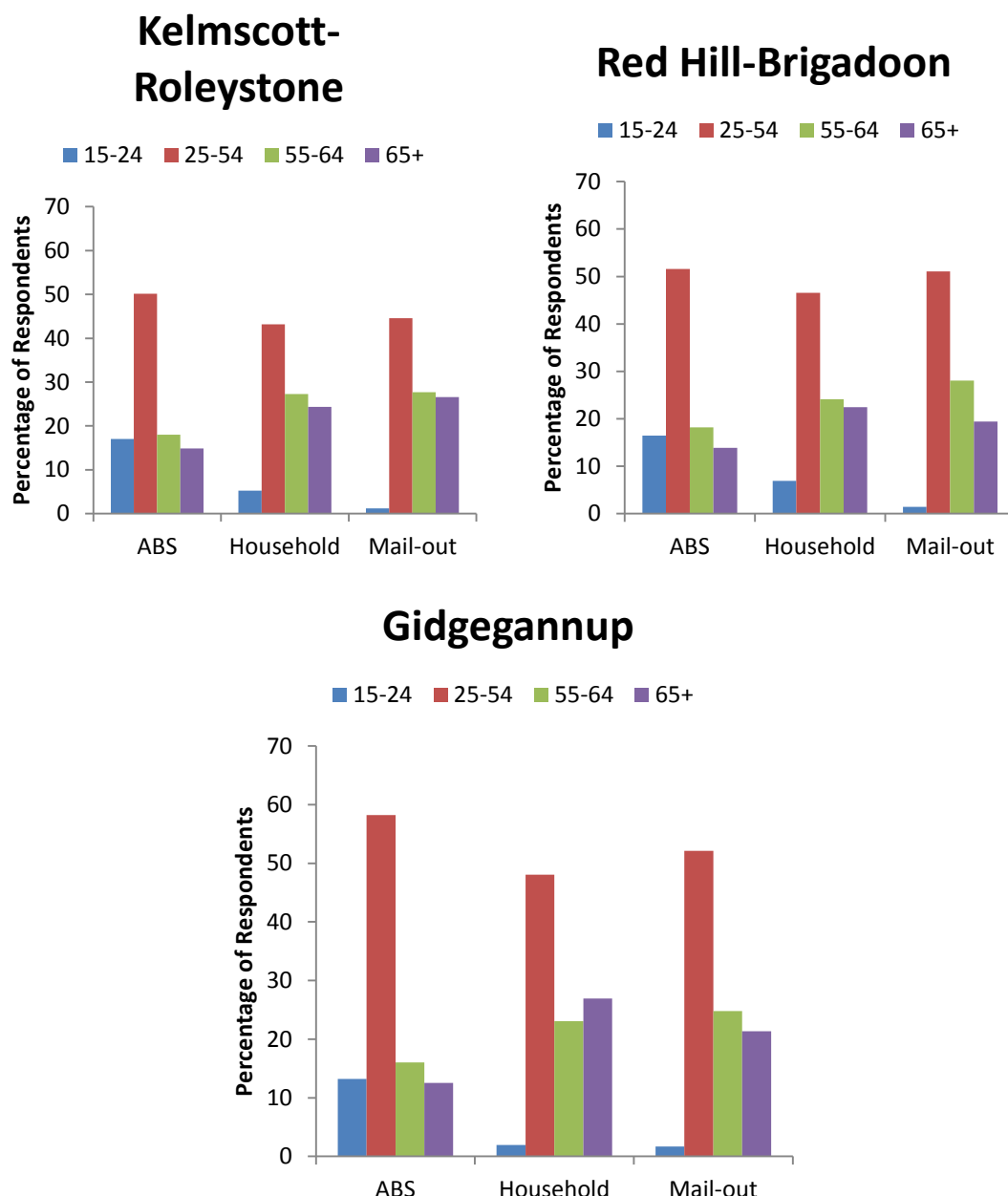


Figure 5. Age demographics comparison with Australian Bureau of Statistics data across each region.

Representativeness of Demographic Sample: Employment

Employment statistics from the community interview household survey and the ABS are very similar. In the household surveys there is a greater proportion of not employed individuals compared to the ABS which could largely be attributed to the fact that some interview canvassing took place on weekdays during business hours.

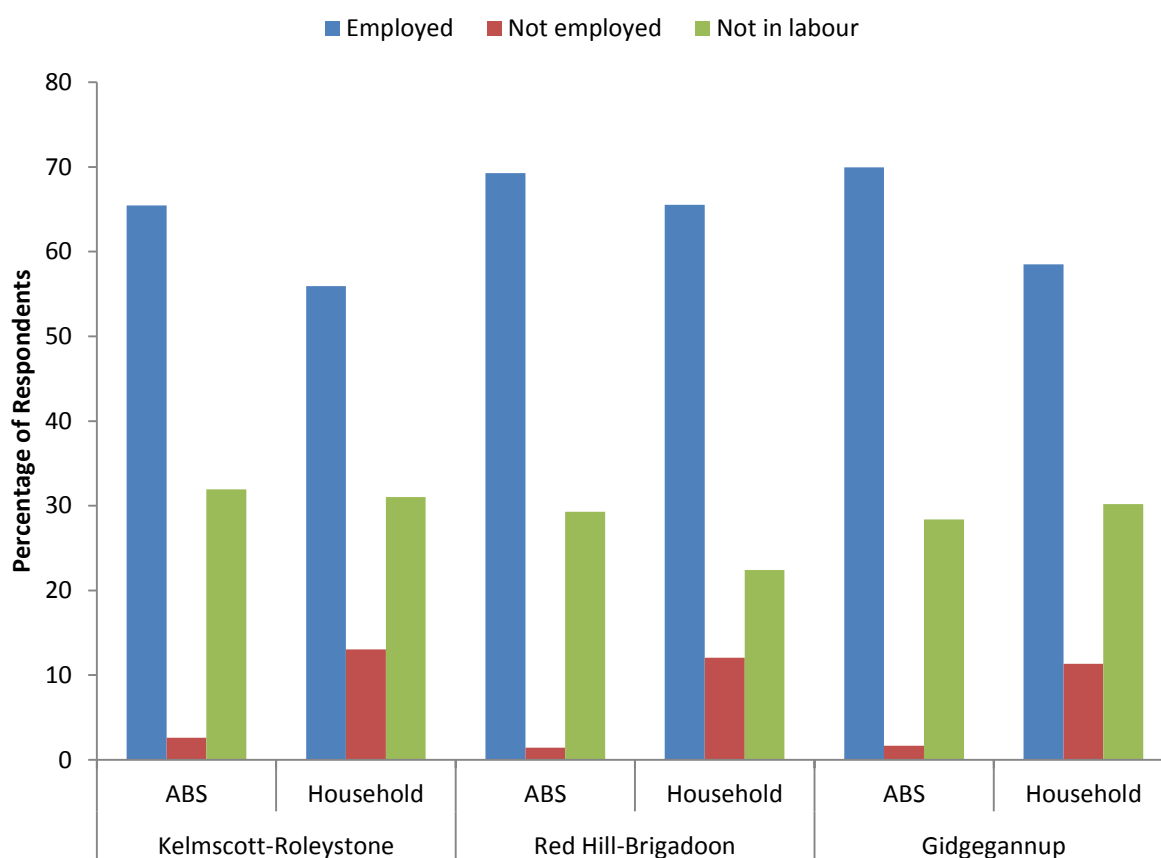


Figure 6. Employment demographics comparison with Australian Bureau of Statistics data across each region.

Representativeness of Demographic Sample: Home ownership

Home ownership statistics from the community interview household survey and the ABS are similar. In the census data indicates that the sample of renters for both the mail out and household interviews slightly is slightly lower than general present in this community. This difference is not considered significant and may be attributed to a change in home ownership patterns in the area since the census was completed 5 years ago.

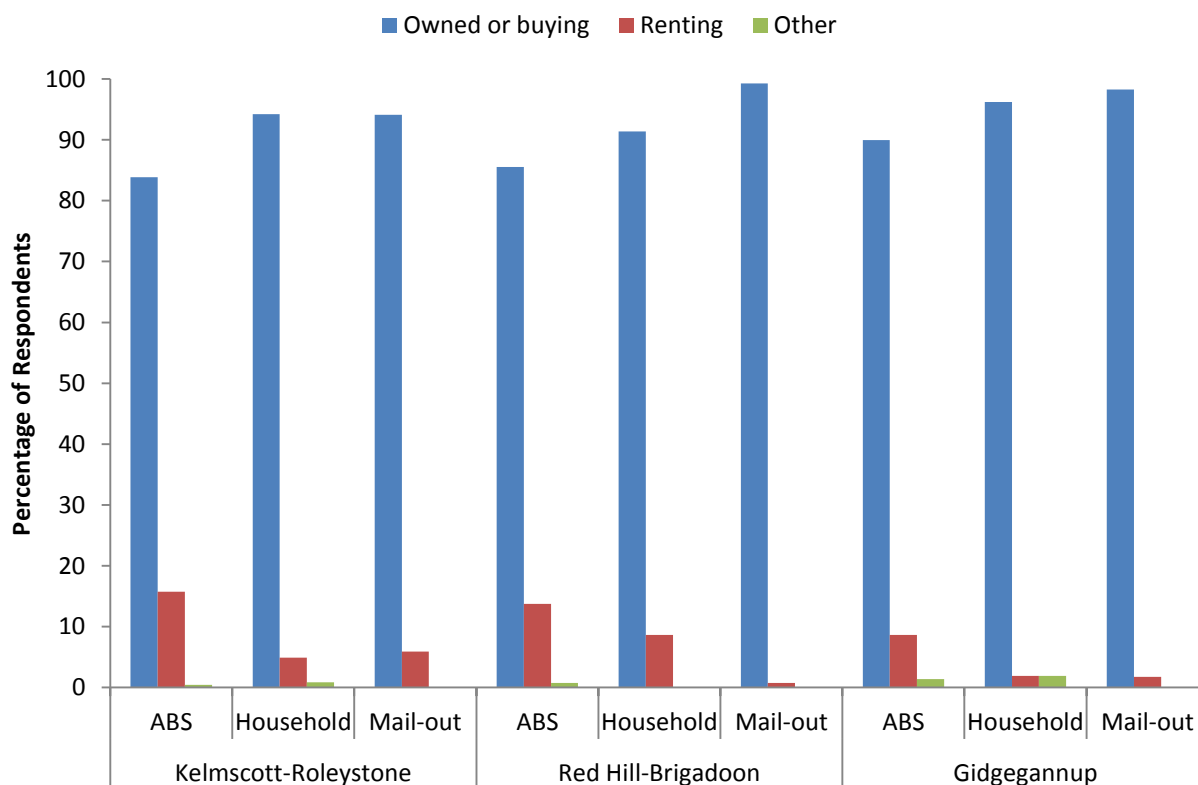


Figure 7. Home owner demographics comparison with Australian Bureau of Statistics data across each region.

Bushfire Ready Group

Bushfire Ready Groups are community-based action groups facilitated by FESA and local government.

Mail-out Questionnaires

Respondents were asked if they were currently or had ever been a member of a Bushfire Ready Group (Figure 8). Approximately 90% of respondents reported that they had never been a member of a Bushfire Ready Group, though when considering only Gidgegannup, this percentage fell to 77%, indicating that membership of Bushfire Ready Groups varies between Council areas and also within Council areas. For example, the City of Swan incorporates both Gidgegannup and the Red Hill–Brigadoon area.

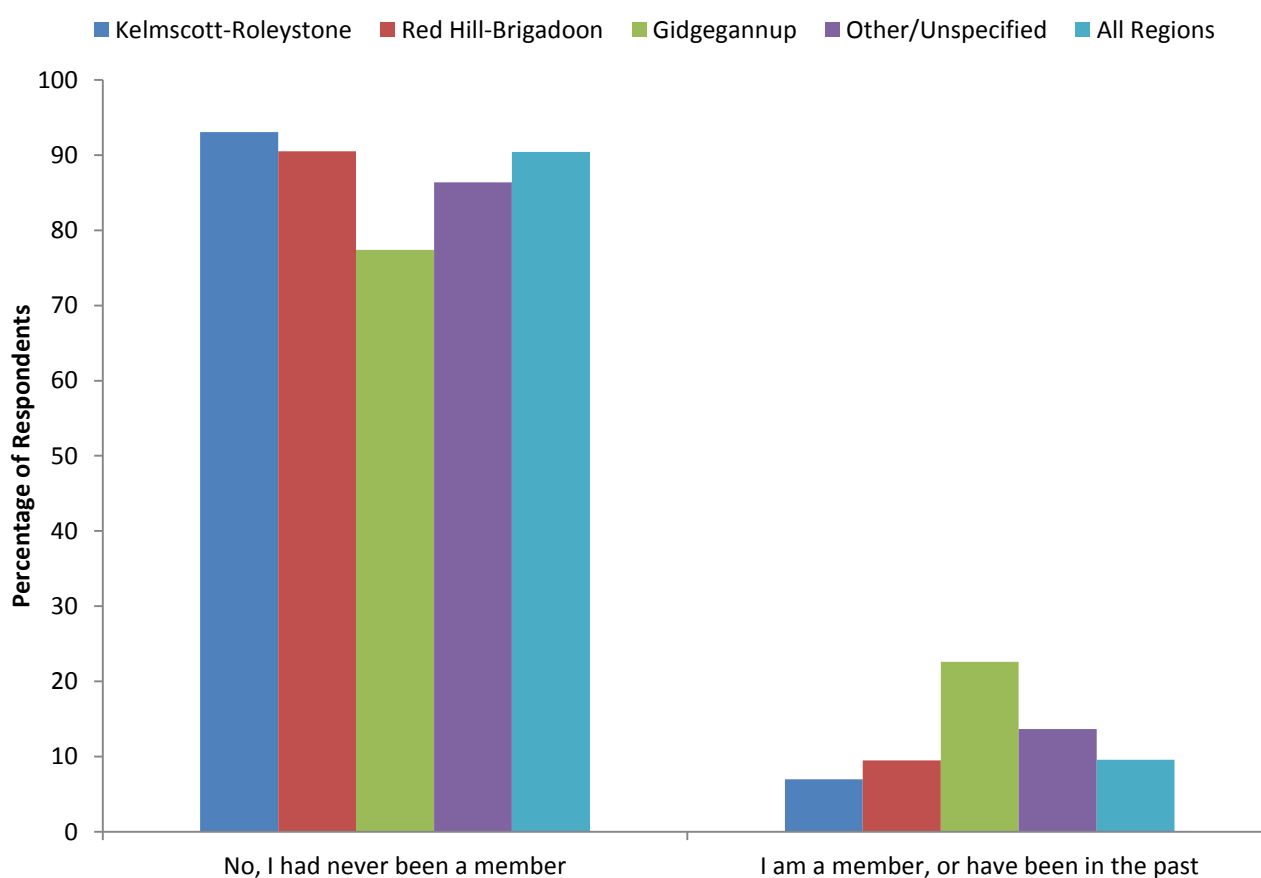


Figure 8. Percentage of respondents from each area that were a member of a Bushfire Ready Group, had been a member in the past or had never been a member.

Experience in Emergency Services

Community Interviews and Household Surveys

Interviewees were asked whether they had previous experience in emergency services and 13% ($n = 43$) of residents in the Kelmscott–Roleystone area, 21% ($n = 12$) of residents in the Red Hill–Brigadoon area and 18% ($n = 9$) of residents in Gidgegannup indicated that they had previous experience in emergency services. The experience individuals had in emergency services included as a volunteer firefighter, St John Ambulance paramedic, and in the police force and armed forces.

Mail-out Questionnaires

Respondents were asked if they were registered or had ever been registered in emergency services either as a paid employee or as a volunteer (Figure 9). Overall, approximately 4% of respondents were currently registered with the emergency services, and within the Gidgegannup area, this number rose to 15.5%. When we look at past and present membership, the numbers rise to almost 30% in Gidgegannup, but only a little over 5% in both Kelmscott–Roleystone and Red Hill–Brigadoon.

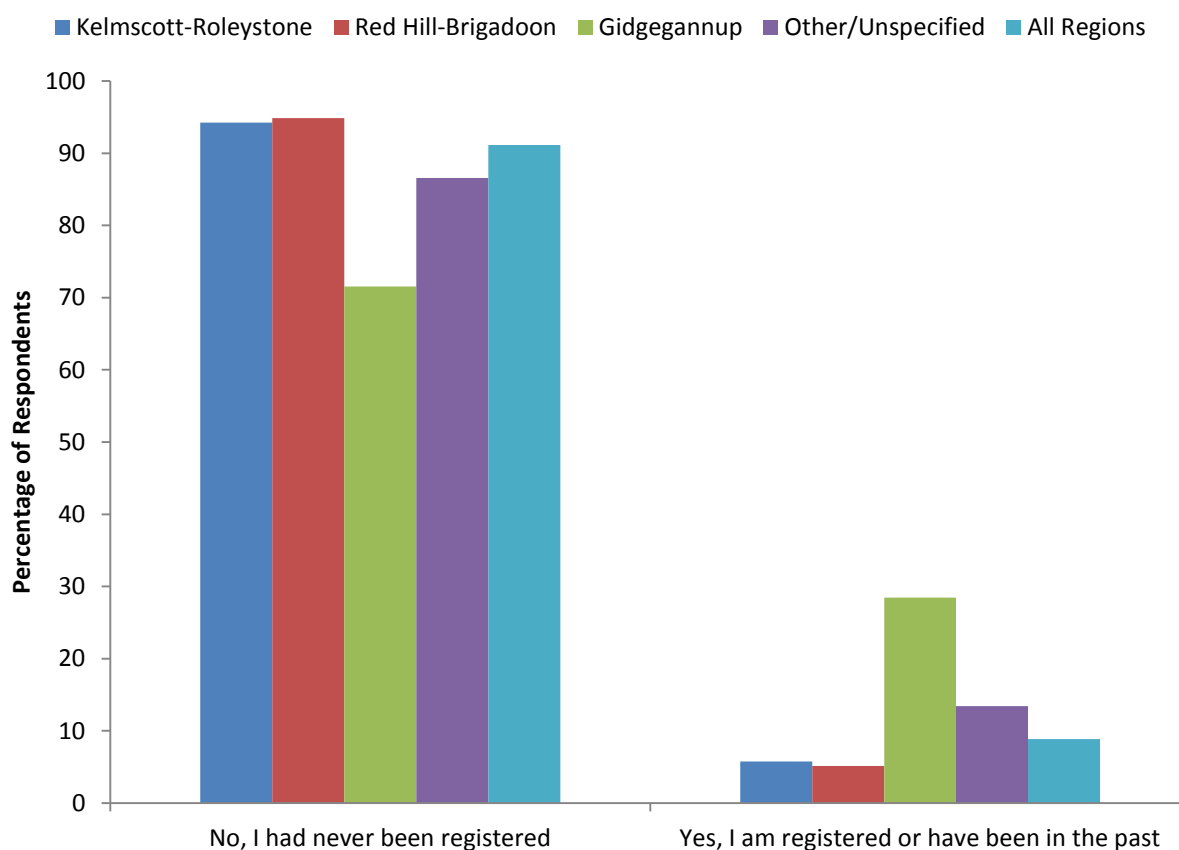


Figure 9. Percentage of respondents who had experience in the emergency services.

Household Composition

Community Interviews and Household Surveys

In the Roleystone-Kelmscott area, information was gathered about the composition of the household on the day of the fire from 283 households. Of these 283 households, 23 of them did not have anybody present on the day of the fire. Children were present in 56 households and the average number of children present was 1.8 (range: 1–5). Twelve households had elderly or disabled residents present on the day of the fire and two households had only individuals under the age of 18 present. The average number of adult residents present in the household on the day of the fire was 2.14 (range: 1–6) and 258 households had at least one adult present.

In the Red Hill–Brigadoon area, information was gathered about the composition of the household on the day of the fire from 64 households. Sixteen households had children present, with an average of 2.2 children present (range: 1–4). At least one adult was present in each of the 64 households, with an average of 2.3 (range: 1–7).

In the Gidgegannup area, information was gathered about the composition of the household on the day of the fire from 48 households. There was nobody present at 11 of the households. Ten households had children present, with an average of 2 children per household. There was at least one adult present in 36 households, with an average of 2.1 adults per household (range: 1–7).

Mail-out Questionnaires

General information on household composition was collected through the mail-out questionnaire (see Table 5). This is not specific to the household members that were present on the day of the fire, but rather the general daily composition of the household.

Approximately 40% of households were couples without children or other dependents and approximately 35% of households were couples with children or other dependents. What is interesting to note is that in Red Hill–Brigadoon, the number of households of couples with children is 10% higher than the general average. Only slightly more than 3% of households were a single adult with children or other dependents.

Table 5. Household composition of those households responding to the mail-out questionnaire.

	Kelmscott– Roleystone	Red Hill– Brigadoo n	Gidgegannu p	Other/ unspecified	All regions
Couples without children or other dependents	41.80%	35.03%	40.35%	44.61%	40.88%
Couples with children or other dependents	33.08%	45.9%	38.59%	27.69%	35.14%
One-person household	13.58%	9.48%	10.52%	21.53%	13.19%
Shared house with other adults	5.61%	5.10%	4.38%	3.07%	5.23%
One adult with children or other dependents	4.43%	1.45%	2.63%	1.53%	3.62%
Other	1.47%	2.91%	3.50%	1.53%	1.91%
Total respondents (n)	677	137	114	65	993

Insurance

Community Interviews and Household Surveys

Residents were asked to indicate their perception of their level of insurance on the day of the fire (Table 6). The majority of residents in each area indicated they felt they had sufficient insurance for their property on the day of the fire and none of the respondents from the Red Hill–Brigadoon area or in Gidgegannup indicated that they did not have insurance on the day of the fire.

Table 6. Percentage of residents from each area who indicated they had sufficient insurance, were under-insured or were not insured on the day of the fire.

Insurance	Kelmscott– Roleystone	Red Hill– Brigadoon	Gidgegannup
Sufficient	82.16	79.63	90.20
Under-insured	16.37	20.37	7.84
Not insured	1.46	0	0

Mail-out Questionnaires

The majority of people (approx. 90%) had house and contents insurance, with the more rural areas of Red Hill–Brigadoon and Gidgegannup showing a respective increase in insurance of both outbuildings and farm insurance, such as livestock and machinery (See Table 7).

Table 7. Type of insurance households had on the day of the fire for their property.

	Kelmscott– Roleystone	Red Hill– Brigadoo	Gidgegannu p	Other/ unspecified	All regions
	n				
House and contents	92.04%	89.93%	89.74%	86.36%	91.10%
House only	2.95%	2.88%	2.56%	4.55%	3.00%
Contents only	2.80%	0.72%	0.00%	3.03%	2.20%
Outbuildings (e.g. sheds)	9.14%	24.46%	43.59%	16.67%	15.80%
Farm insurance (e.g. livestock, machinery)	1.47%	20.86%	29.91%	12.12%	8.20%
None	2.21%	1.44%	3.42%	7.58%	2.60%
Total respondents (n)	677	137	114	65	993



Attitudes towards Bushfires

Discussion of Fire Safety

Community Interviews and Household Surveys

Residents were asked to indicate the frequency with which they discuss fire safety within their household on the following scale: Not at all (scored as 1); A little (2); Moderately (3); Quite a bit (4); All the time (5). Residents in Kelmscott–Roleystone had an average of 2.72 (SD = 1.00), residents in Red Hill–Brigadoon had an average of 3.26 (SD = 1.03), and residents in Gidgegannup had an average of 3.60 (SD = 0.86). Statistical analyses showed the differences in the frequency of fire safety discussions to be significant, indicating that residents from Gidgegannup discuss fire safety within their household more frequently than those in Red Hill–Brigadoon, who in turn discuss fire safety more frequently than those in Kelmscott–Roleystone.

Perception of Likelihood of Bushfire

Mail-out Questionnaires

The mail-out questionnaires asked residents to rate how likely they thought it was that a bushfire could occur in their town or suburb using the following scale: Very unlikely (scored as 1); Unlikely (2); Likely (3); Very likely (4) (Figure 10). Residents in Gidgegannup seemed more inclined than residents in either Red Hill–Brigadoon or Kelmscott–Roleystone to believe that there was a high chance of bushfires in their town. The mean responses in all regions were all between 3 and 4, however, indicating that residents in all areas generally considered that a bushfire was, at least, likely to occur in their area.

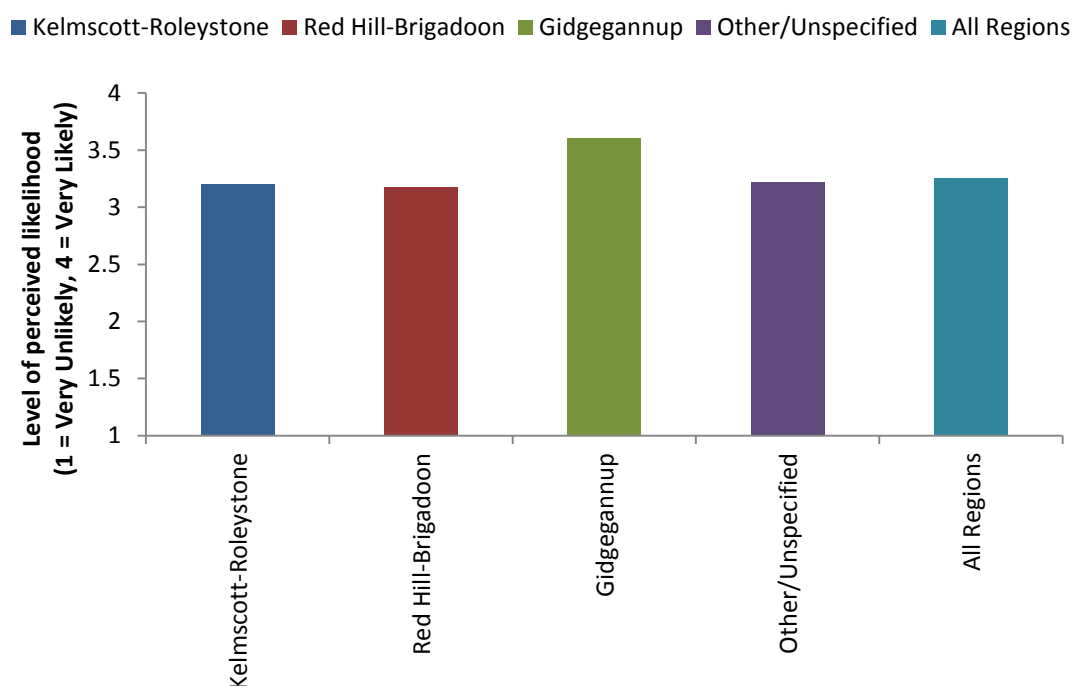


Figure 10. Residents' average rating of the likelihood that a bushfire would occur in their town or suburb.

Perception of Threat of Bushfire

Mail-out Questionnaires

The mail-out questionnaires asked residents to rate how significant they thought the threat of bushfire to life and property was in their suburb or town using the following scale: Very low (scored as 1); Low (2); High (3); Very high (4) (Figure 11). Residents in Gidgegannup rated the threat of bushfire as slightly higher than residents in Red Hill–Brigadoon or Kelmscott–Roleystone.

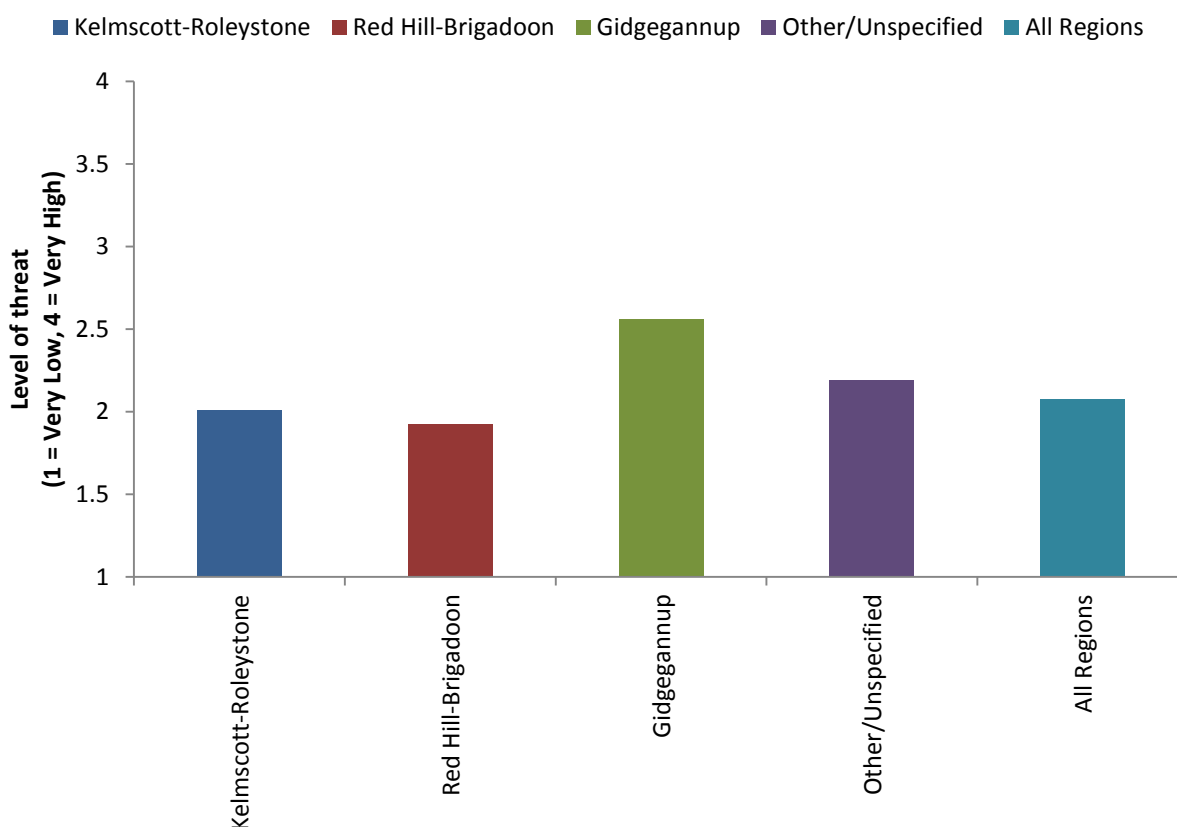


Figure 11. Average rating of level of threat of a bushfire by residents in each area.

Information and Warnings about Bushfires

Mail-out Questionnaires

Residents were asked whether they expect to receive official warning if there is a bushfire in their town or suburb. Figure 12 shows that over 60% of respondents do expect to receive official warning of bushfire in their town or suburb.

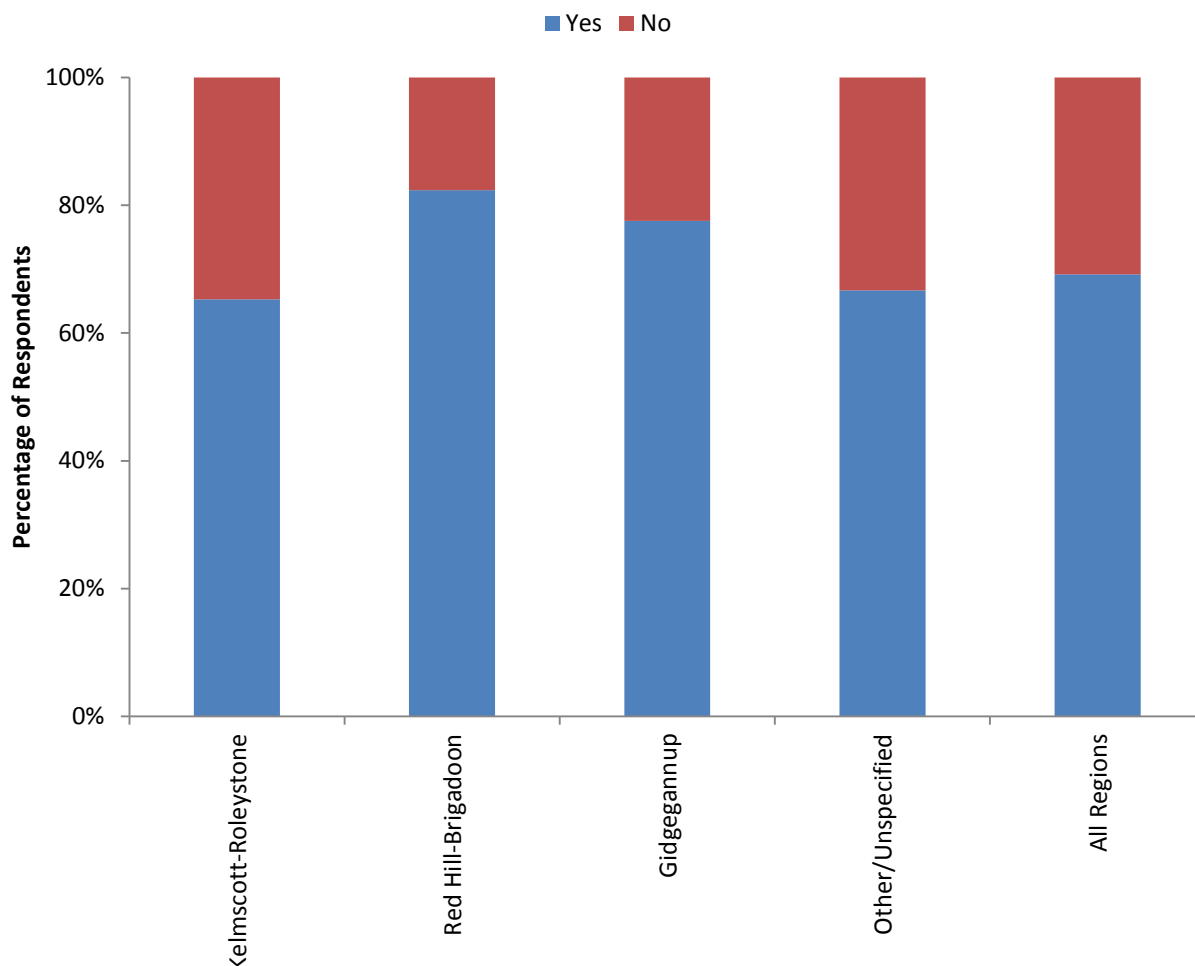


Figure 12. Percentage of respondents who expect to receive an official warning if there is a bushfire in their town or suburb.

Community Interviews and Household Surveys

Residents in the interviews reflected the sentiments of the mail-out survey with some residents implying that they would not even take action until they received an official warning.

“Did not consult anything except FESA website as expected an official warning if needed.”

“Expected and was waiting for state wide alert which was not received till 2 hours after we evacuated.”

Action on the Day of the Fire

Community Interviews and Household Surveys

Households were asked about their general actions on the day of the fire, and these are tabulated and shown in Table 8. In the Roleystone-Kelmscott and Red Hill–Brigadoon areas, there were a number of ‘Other’ responses which produced a few consistent responses such as: households evacuated by police or firefighters after having stayed to defend for some time (three in each area); households in which the wife (and children) left early while the husband either stayed to defend, or stayed longer and then left later (seven in Kelmscott–Roleystone, one in Red Hill–Brigadoon); households in Kelmscott–Roleystone reported that they wanted to stay and defend but were ordered to leave their property by emergency services personnel or police; and finally, in Red Hill–Brigadoon, one household evacuated the horses on the property, then returned to the property to wait out the fire.

In the Gidgegannup area, there were 13 households where the resident was not home just by chance when the fire began, and there was one household where the residents left well before a fire might have impacted. There were 38 households that did not respond directly to the fire as they were not under threat by the fire because it was moving away from their properties. The majority of these people reported that once they became aware of the fire, they monitored it using the radio, TV and internet, and also by watching the smoke and noting the direction of the wind.

Table 8. Number of respondents who reported their general actions on the day of the fire.

	Kelmscott– Roleystone	Red Hill– Brigadoon	Gidgegannup
Not at home, just by chance	38	0	13
Left well before fire impact	104	22	1
Not at home – deliberate decision based on fire danger weather	0	0	0
Successful attempt to defend home	56	25	0
Unsuccessful attempt to defend home	0	0	0
Left just in time	84	14	0
Took last-resort shelter	0	0	0
Evacuated by authorities	3	0	0
Some stayed to defend, others left	7	2	0
Not affected by the fire	1	0	38

Damage to Homes and Property

Community Interviews and Household Surveys

Of the sample of 307 households interviewed in the Kelmscott–Roleystone area, 295 of them reported no damage due to the fire, nine of them sustained damage to either the house or the property and three interviewees had their residence completely destroyed by the fire. There were no houses damaged in the Red Hill–Brigadoon area. There was no damage to property in the Gidgegannup area as the fire did not reach this area.

In the Kelmscott–Roleystone area, 51 households reported fire-related damage to structures other than the main house, including sheds, fences and garages. In the Red Hill–Brigadoon area, seven households reported fire-related damage to structures other than the main house and this was largely fencing.

Preparation and Planning

Level of Preparation for Bushfire

Community Interviews and Household Surveys

Interviewees were asked to describe the activities they had undertaken to prepare their house in case of possible bushfire (Figure 13). The most commonly undertaken preparatory actions were maintaining a clear space around the home and clearing gutters. Residents in the Kelmscott–Roleystone area reported engaging in an average of 2.5 preparatory actions per household (range: 0–8). Residents in the Red Hill–Brigadoon area reported engaging in an average of 4.3 preparatory actions per household (range: 0–8). Residents in the Gidgegannup area reported engaging in an average of 5.7 preparatory actions per household (range: 0–11). The differences in these numbers are significant, indicating that there are community-related differences in the number of preparatory actions undertaken in case of bushfire. Further analyses indicated that there was a significant relationship between block size and number of preparatory actions undertaken, wherein households with larger properties had undertaken a greater number of preparatory actions.

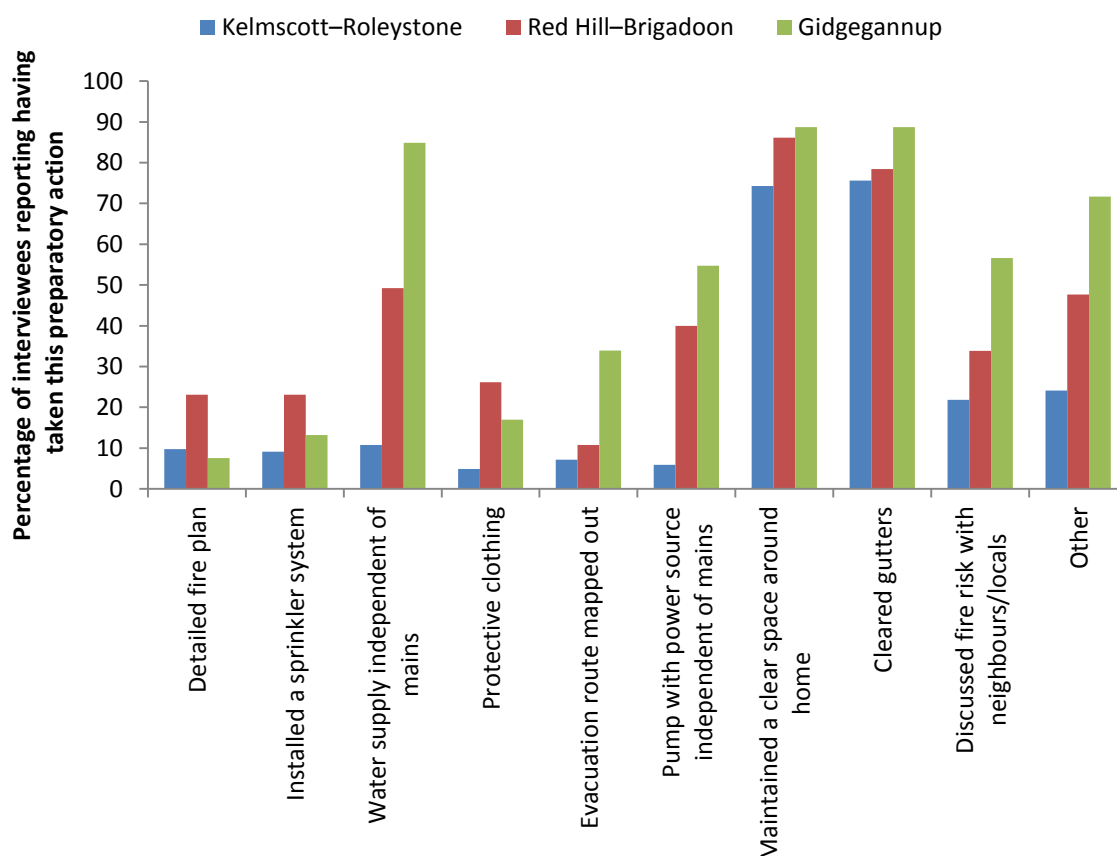


Figure 13. Overview of preparatory actions undertaken prior to the bushfire in February 2011.

Bars represent the percentage of interviewees in Kelmscott–Roleystone, Red Hill–Brigadoon and Gidgegannup areas who reported having performed that particular preparatory action.

Observation of Figure 13 shows that residents in Gidgegannup were more likely to have: a water supply independent of mains, an evacuation route mapped out and discussed fire risk with their neighbours or locals in the community. Residents in the Red Hill–Brigadoon area were more likely to have a detailed fire plan and a sprinkler system.

The ‘other’ responses included maintaining fire breaks around the property ($n = 44$), conducting controlled burns around the property ($n = 23$), having firefighting equipment ($n = 19$), having firefighting hoses ($n = 16$), and having fire-resistant plants such as succulents around the house ($n = 8$).

Mail-out Questionnaires

Respondents to the mail-out questionnaire were also provided with a list of possible preparatory actions (see Appendix 5, p. 97) their household might have undertaken in order to prepare for bushfire. To be more specific than in the interview, respondents were asked to indicate whether they had undertaken that action *prior* to February 2011. As can be seen in Figure 14, households in Gidgegannup endorsed more actions on average than Red Hill–Brigadoon, and households in the Kelmscott–Roleystone area endorsed the lowest average number of preparatory actions.

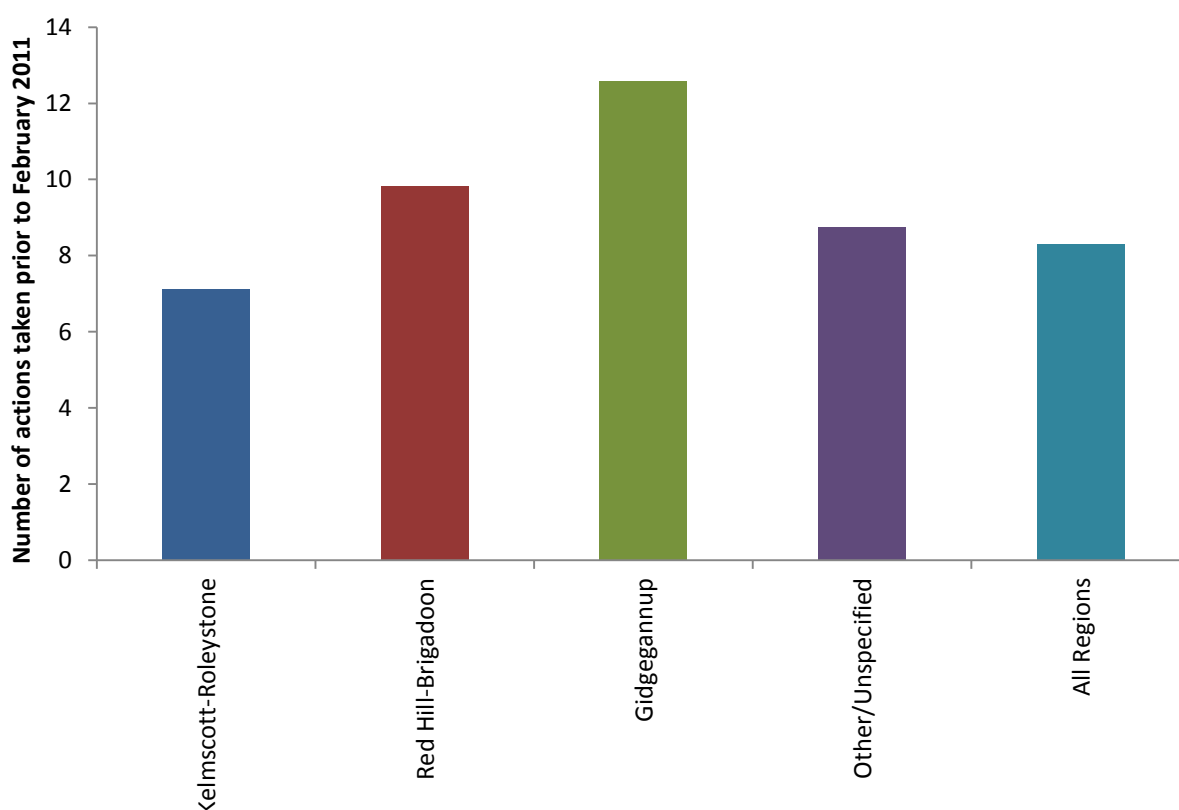


Figure 14. Average number of preparatory actions undertaken by households in each area prior to February 2011.

Past Experience with Bushfires

Community Interviews and Household Surveys

Interviewees were asked whether they had past experience with bushfires. Across all regions, 67% of interviewees indicated that they had either been directly involved with, or in the vicinity of, a bushfire at some point in their past (See Figure 15). Residents in Red Hill–Brigadoon and Gidgegannup were much more likely to have had experience with bushfires than residents of Kelmscott–Roleystone. Of the 67% of interviewees that had encountered bushfires in the past, only 62% indicated that this experience had impacted their preparation and planning for a future bushfire. As can be seen in Figure 16, past experience with bushfires had a much greater probability of influencing future preparedness for the residents of Gidgegannup (81%), than on those in either Red Hill–Brigadoon (72%), and Kelmscott–Roleystone (55%).

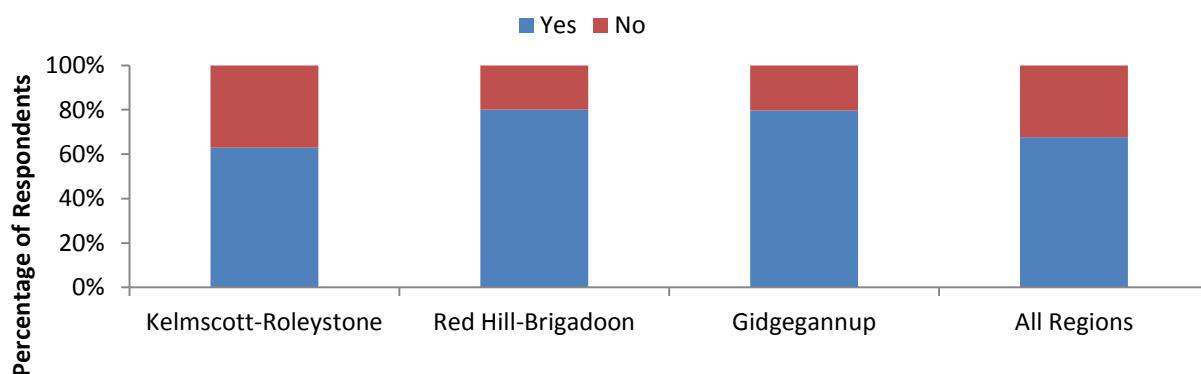


Figure 15. Interviewees indicating past experience with bushfires.

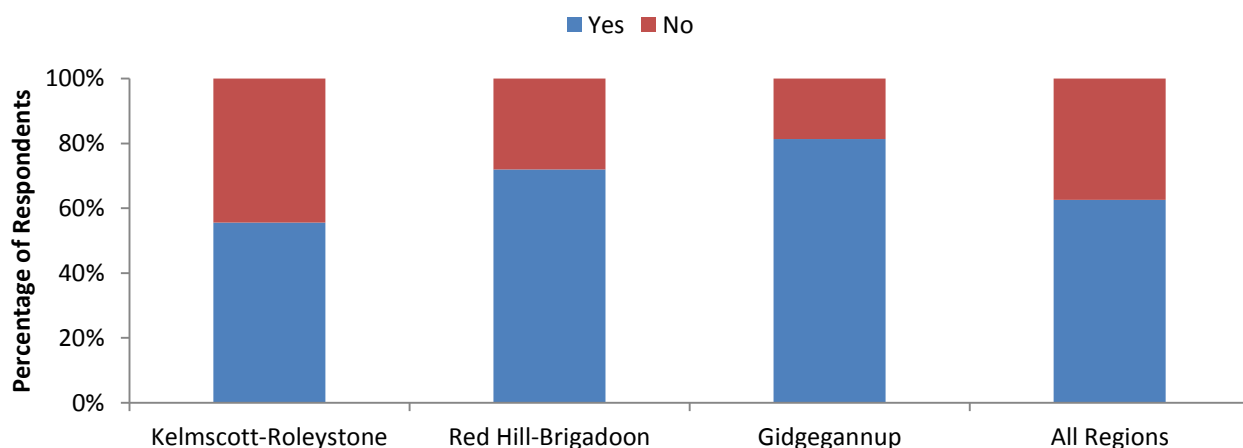


Figure 16. Interviewees indicating whether past experience with bushfires affected planning and preparation for future bushfires.

Barriers to Being More Prepared

Mail-out Questionnaires and Community Interviews

Respondents to the mail-out questionnaire were asked if there were any particular issues that prevented them from being more prepared than they were for possible bushfire. A common response was that monetary constraints prevented households from being as prepared as they would have liked. This was consistent with the findings from the interviews as the following quotes from both the mail-out questionnaires and interviews demonstrate:

“Money. I haven’t been able to afford a generator.”

“Cost of buying extra equipment.”

“Fitting more sprinklers and removing more trees would cost to [sic] much.”

“Cost of purchasing generator, pump, roof top sprinkler system, gutter shield.”

Some respondents reported that regulations and bureaucracy made it difficult for them to conduct controlled burning on their property with the intention of reducing the fuel load to reduce the severity of bushfires impacting their property:

“The need to obtain paperwork for a control burn – was a hurdle that wasn’t jumped due to the time required to do it.”

“Controlled burns too difficult.”

“The restrictions on controlled burning over the winter months makes it VERY hard to get leaf litter and undergrowth burning done in the amount of days where you are allowed to have a fire, it is not raining and are not at work i.e. burning on Sundays and public holidays should be allowed as most people only have the weekends and holidays to do this. There should be days when you can just burn without having to call 3 authorities get agreement/notify all neighbours, etc.”

Some residents also reported that they were frustrated by and less motivated to put preparatory measures in place owing to neighbours and Shires not properly maintaining their properties or conducting controlled burning to reduce fuel load. Residents perceived both as increasing the risk of bushfire-related damage to their own property. The issue of people not clearing their properties was amplified by Shires not reinforcing the maintenance of properties:

“Resident to East of our home had prepared and maintained a safe yard. Resident to our west has not removed leave from their yard for years. They have rubbish/leaves piled up against front fence and up their yard in the proximity of the fence. If City of Armadale had carried out inspections as they reckon they have these should have been removed.”

"It is all very well to prepare one's home and land in case of fire but if neighbours and councils and CALM [sic] etc. do not clear their blocks/verges, public open spaces/river reserves etc. then we are all stuffed."

"We have spent many thousands of dollars to make our property safe but some neighbours and the Shire refused to prepare. Our two main escape routes were blocked very early because verges had not been maintained and the Shire officers refused to 'encourage' neighbours to maintain their blocks satisfactorily. We kept banging our heads on the belief that 'it will never happen' ... our hard work would not protect us from their lack of preparedness."

"I live in a suburban style home/block close to National Park. The Park needs build up of fuel burn offs. Hasn't been done for greater than 10 years."

Respondents also indicated that lack of time, complacency, lack of experience and underestimating the severity of possible bushfire threat also played a role in their lack of preparation for bushfires, as shown in these quotes:

"Both people in the home work away so don't have much time."

"Complacency, didn't think it could happen in our suburb."

"Just did not get around to it."

"Lack of firsthand experience and little education regarding fire preparedness."

"Haven't got around to doing all the things that need to be done."

"Not putting in the time to do it."

There was only a very small proportion of respondents who reported that they lived in a rental property rather than a property that they owned. However, some respondents reported that the fact they were renting did affect their preparation for bush fires. Reasons included lack of clarity regarding who is responsible for implementing the preparedness measures and paying for them, responsibility being attributed to the landlord, and lack of financial means:

"The situation is unclear if you are renting, who is responsible for preparing the house and garden?"

"Home is a rental so more focus on my family and our important documents rather than protection of the house. The cost would be prohibitive of installing many of these actions for a tenant and landlords would not install unless a refund or rebate was available."

"I rent my house so do not do all of the things listed above as most are for the landlord to do."

"As it was a rental we could not afford to hire people to make our yard and house fire safe."

Some residents reported difficulties due to their age, living alone, not enough time, or living with someone with a disability:

"I live on my own and didn't have the help."

"Being solely responsible for looking after 1/2 acre and not enough hours in a day to get all the jobs done."

"Age and health."

"Carer for husband with dementia."

"Husband has Parkinson's and can't walk well".

Others perceived that the trees and bushland are one of the positive aspects of the area they live in and, as a result, do not wish to clear them, as this quote illustrates:

"If you were to remove all the combustible plant life 20–30 metres from our house, our property would have next to no trees/plants whatsoever. One of the reasons for choosing to live in this area is the fact that we live amongst the trees. Any negative concerns we have regarding the risk of losing our material possessions to a bushfire pale in comparison to the pleasure and enjoyment we gain from living amongst the trees and plants."

Perception of Preparedness

Mail-out Questionnaire

Respondents were also asked to rate their own perception of how prepared their household was for the possibility of future bushfire using the following scale: Very low (scored as 1); Low (2); Average (3); High (4); Very high (5) (Figure 17). The preparedness rating of residents in Red Hill–Brigadoon and Gidgegannup was higher than that of residents in Kelmscott–Roleystone. This difference matches with the relative number of preparatory actions residents in each of the three areas had undertaken.

Residents were also asked whether they would have liked to be more prepared for bushfire than they were. Almost 75% of residents indicated that they would have liked to be more prepared but factors such as time, money, lack of knowledge and difficulty of implementation impeded them.

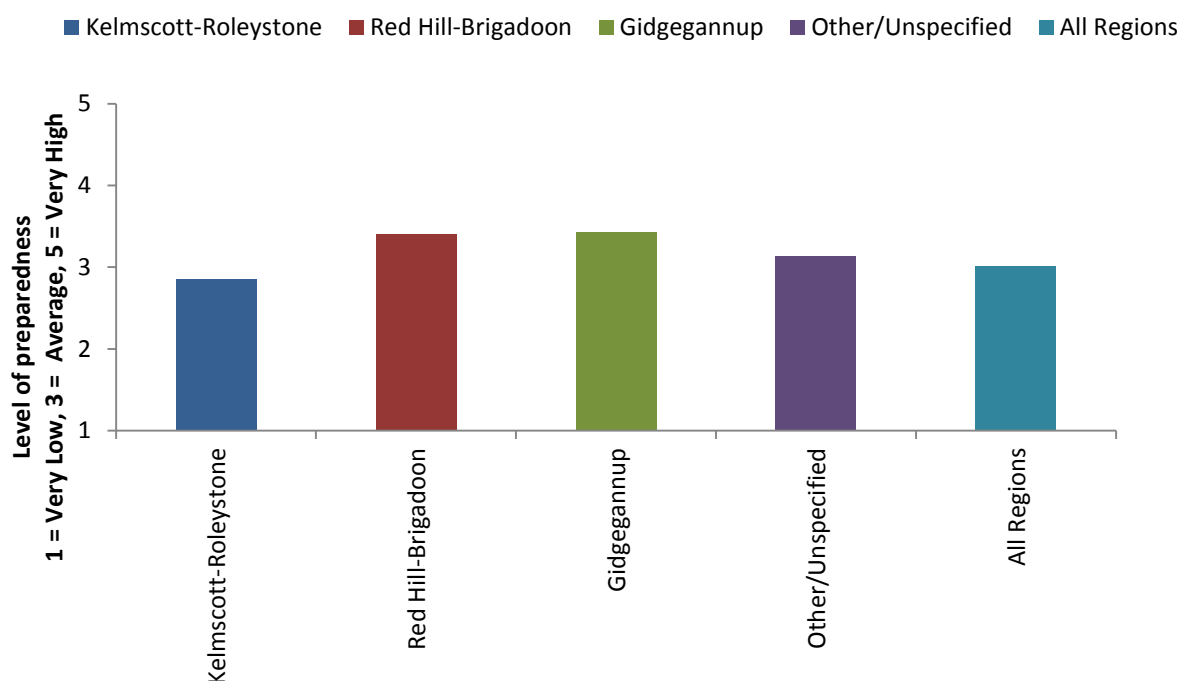


Figure 17. Residents' average rating of their level of preparedness.

Factors Associated with Preparation

Community Interviews and Household Surveys

Examining the combined post-interview check-list data and the household survey data revealed that 48 individuals indicated they had experience in the emergency services, and these individuals had engaged in an average of 3.6 preparatory actions, while the 250 individuals without experience in the emergency services engaged in an average of 3.0 preparatory actions.

There appeared not be any clear relationship between the length of time that individuals had resided within the community and the number of preparatory actions they had engaged in.

There was a small but significant relationship between the level of worry that individuals experienced about bushfire as measured by the worry domains questionnaire and the number of preparatory actions they engaged in. Those people who were more concerned about the possibility of bushfire engaged in more preparatory actions.

Mail-out Questionnaire

There are many factors that may influence the level of preparedness of residents in bushfire-prone areas. Through the mail-out questionnaire, it was possible to explore factors such as membership in Bushfire Ready Groups, differences across regions, property size and perceived threat from bushfires.

Bushfire Ready Group

Mail-out Questionnaire

Membership in the Bushfire Ready Group (BRG) appears to be one factor relating to how prepared individuals are. Households who have a member in a BRG engage in significantly more preparedness measures than households that do not (Figure 18). Thus increasing membership in BRGs in fire-prone areas should increase the community's preparedness for bushfires.

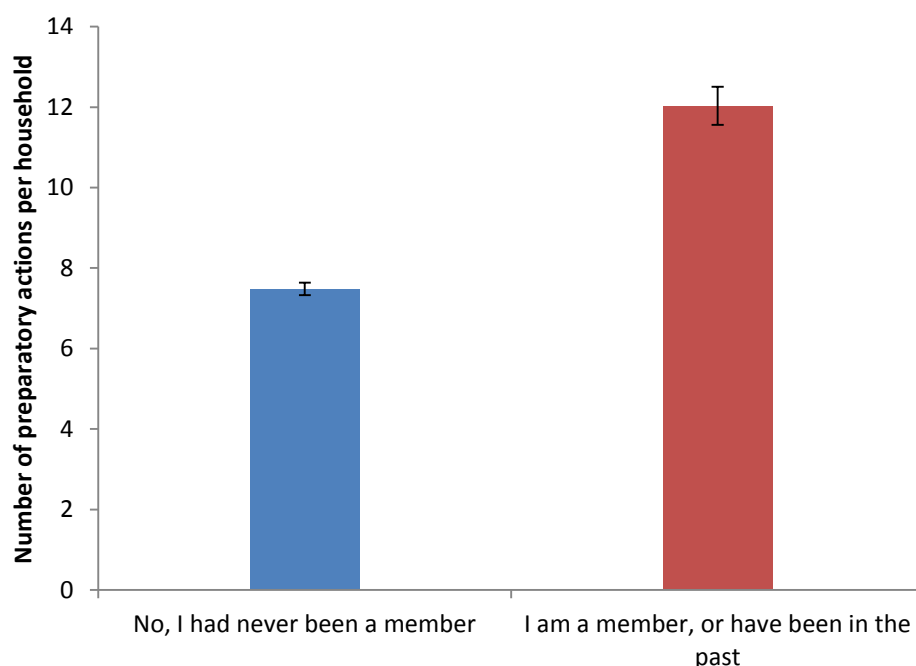


Figure 18. Number of preparatory actions taken per household by residents who did or did not have membership in a Bushfire Ready Group. Bars represent Standard Error of the mean

Region or Suburb

Mail-out Questionnaire

There was a significant difference in the average number of preparatory actions undertaken per household in each of the three areas (Figure 19). Households in Kelmscott–Roleystone engaged in an average of 6.76 preparatory actions, households in Red Hill–Brigadoon in an average of 9.61 preparatory actions and households in Gidgegannup in an average of 12.57 preparatory actions per household. The following sections explore possible reasons for these differences.

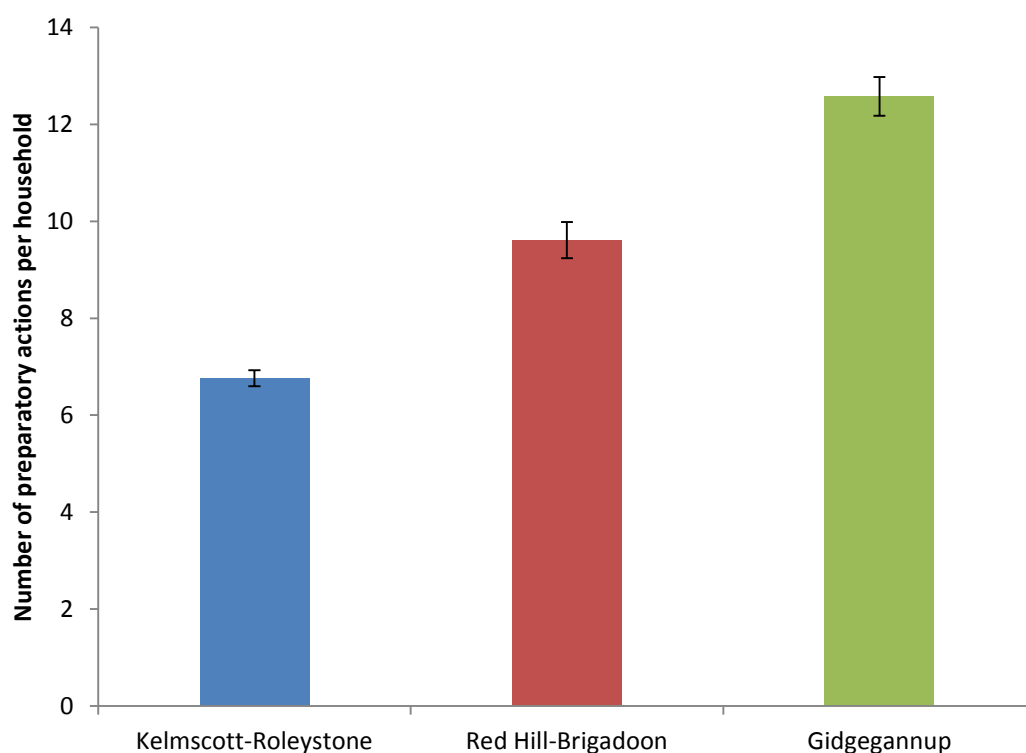


Figure 19. Number of preparatory actions per household across different regions. Bars represent Standard Error of the mean.

Membership in Bushfire Ready Group across Different Regions

Mail-out Questionnaire

Membership in BRGs was examined across the three areas and this showed that a larger percentage of residents in Gidgegannup (26%) were current or previous BRG members than in Kelmscott–Roleystone (7%) or Red-Hill Brigadoon (10%). Households with a BRG member engaged in between 2.5 and 4 additional preparatory measures compared with households without a BRG member (Figure 20).

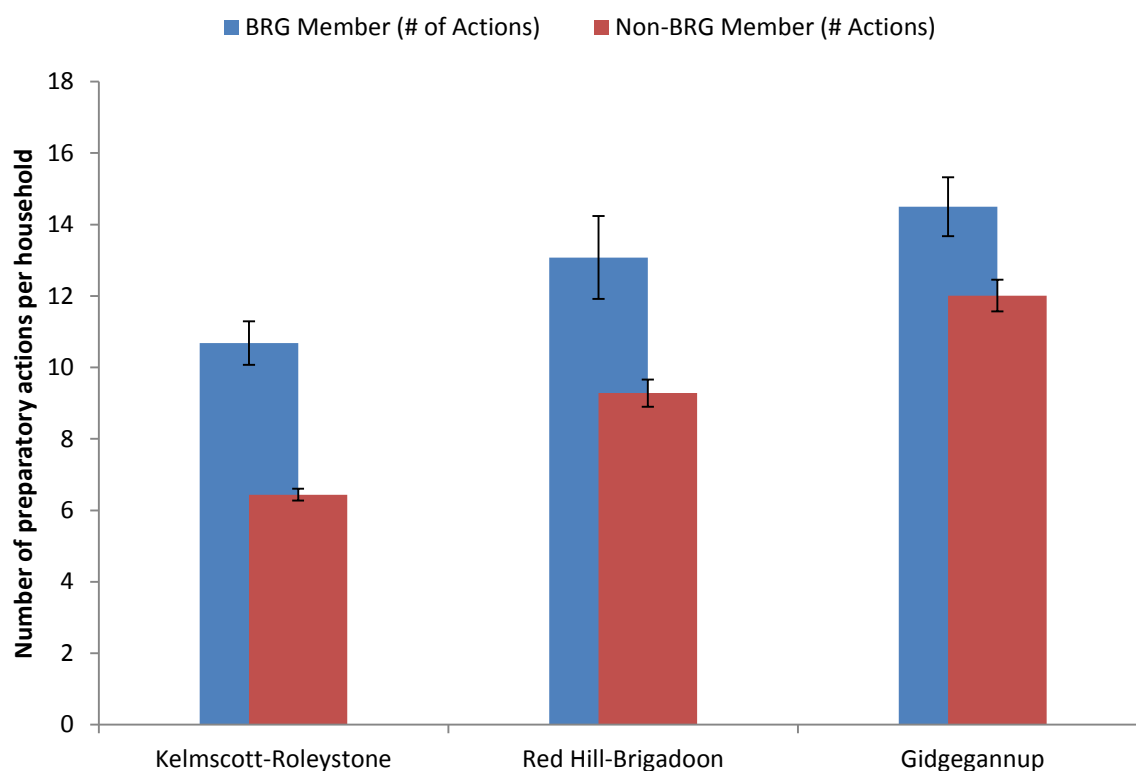


Figure 20. Number of preparatory actions taken per household identifying region as well as membership in a Bushfire Ready Group. Bars represent Standard Error of the mean.

Property Size

Mail-out Questionnaire

When the relationship between property size and the number of preparatory measures was examined, it was found that as block size increased, there was a significant increase in the average number of preparatory measures undertaken (Figure 21). It was also found that residents on larger blocks perceived the threat of bushfire to property and life to be greater than residents on smaller blocks. Thus it appears that as block size increases, so does perceived threat to property and life and in turn the number of preparatory actions engaged in.

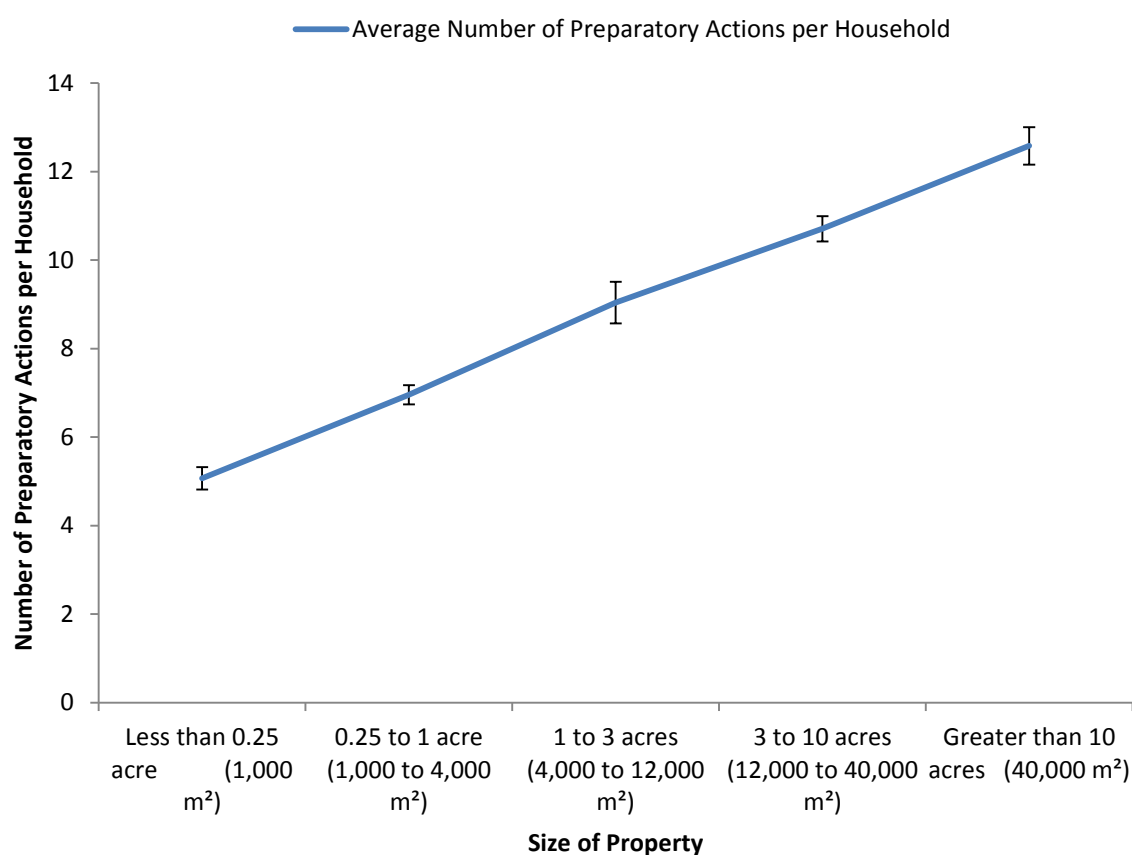


Figure 21. Number of preparatory actions per household across different property sizes. Bars represent Standard Error of the mean.

Likelihood of Bushfire and Associated Threat

Mail-out Questionnaire

There were two questions that we explored when asking residents about likelihood of bushfires: (1) 'How likely did you think it was that a bushfire could occur in your town or suburb?' (Figure 22); and (2) 'How significant do you think the threat from bushfires was to life and property in your town or suburb?' (Figure 23). Cross-referencing this with the number of preparatory actions taken per household revealed an interesting finding. The second question about the *threat* of bushfires was a much better indicator of increased preparation than whether or not a fire would *occur*. If someone perceived the threat of bushfire to life and property as either high or extremely high, they, as a household, would undertake a significantly greater number of preparatory actions.

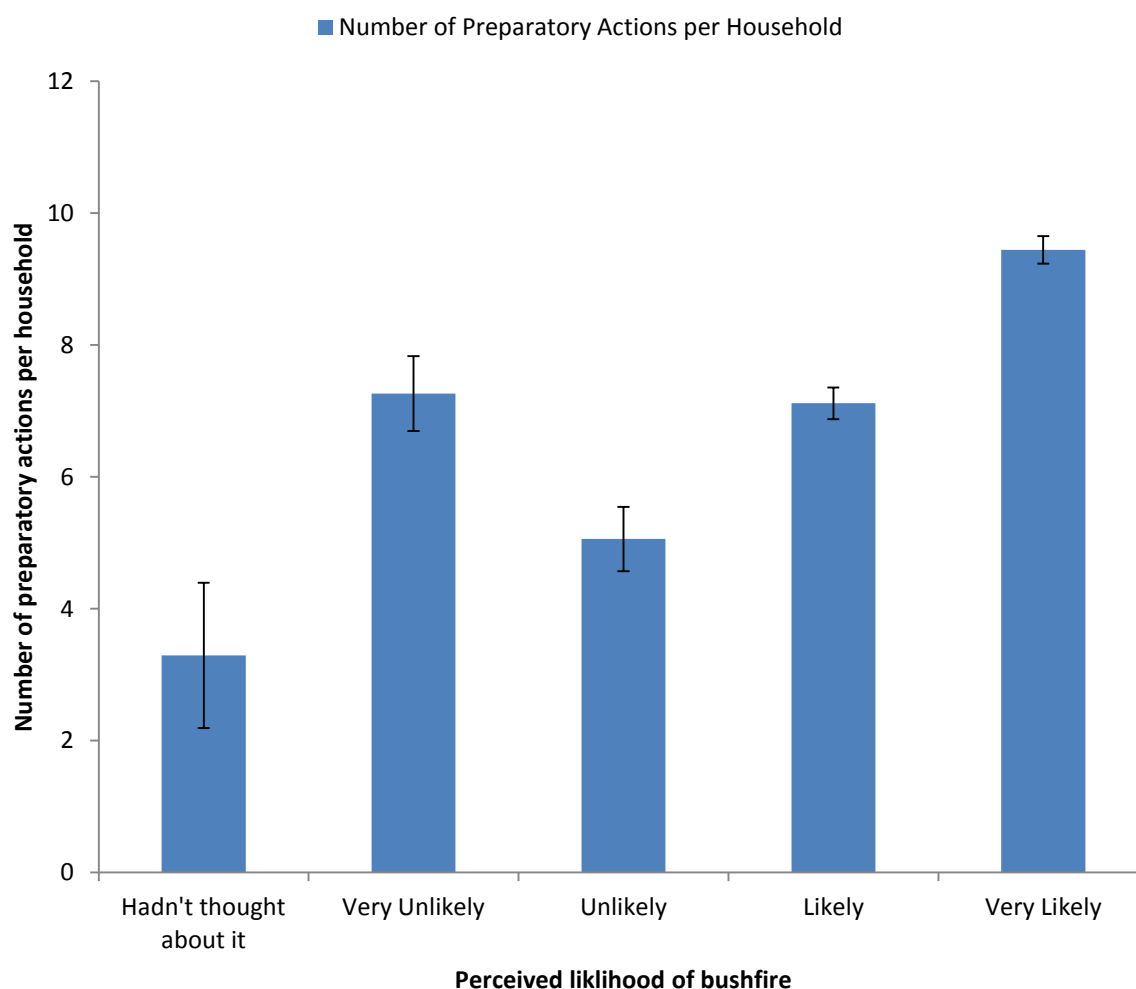


Figure 22. Number of preparatory actions per household compared with the perceived likelihood of bushfire occurrence in resident's town or suburb. Bars represent Standard Error of the mean.

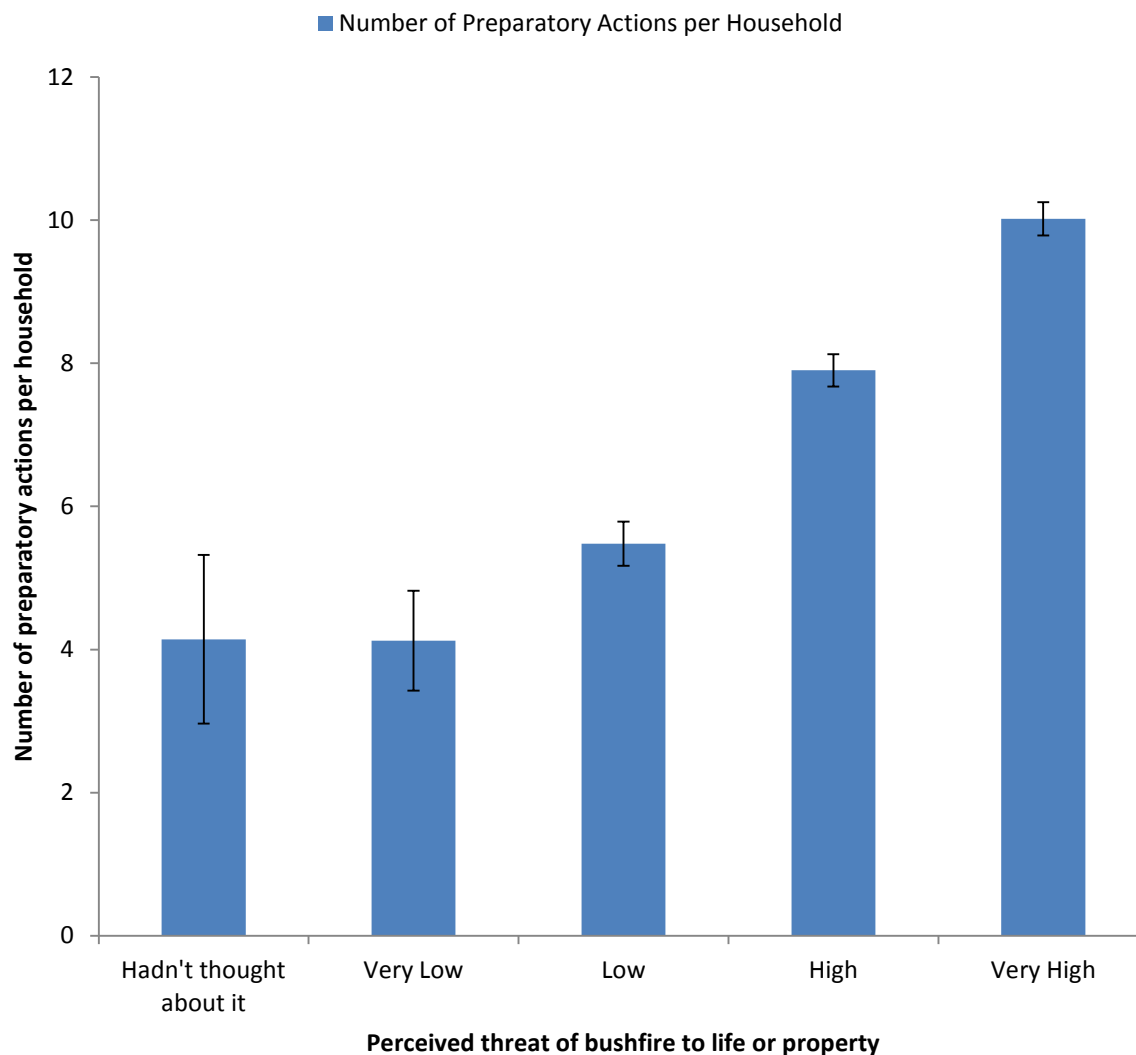


Figure 23. Number of preparatory actions per household compared with the perceived threat of bushfire to life or property. Bars represent Standard Error of the mean.

Membership in Bushfire Ready Group across Different Property Sizes

Mail-out Questionnaire

The relationship between BRG and property size shows a consistent increase in the number of preparatory actions per household as property size increases, while also showing an increase within the range of 2–4 preparatory actions undertaken per property size if that same household has a member in a BRG.

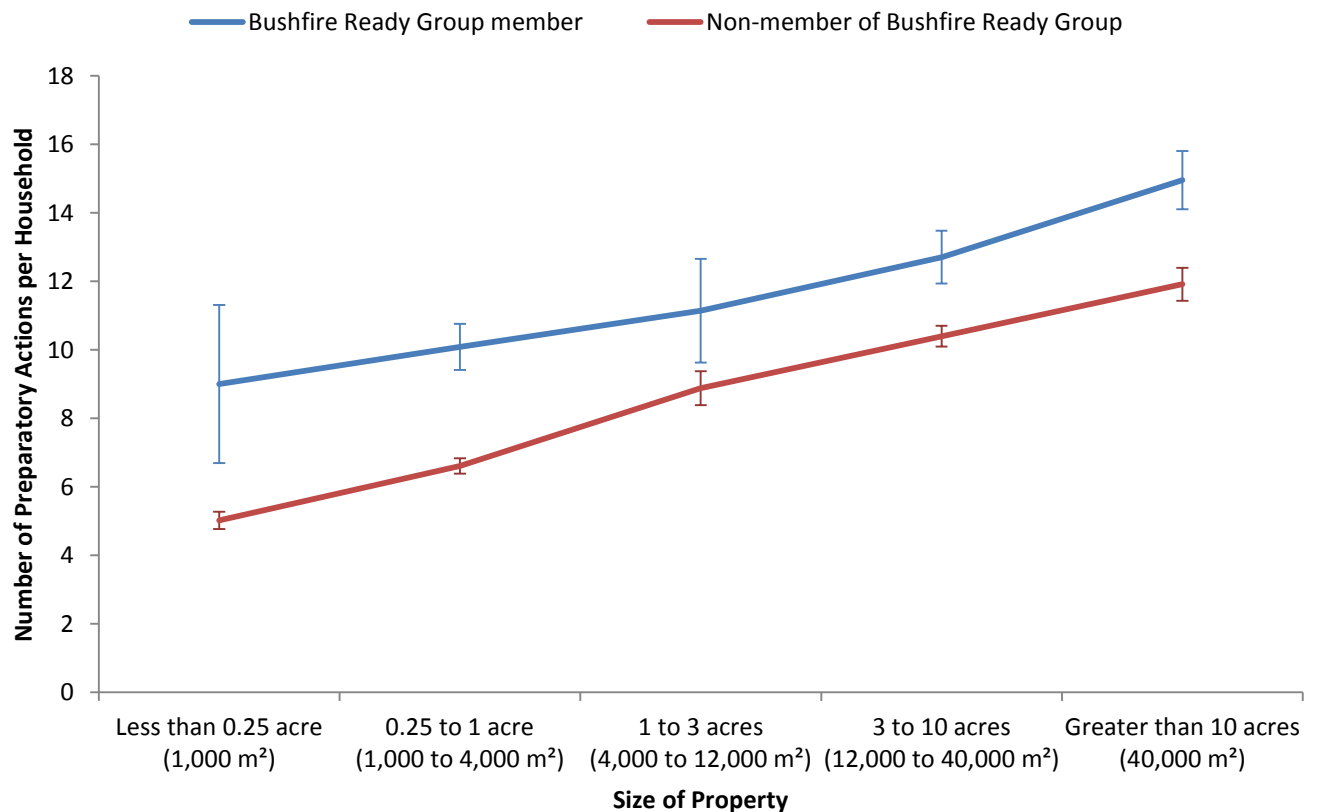


Figure 24. Number of preparatory actions per household of residents across both property sizes and membership within Bushfire Ready Groups. Bars represent Standard Error of the mean.

Information Sources used in Preparing Property for Bushfire

Community Interviews and Household Surveys

Residents accessed numerous information sources to guide them in preparing their property in case of a bushfire occurring (Figure 25). 'Using one's common sense' was the most frequently endorsed response in all areas. 'Experience from living in a rural area' and consultation of official documents such as the FESA 'Prepare. Act Survive.' booklet was also highly and equally endorsed by 14% of residents. Residents from Gidgegannup were more likely to report utilising information from their local brigades about bushfire preparation and they were also more likely to report having attended community meetings about bushfire preparedness. The sources in the 'Other' category included information from the local Council or Shire (n = 14), knowledge gained through work or work-related training (n = 20) and information gained from the media, including reports on the Black Saturday bushfires in Victoria (n = 20).

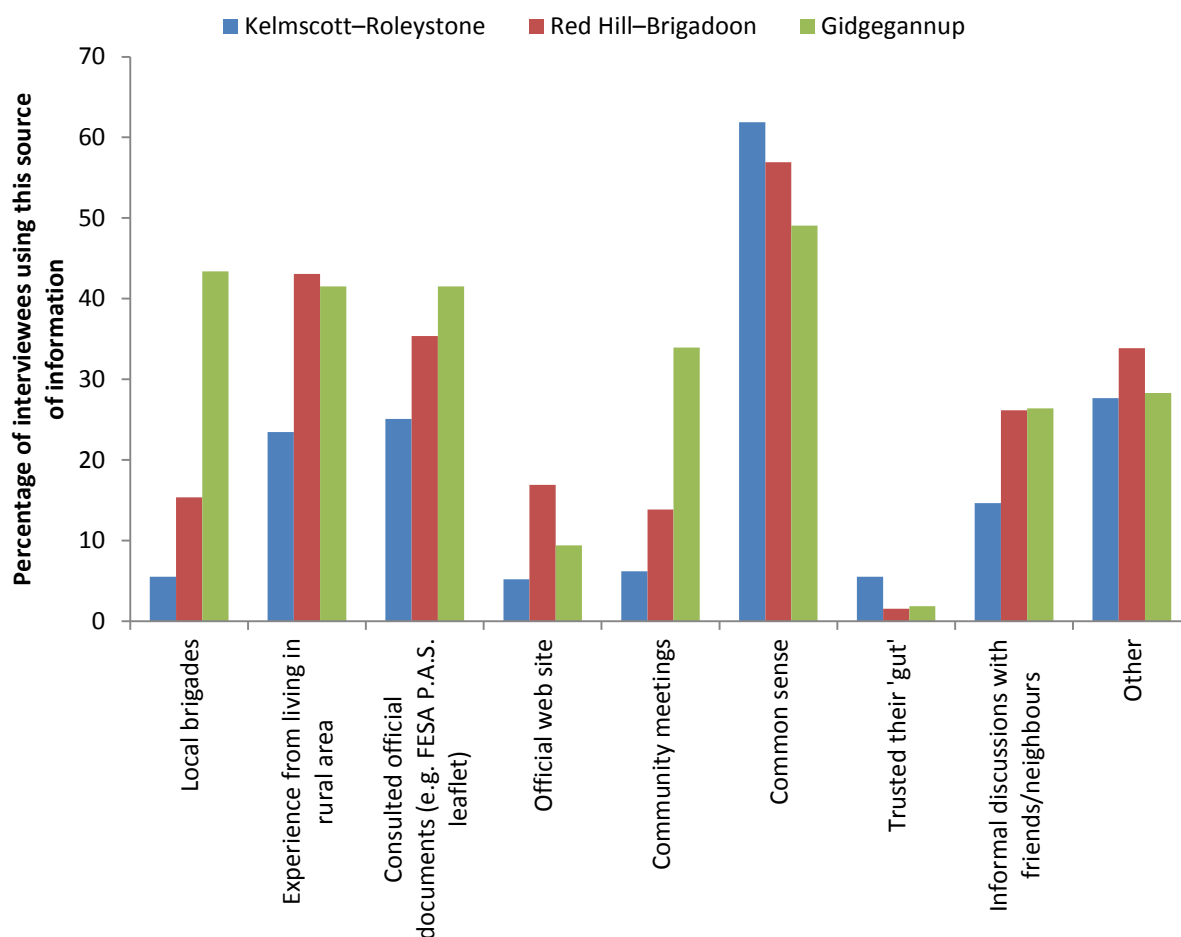


Figure 25. Overview of information sources accessed by interviewees to guide them in preparing their household and property for the event of future bushfire.

Bars represent the percentage of interviewees that reported having accessed that source of information.

Mail-out Questionnaires

Respondents to the mail-out questionnaires indicated that the FESA 'Prepare. Act. Survive.' booklet was a frequently used source of information about how to prepare their home in case of possible bushfire. Residents in Gidgegannup were more likely to state that they communicated with emergency services personnel, were part of a Bushfire Ready Group, listened to ABC radio, consulted the FESA website, consulted others, or attended community meetings than residents in other areas. Respondents from Kelmscott–Roleystone were more likely to report that they had not encountered any information about preparing their home (Figure 26).

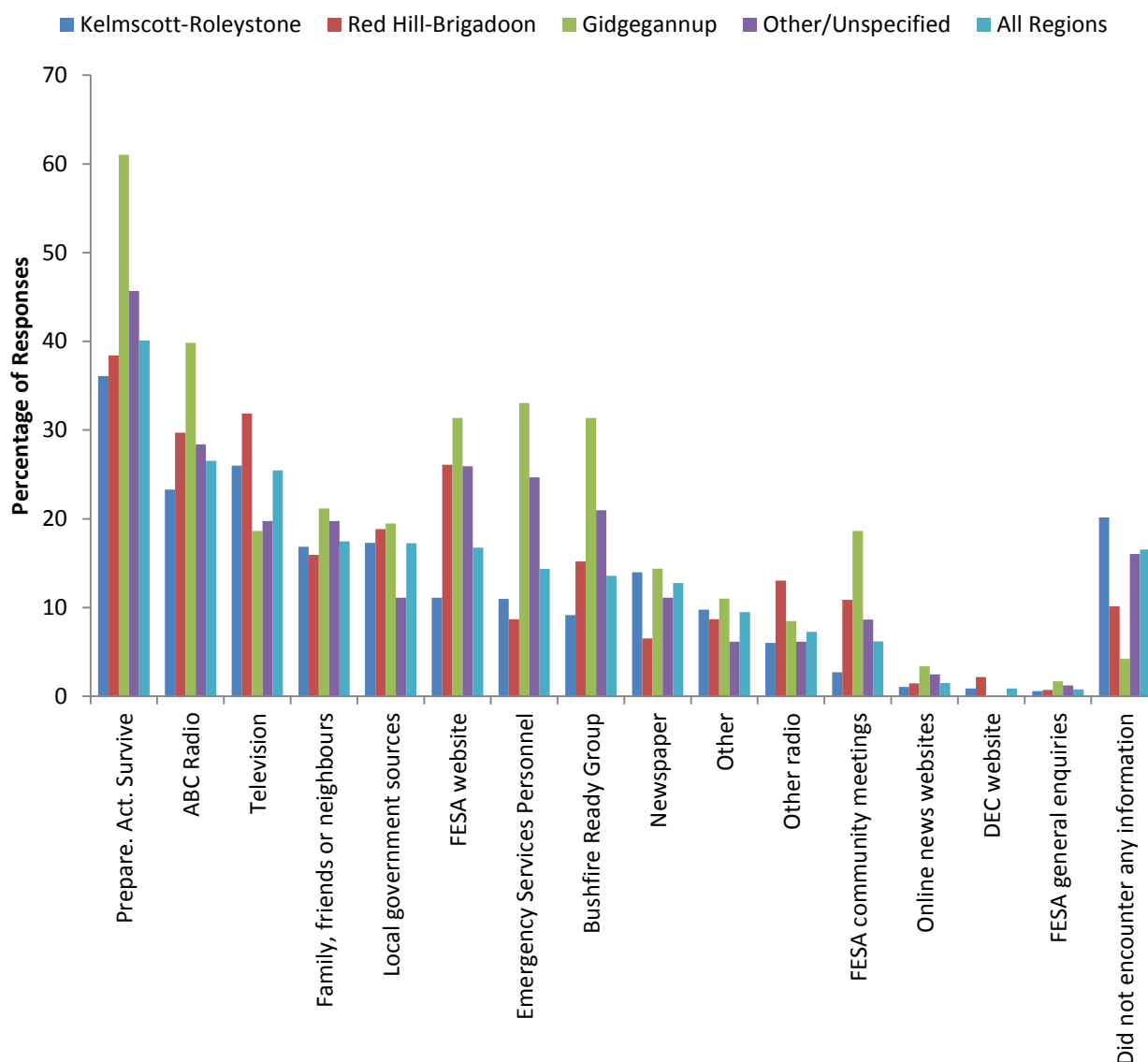


Figure 26. Overview of information sources accessed by interviewees to guide them in preparing their household and property for the event of future bushfire.

Bars represent the percentage of interviewees that reported having accessed that source of information.



In the mail-out questionnaire, residents were asked to describe their experiences in preparing for bushfires and some of these responses included information about the sources of information they used to guide their preparations:

"We made a conscious effort to find a professional + pay for his service of fire preparation and plan."

"Our Bushfire Ready Group has been fantastic – it is coordinated by [name withdrawn] and [name withdrawn] – also our local fire brigade and [name withdrawn] – really grateful to them for all the information and hard work – I was also amazed and very thankful for all the Community help that I received."

"Plenty of FESA provided information at local community events."

"Discussed evacuation plan with ex-volunteer firefighter prior to the fire."

"We felt safer from fire risks when our local bushfire brigade assisted us with controlled burning and completed other controlled burns around our area/neighbourhood."

"I was born and grew up in XXX and my father was a timber miller. We grew up with fire as a destroyer and were taught fire safety all our lives. My father helped fight Dwellingup fires in 1960's. We, as a family were fire conscious and my father always burned (controlled) the bush on our land. Also Feb (5 yrs ago) family home threatened by XXX fire – i.e. XXX. We spent 2 days watching and ready to defend. I know about the danger of fires!!"

Respondents were also asked to indicate what sources of information they used to guide their actions about what to do during a bushfire (Figure 27). The FESA 'Prepare. Act. Survive.' booklet and ABC Radio were rated the most frequently among respondents as sources of information they used to guide them in deciding what to do during a bushfire.

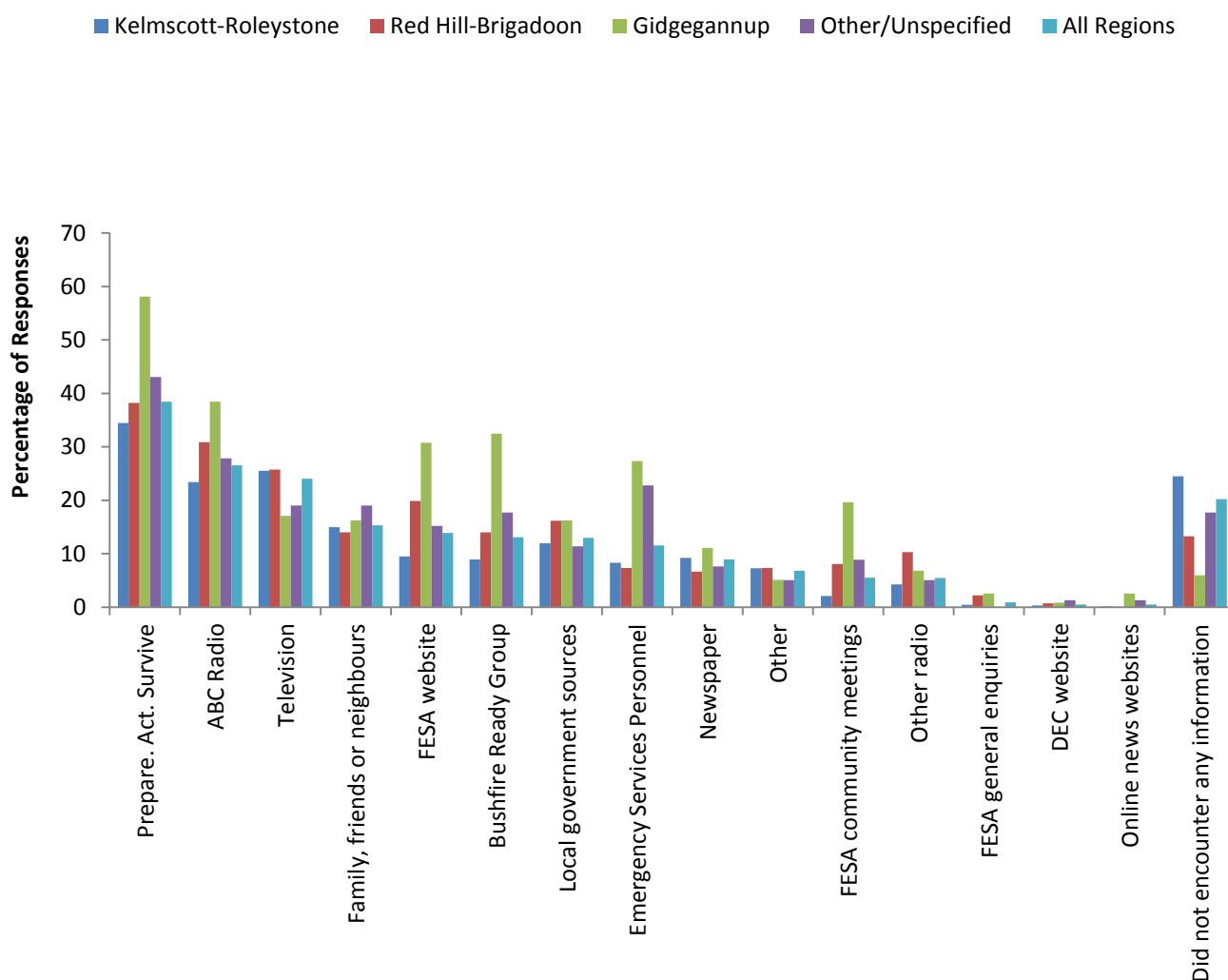


Figure 27. Percentage of respondents who reported that they use this source of information to guide them in deciding what to do during a bushfire.

Initial Intentions and Fire Plan

Community Interviews and Household Surveys

The majority of residents interviewed had some form of fire plan for their household, ranging from vague ideas about what the household would do in the event of a fire to carefully detailed and practiced plans including information on the role of each household member. Residents in Gidgegannup were more likely to report that their household's fire plan was for the whole family to leave early. Kelmscott–Roleystone residents were more likely to report that their household did not have a concrete fire plan than residents from the Red Hill–Brigadoon area or Gidgegannup (Figure 28).

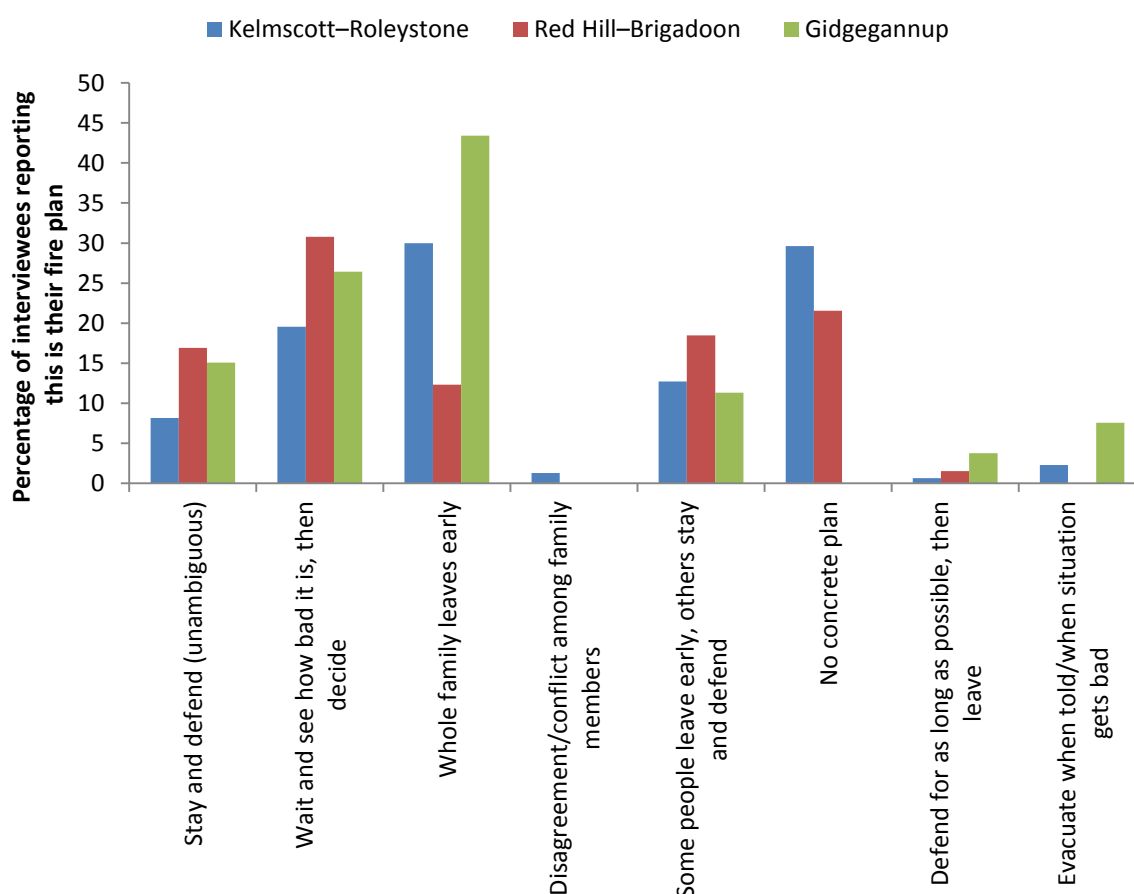


Figure 28. Overview of household's fire plans for each area interviewed. Bars represent the percentage of interviewees that reported having that as their fire plan.

Mail-out Questionnaires

Respondents were asked to indicate what their household's fire plan was, and this is shown in Figure 29. The most common plan was to 'do as much as possible to protect your property but leave if threatened by fire'. This scenario was the case for all areas targeted. The response to 'stay and try to protect your property throughout the fire' was more likely to be a plan in Gidgegannup, followed by Red Hill–Brigadoon and Kelmscott–Roleystone.

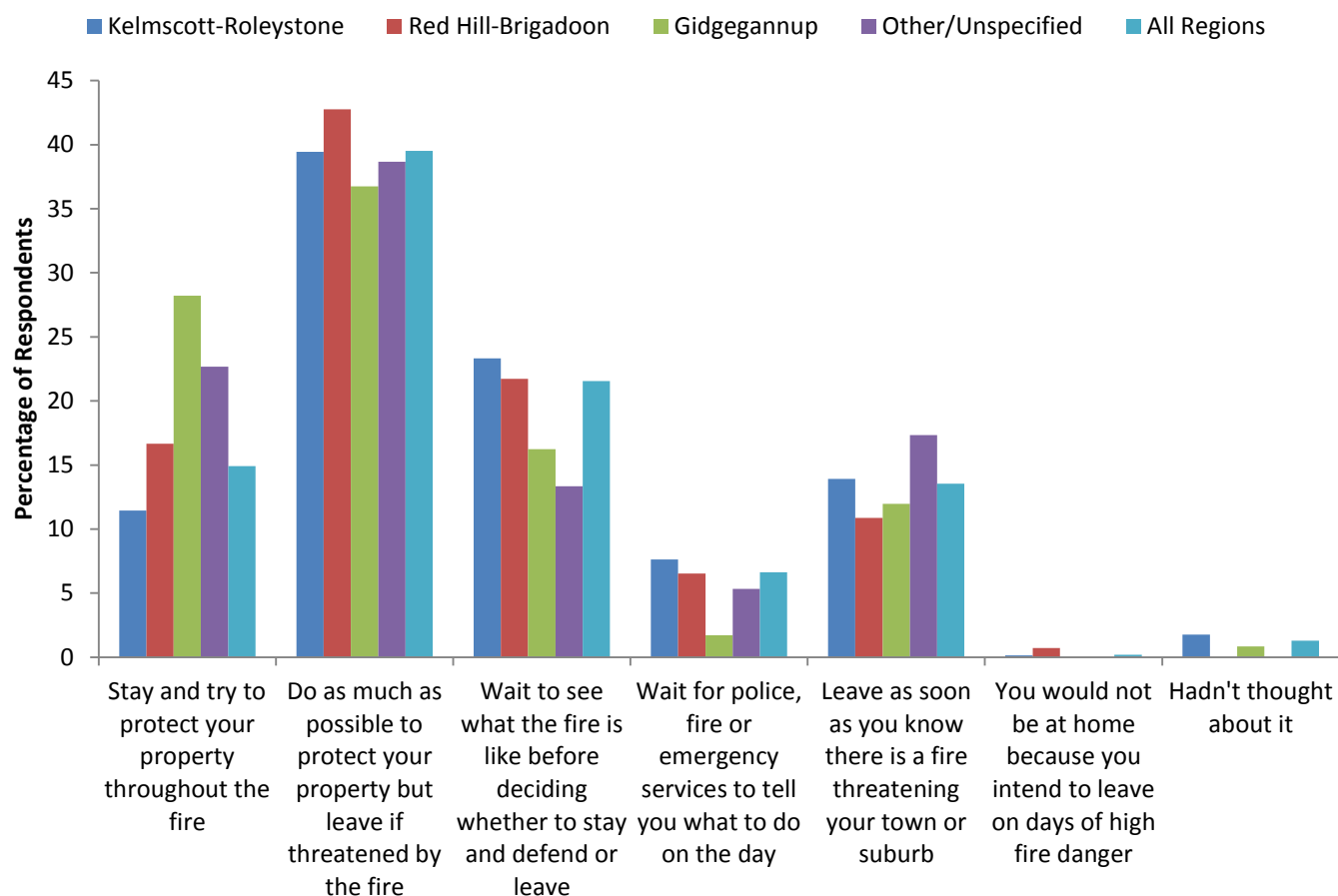


Figure 29. Overview of household's fire plans.

Bars represent the percentage of respondents that reported having that as their fire plan.

Respondents were asked to indicate what they had done as far as organising their household fire plan (Figure 30). The most frequent action involved discussing with other members of the household what the household would do in the case of a bushfire.

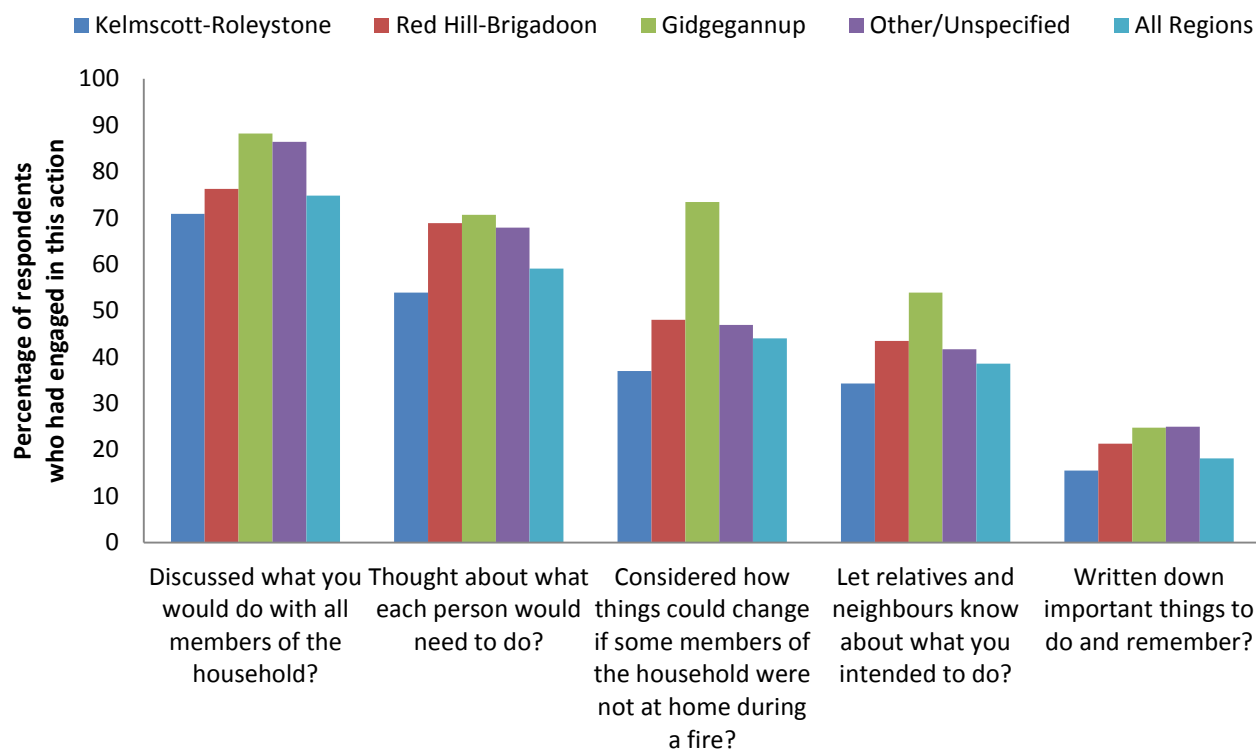


Figure 30. Level of discussion and planning of fire plans with members of the household or community.

The bars represent the percentage of respondents who had engaged in that particular action in relation to their household's fire plan.

As part of describing their experience preparing their household in case of bushfire, residents also reported on their fire plans and the reasons for them.

"We believe we are pretty well prepared and would stay to defend the house in most circumstances. The house is not ideally located or structurally secure for extreme fires, so we have a back up location nearby at our stables where we would retreat to if necessary."

"The best plan is to get out early and let the professionals to their job."

"Preparedness has been on the basis to defend rather than leave; however with recent fires in Victoria and WA we have in the recent two fires, followed the advice to evacuate when advised."

"At the first sign of fire we're off!"

"Our main concern is getting our family and dogs to a safe spot. We have house & contents insurance. I would not want any of my family to lose their life for material possessions."

Monitoring Current and Predicted Fire Danger

Community Interviews and Household Surveys

Interviewees endorsed a number of different methods by which they monitor current and predicted fire danger. The most common methods were listening to the radio and paying attention to the fire danger rating road signs (Figure 31). The 'Other' responses included residents who also indicated that they monitor current and predicted fire danger by staying alert to weather conditions and making their own assessment, ($n = 41$) or by relying on others ($n = 26$). Residents who reported that they rely on others to inform them of fire danger included residents who had family members who regularly inform them of high fire danger weather and residents who are part of an email list that informs them on a daily basis of the fire danger rating. Residents from Kelmscott–Roleystone were more likely to indicate that they do not pay much attention to current or predicted fire danger.

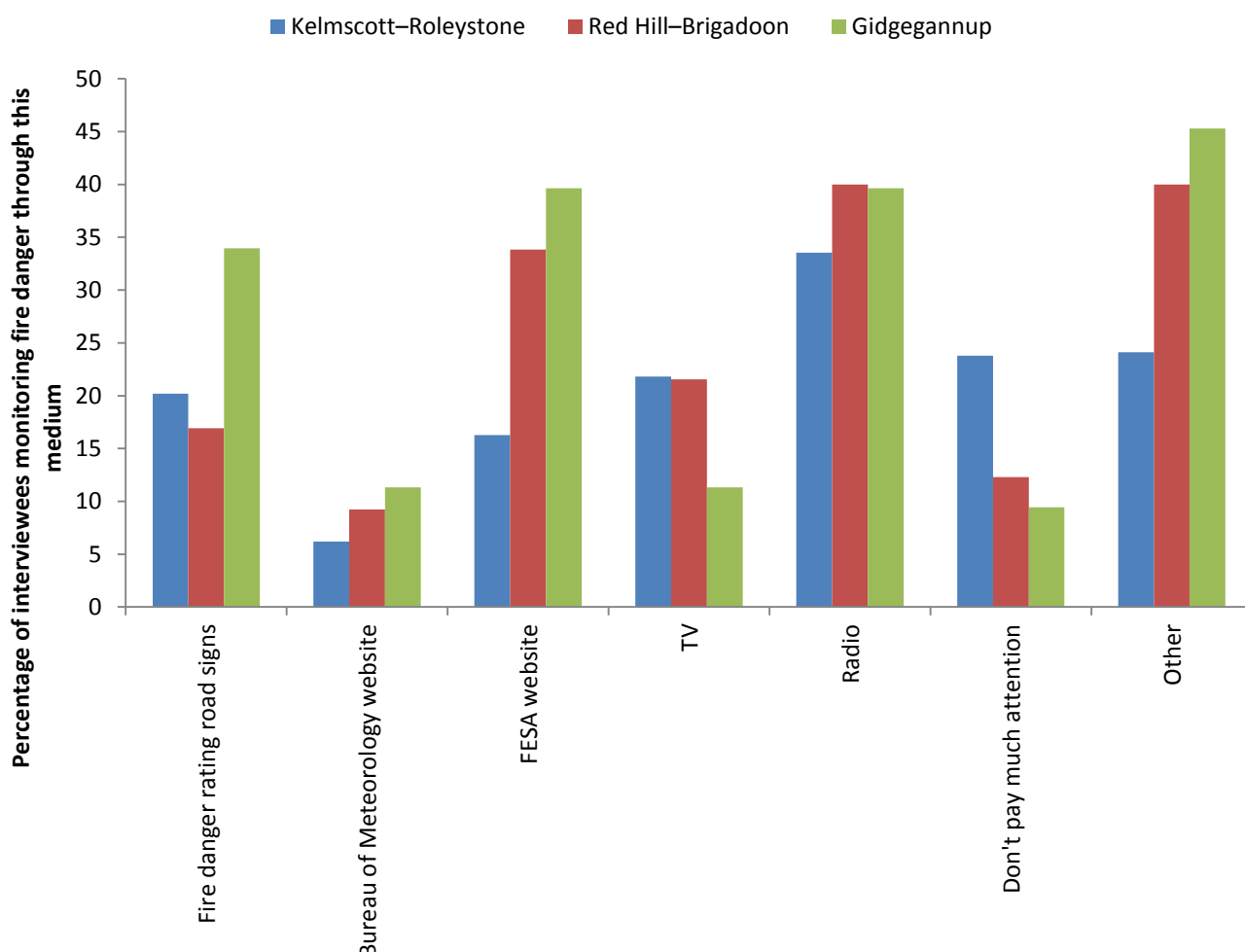


Figure 31. Percentage of interviewees who stated they monitor current and predicted fire danger through these particular media.

Total Fire Ban Knowledge

Community Interviews and Household Surveys

Please note that the statistics reported in relation to the question of whether people were aware of the Total Fire Ban must be interpreted with caution. The researchers found that many people had *assumed* that it was a Total Fire Ban, simply on the basis of the hot weather or the time of the year, rather than explicitly *knowing* that fact because they had come across or remembered the information. Future interview protocols should ensure to clarify how interviewees were aware of the Total Fire Ban.

Of the 409 responses collected, 251 interviewees (200 in Kelmscott–Roleystone, 28 in Red Hill–Brigadoon, 23 in Gidgegannup) indicated that they were aware that there was a Total Fire Ban in place on 5 and 6 February 2011, with the remaining stating that they were not aware of this. Thus, just over 60% (68% in Kelmscott–Roleystone, 44% in Red Hill–Brigadoon, 46% in Gidgegannup) of households indicated that they were aware that there was a Total Fire Ban in place (Figure 32).

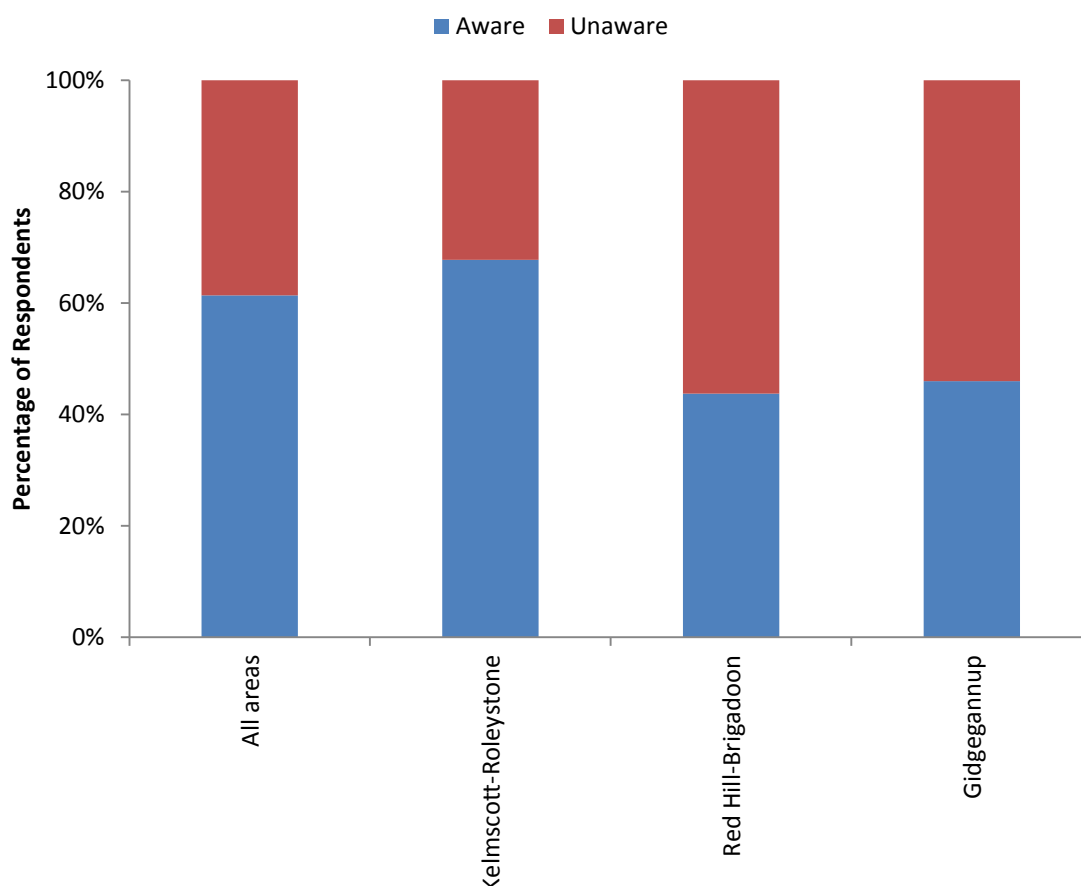


Figure 32. Proportion of residents in all areas surveyed, and in each separate area surveyed, who were aware there was a total fire ban in place on the day of the fire.

Interviewees were also asked what activities they were aware of that are illegal on days when a Total Fire Ban is in place (Figure 33). More than 85% of households were aware that cooking outside over an open flame is illegal, almost 70% of residents were aware that undertaking hot work is illegal, and more than 50% of residents were aware that moving vehicles over paddocks is illegal. Overall, residents in the Kelmscott–Roleystone area were less likely to be aware of these restrictions on Total Fire Ban days. A number of residents in this area stated that the restrictions, such as those on harvesting and moving vehicles across paddocks, were not relevant for them as they lived on residential blocks. There were a number of other responses that residents generated spontaneously. Residents stated that conducting controlled burning (20 responses) and using a lawn mower are illegal (five responses). Some residents stated that they became aware that doing hot work on Total Fire Ban days was illegal only after hearing that the Kelmscott–Roleystone fire had allegedly been started by the sparks from an angle grinder and learning that this activity is illegal on a Total Fire Ban day.

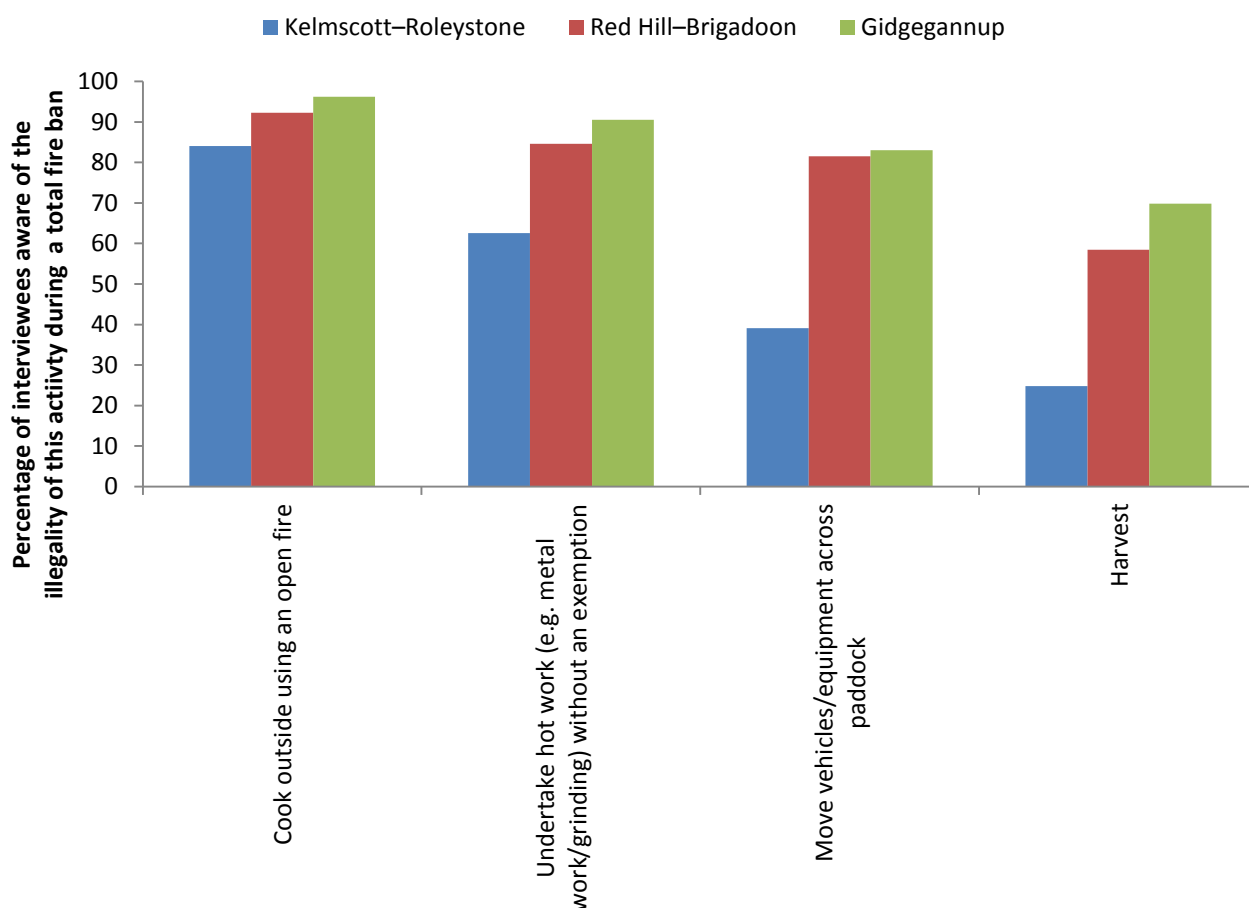


Figure 33. Activities that residents were aware are illegal on days when a Total Fire Ban is in place.

Bars represent the percentage of interviewees in each area that were aware that activity was illegal on days when a Total Fire Ban is in place.

Mail-out Questionnaires

Respondents to the mail-out questionnaires were asked whether they were aware of the Total Fire Ban that was in place on the weekend of 5 and 6 February 2011 and these results are shown in Figure 34. A greater proportion of individuals in Gidgegannup were aware of the Total Fire Ban than in Red Hill–Brigadoon or Kelmscott–Roleystone. The difference between these results and those from the community interviews is likely to have emerged because the community interviews that took place in Red Hill–Brigadoon and Gidgegannup classified those individuals who *assumed* that a Total Fire Ban was in place as not being aware of the Total Fire Ban.

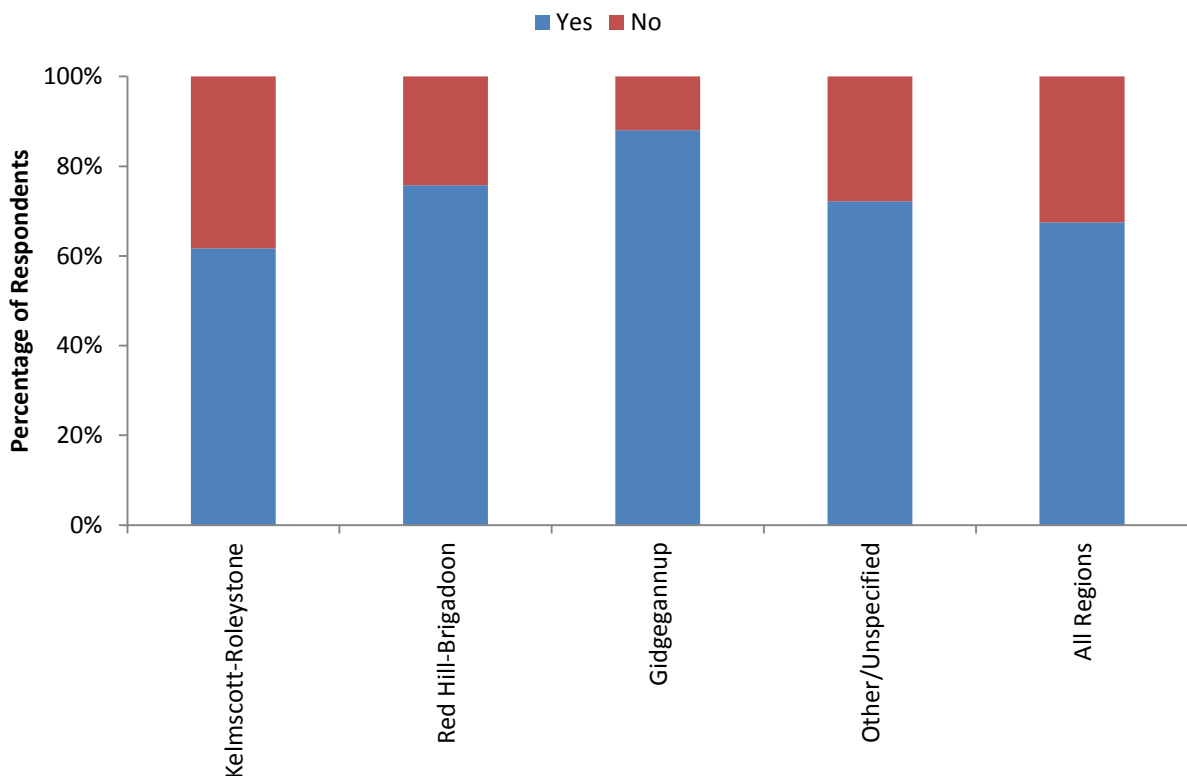


Figure 34. Proportion of respondents who indicated they were aware a Total Fire Ban was in place on 5 and 6 February 2011.

Respondents indicated several different ways in which they became aware there was a Total Fire Ban in place on the day of the fires. Some respondents assumed there was a Total Fire Ban in place owing to the conditions on the day, the time of year or the weather conditions prior to the day of the fire, as the following quotes indicate:

“Because it was very hot with [easterly] gusty wind.”

“There is always a total fire ban in summer.”

“Common sense tells you after such a long hot summer.”

Other respondents pointed out that they were aware of the Total Fire Ban through various types of media including TV, radio, and newspapers. A number of respondents reported seeing this information on road signs.

“Evening TV news the day before.”

“ABC local radio.”

“Local paper detailing extension of fire ban.”

“Display board on Albany Hwy, Kelmscott.”

“Local fire forecast road sign.”

“Sign at roundabout on Tonkin Highway.”

Email distribution lists informed other respondents about the total fire ban:

“I am on an email distribution list.”

“Baskerville community emails.”

“Email from local brigade.”

On the Day of the Fire

Learning of the Fire

Community Interviews and Household Surveys

Interviewees were asked how they first learnt of the fires. The most frequent response provided by interviewees in the Kelmscott–Roleystone area was that they saw smoke (see Figure 35). The second most frequent response from this area involved being contacted by neighbours, friends or family members. In the Red Hill–Brigadoon area, the majority of interviewees became aware of the fire through contact from neighbours, friends or family members, or by becoming aware of the smell of smoke. In Gidgegannup, the most frequent response was receiving contact from family friends or neighbours. ‘Other’ responses from this area included learning of the fire when reaching a roadblock that had been set up in response to the fire and learning of the fire owing to their firefighting pager going off to call them to fight the fire.

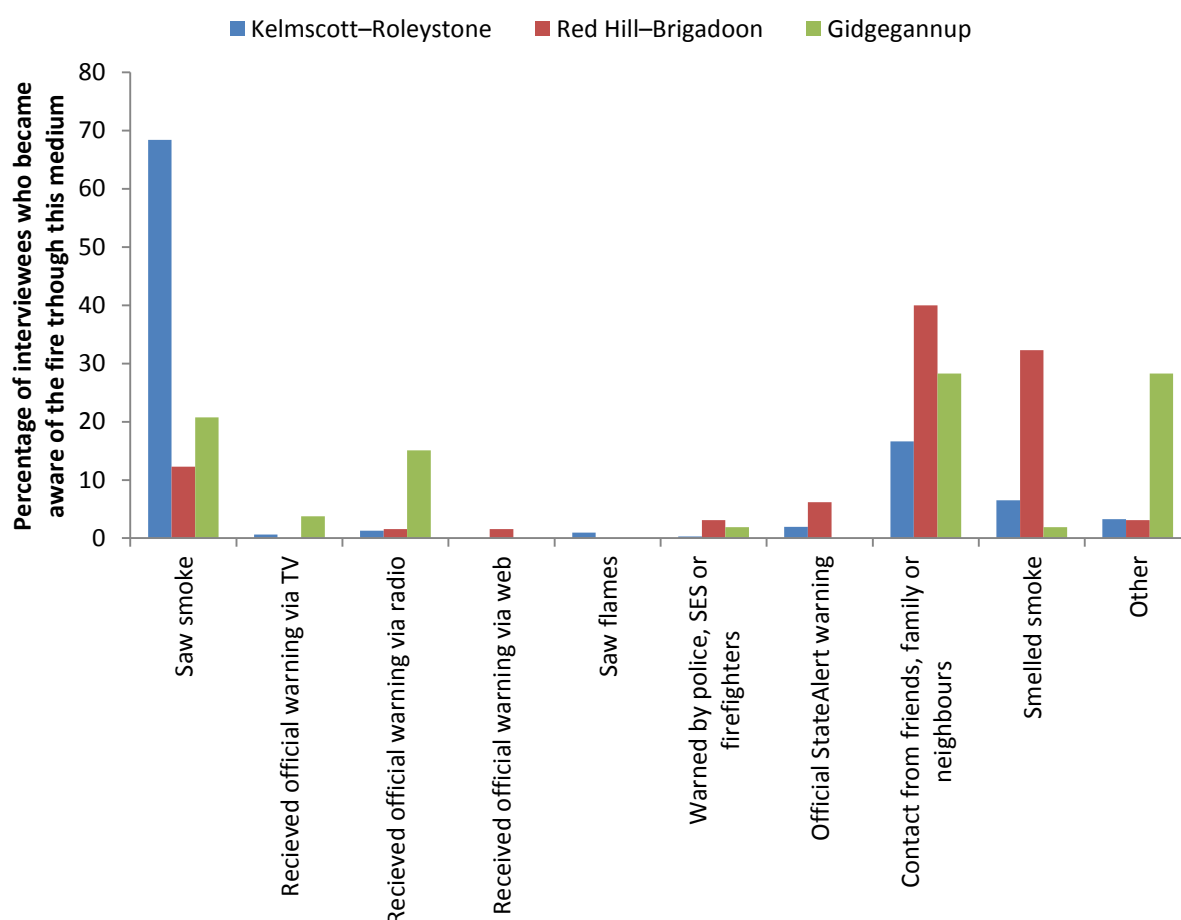


Figure 35. How people initially became aware of the fire.

Bars represent the percentage of interviewees in Kelmscott–Roleystone, Red Hill–Brigadoon and Gidgegannup areas that reported that they initially became aware of the fire through this medium.

Mail-out Questionnaires

Residents were asked to describe in words, their actions on the day of the fire beginning from when they learned of the fire. These responses showed that seeing and/or smelling smoke, and contact from friends, family and neighbours were important methods by which they became aware of the fire, as the following quotes demonstrate:

"11:30 am; saw and smelt smoke."

"Saw smoke. Ran inside and rang fire brigade."

"Shut windows and doors when smelt smoke."

"Could see smoke but not smell it!"

"Smelled the smoke. Walked up to the Lloyd Hughes Reserve. Saw smoke well off in the distance – over the hill in Roleystone."

"I came home from a workshop on Saturday at 11:45 am while driving down Buckingham Road I noticed this big cloud and intense smell of smoke."

"After receiving a friend's call, went outside to investigate."

"After receiving a phone call from nearby residents, we advised our neighbours"

"Neighbour bangs on door – 20 minutes to get out."

Information and Warnings about the Fire

Mail-out Questionnaire

Respondents were asked if they received any official warning about the fires on 5 and 6 February 2011 (Figure 36). The StateAlert warning system and warnings on the ABC local radio were the most frequently endorsed responses. Approximately 20% of respondents indicated that they did not hear or receive any official warnings about the fires.

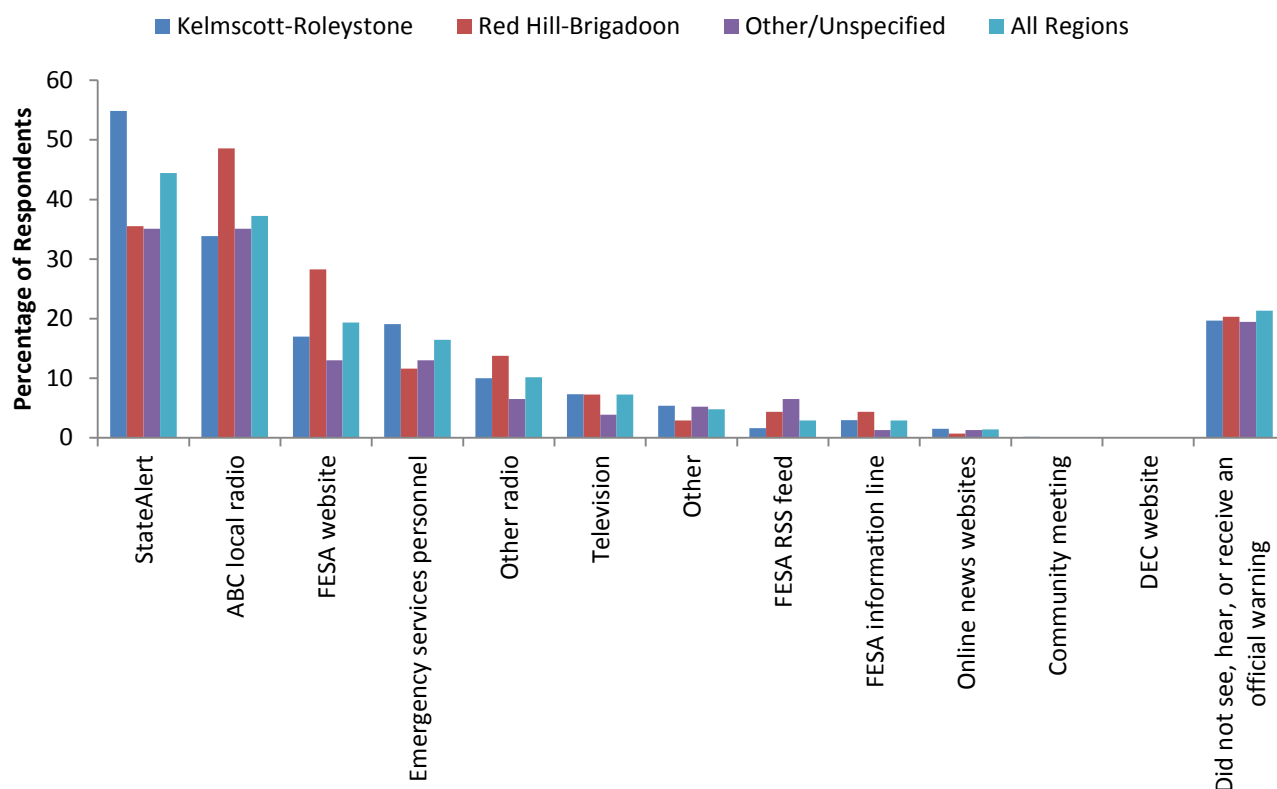


Figure 36. Respondents who received or heard an official warning about the fires through this particular medium.

Bars represent the percentage of interviewees in Kelmscott–Roleystone and Red Hill–Brigadoon areas who reported they received an official warning through that medium. NB: Gidgegannup data were removed from this graph as the area was not under immediate threat from the bushfire.

Respondents were also asked which official information source was the most important official warning they received on the day that guided their response to the bushfire (Figure 37). ABC local radio, emergency personnel and the FESA website were the most frequently endorsed sources of information. Interestingly, despite the high percentage of residents who reported receiving the StateAlert warning, this was the most important official source for only around 10% of residents.

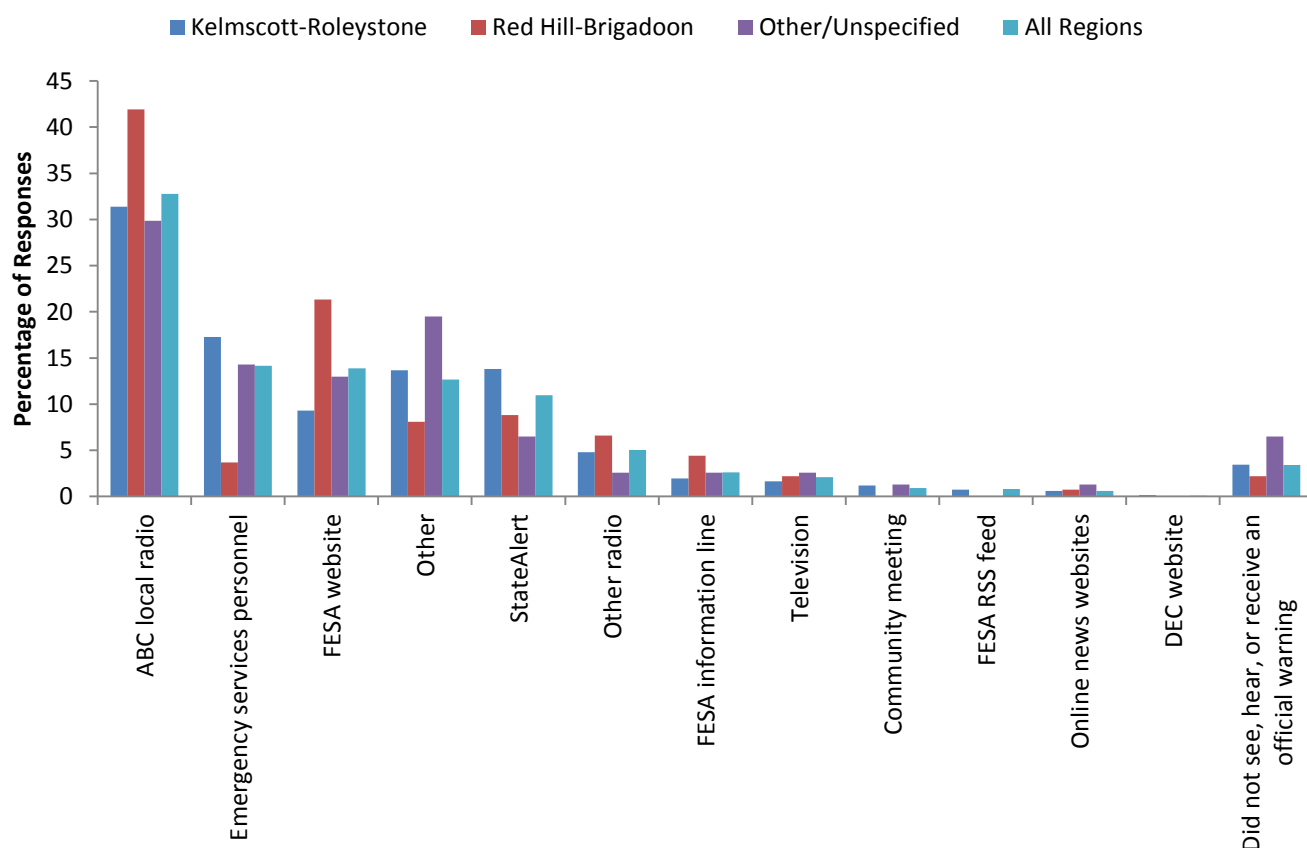


Figure 37. Percentage of respondents who indicated that a warning received through this particular medium was the most important official source of information they received.

NB: Giddegannup was removed from this graph as it was not under immediate threat from the bushfire.

The written responses in the mail-out questionnaire indicated that although many people did receive a StateAlert warning message, they did not receive the StateAlert message in time to assist with making a decision whether to evacuate from the home. This was particularly evident in the interviews taking place in Kelmscott, with many residents reporting that they received the message hours after they had evacuated. Some residents in the Red Hill–Brigadoon area reported that they received the StateAlert warning on their mobile phone and used the message as a source of information to decide whether to evacuate. In contrast,

other residents reported that they had already evacuated before receiving the text. Some residents reported that they received several messages throughout the course of the night. The following quotes provide examples of the experiences respondents had with the StateAlert warning messages:

"I did not receive the StateAlert warning until 4 pm, however access to my house had been blocked by police before 12:30 pm."

"The StateAlert (mobile/landline) came through quite late."

"StateAlert text came too late (approx. 2 hours after the fire had destroyed properties)."

"No FESA warning on mobile until 3 hours after evacuation."

"StateAlert was received at 4.45 pm – well over 3 HOURS AFTER we had decided to evacuate ourselves!!"

Respondents to the mail-out questionnaires were asked if they had any issues or difficulties with the warnings and information they received about the fire on the day of the fire. A number of respondents reported that they felt the information they could access was too old to be relevant, as these quotes show:

"The information provided by FESA on their website and information line was too old, at least an hour old."

"FESA website needed to be more up to date, updated at times advertised."

"FESA website was not have [sic] up to date. Updates were infrequent and often hours behind the actual events."

Some respondents also reported that the police were unable to provide useful information:

"Police were very uninformed."

"The very patient police at the road block did not have any information for us residents."

Nonetheless, other respondents reported positive experiences with warnings and information.

"None – all excellent."

"ABC Radio, FESA website and television – very good."

"The ABC was very good and advised our address to evacuate."

"I think FESA did a great job on the day, they had a huge task and no one was killed."

A number of respondents acknowledged that the fire moved very quickly, making it difficult for authorities to provide accurate and up-to-date information as the situation changed so rapidly:

“Fire was too quick for warnings.”

“In that type of situation [I] felt that updates every 15 minutes were not quick enough to keep up with how fast the fire was moving.”

Actions after Learning of the Fire

Community Interviews and Household Surveys

Interviewees were asked about the actions they engaged in after they learned of the fire. These actions can be broadly categorised into seeking further information about the fire and preparing themselves and their property in case the fire impacted them (see Figure 38). Interviewees in the Red Hill–Brigadoon area reported engaging in more actions after learning of the fire than residents in the Kelmscott–Roleystone area, with Kelmscott–Roleystone residents engaging in an average of 2.2 actions and Red Hill–Brigadoon residents engaging in an average of 3.6 actions. A total of 42% of residents in the Red Hill–Brigadoon area reported looking on the FESA website as opposed to only 16% in Kelmscott–Roleystone area. A total of 41% of interviewees in Gidgegannup looked on the FESA website after learning of the fire and 34% tuned in to the radio for updates. The ‘Other’ actions engaged in included wetting down the house and surrounding property ($n = 48$), maintaining a watch on the fire and smoke ($n = 11$) and speaking with someone face-to-face, including emergency services personnel ($n = 17$).

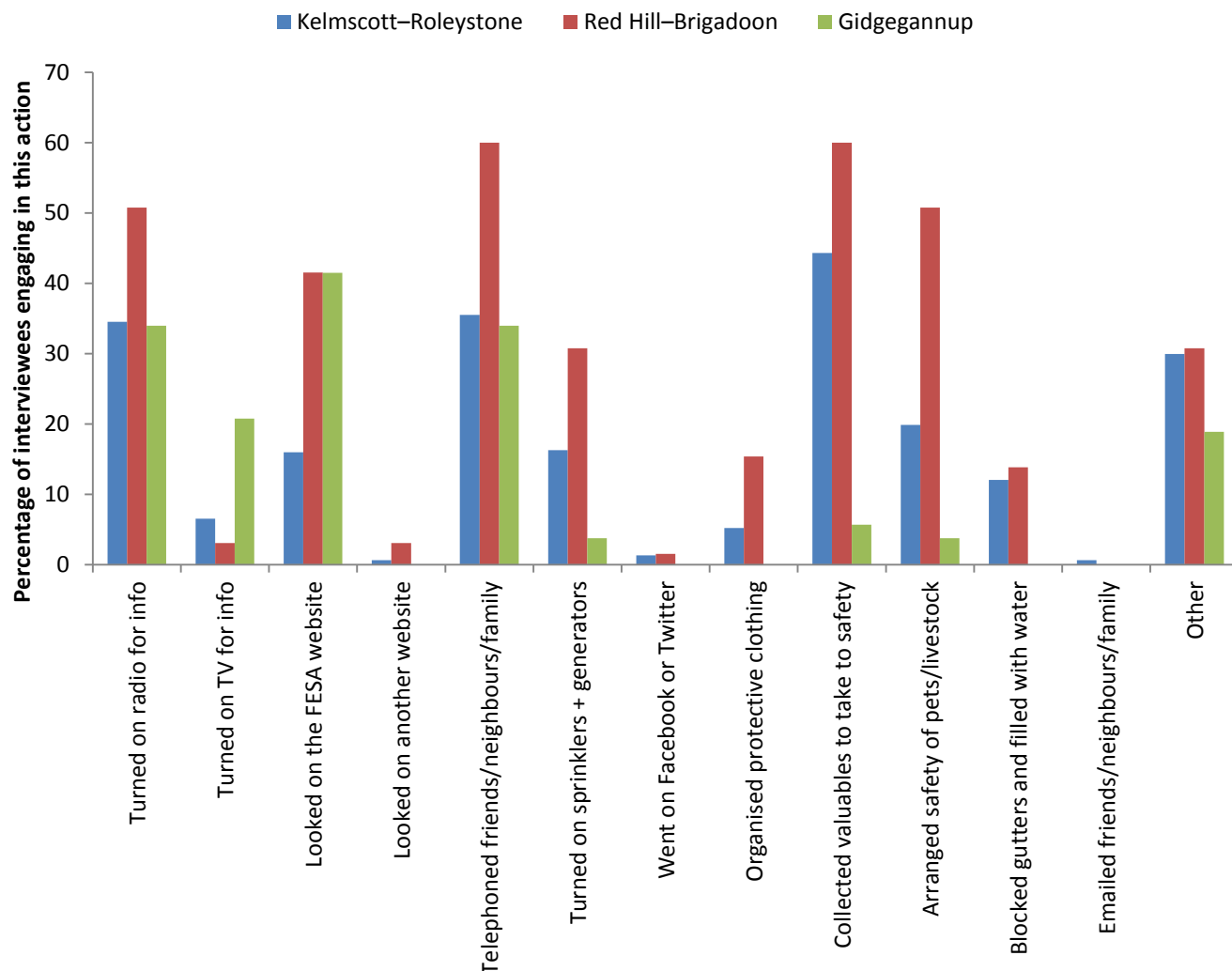


Figure 38. Actions undertaken after learning of the bushfire in February 2011.

Bars represent the percentage of interviewees in Kelmscott–Roleystone, Red Hill–Brigadoon and Gidgegannup areas that reported having undertaken that particular action.

Information Sought on the Day of the Fire

Community Interviews and Household Surveys

Interviewees were asked about information sources they sought on the day of the fire after learning of the fire. Residents most commonly reported that they relied on 'common sense' when deciding how to act on the day; however, they also reported accessing information through official websites (Figure 39).

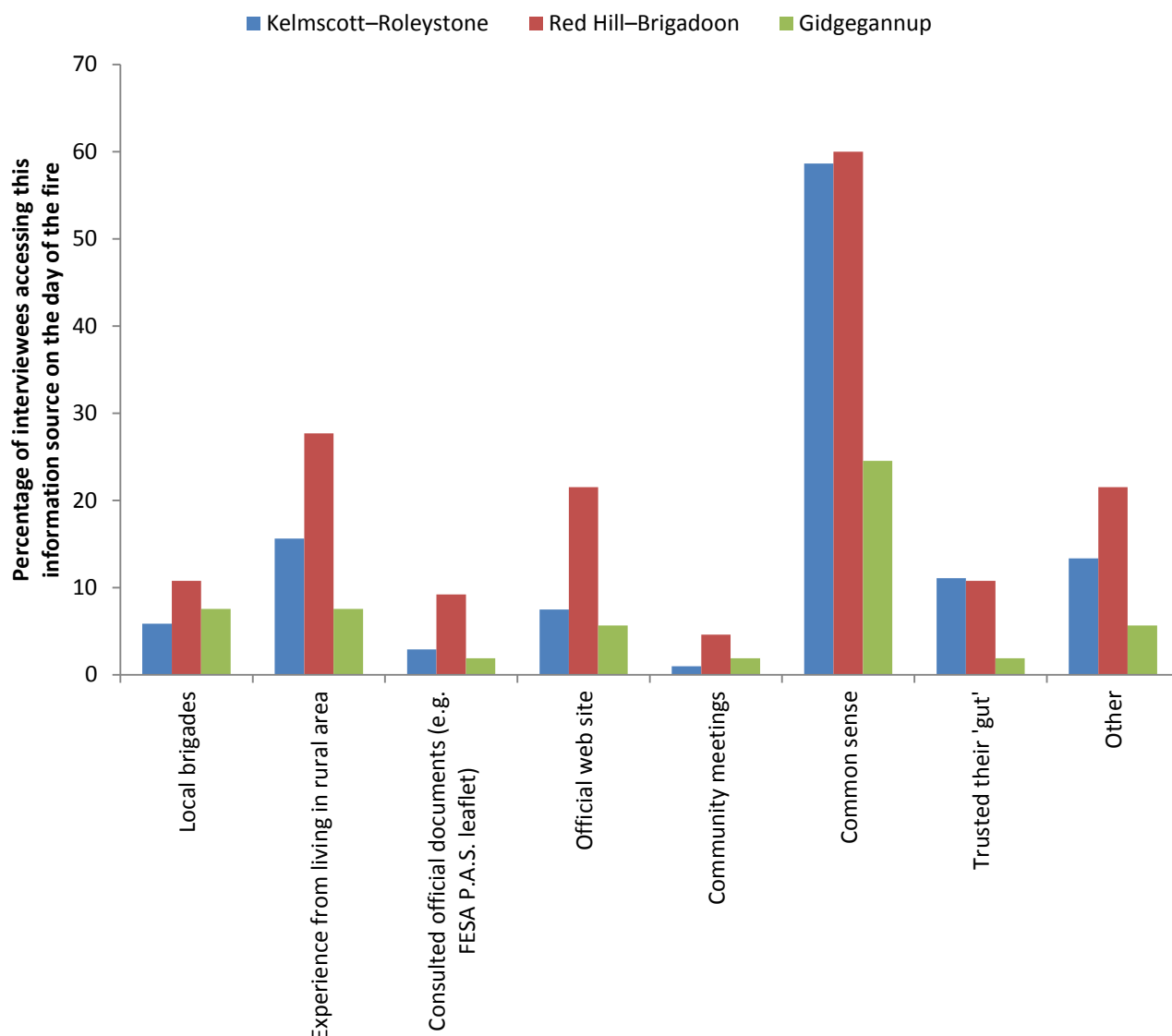


Figure 39. Information used to guide response after learning of the bushfire in February 2011.

Bars represent the percentage of interviewees in Kelmscott–Roleystone, Red Hill–Brigadoon and Gidgegannup areas that reported having undertaken that particular action.

Mail-out Questionnaires

Respondents indicated they consulted extra sources of information after becoming aware of the fire, most frequently ABC local radio and the FESA website (Figure 40). Just over 10% of residents reported that they did not look elsewhere for more information.

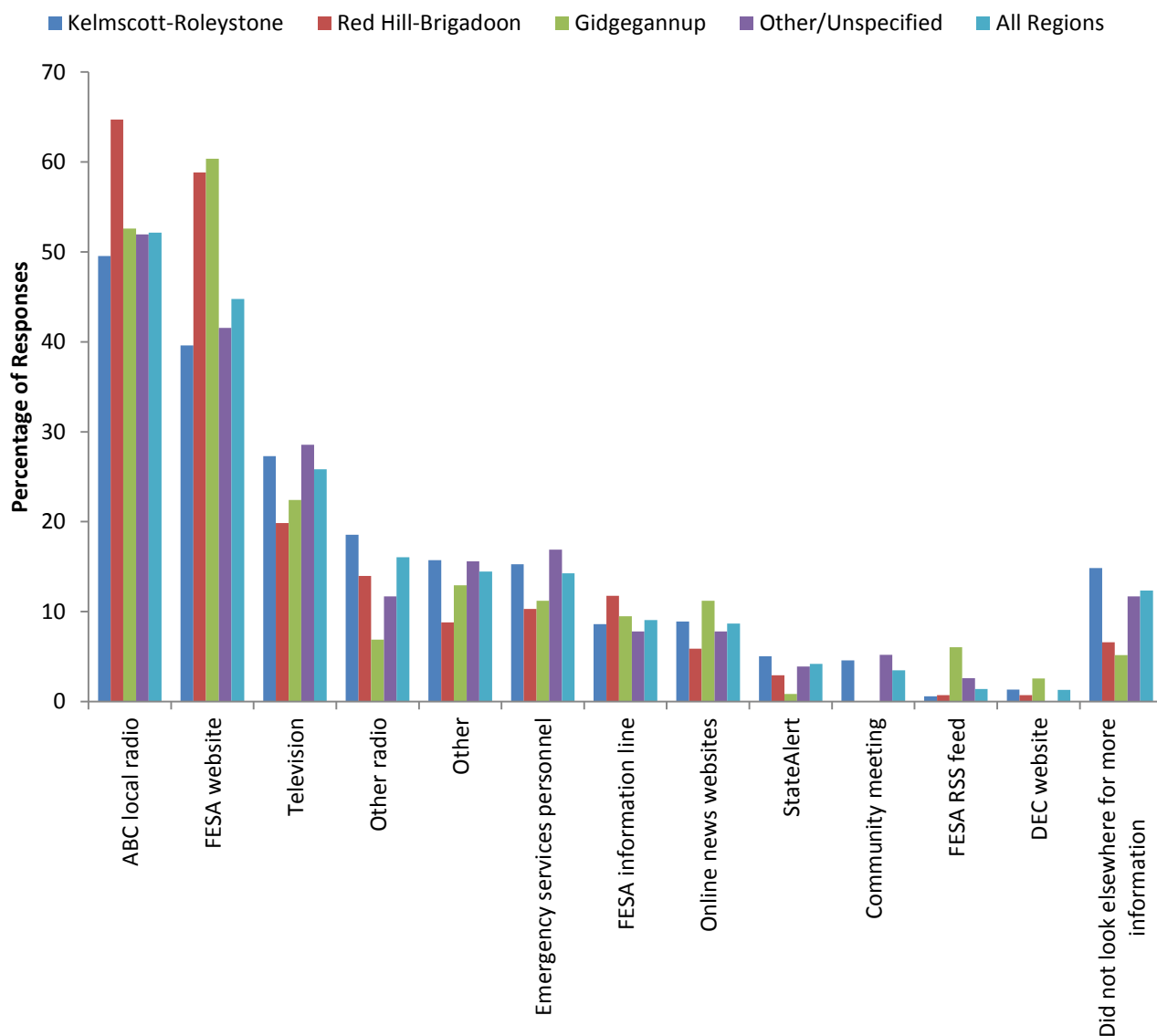


Figure 40. Percentage of respondents who sought more information about the fire through this particular medium.

Respondents to the mail-out questionnaire were asked to report their actions on the day of the fire and these included descriptions of the sources of information they accessed on the day. Respondents reported that the ABC Radio and FESA website were useful sources of information, although some complained that the information was not up to date or was incorrect:

“Kept attuned to ABC local radio for information.”

“Contacted neighbour with links to the fire service to get information on whether there might be a threat to us. Looked on FESA website for information about the fire and warnings. Continued to talk with neighbours about status of the fire. Prepared to leave and advised neighbours of what our intentions were. Received StateAlert message about threat. Left our house, as planned. Continued to stay in touch with neighbours, listened to ABC local radio reports and watched TV updates.”

“As soon as arrived home checked FESA website for alerts. Once found out fire in our local area kept FESA website open and contacted local friends to see what they knew. Once power was lost kept ABC radio on for alerts.”

“Checked FESA website to find out the area involved and how far it was from my property. Then tuned into the radio 6PR and ABC alternately.”

Actions on the Day of the Fire

Community Interviews and Household Surveys

Interviewees were asked to provide a detailed account of their actions on the day of the fire (Figure 41). Actions on the day of the fire endorsed by residents in the Red Hill–Brigadoon area included contacting friends, family or neighbours, and initialising home defences. In contrast, residents in the Kelmscott–Roleystone area were more likely to endorse actions related to evacuation, such as gathering the family, gathering the family and pets, and gathering valuables so as to be ready to leave. Other responses included: organise protective clothing ($n = 4$); water down property ($n = 20$); fought fire or spot fires ($n = 9$); and monitoring the fire or wait and see.

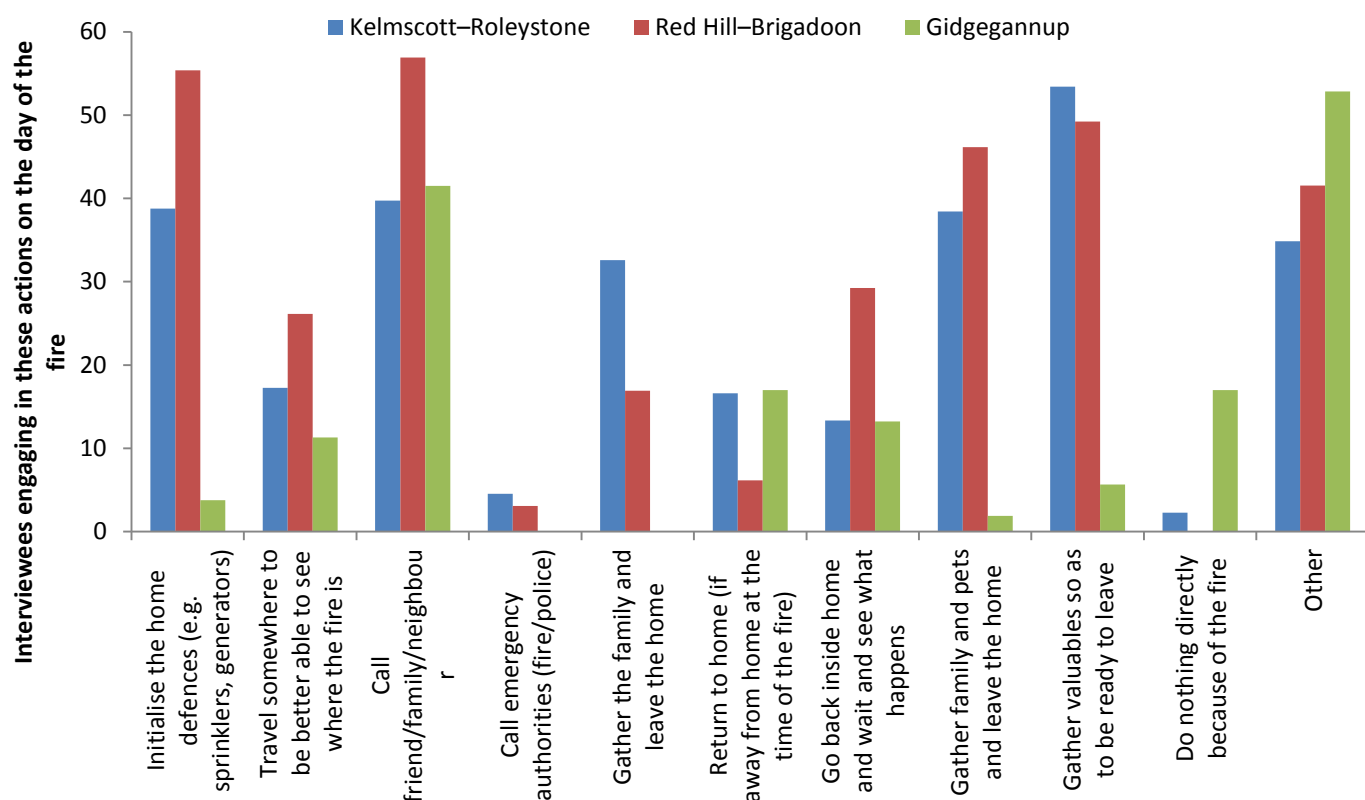


Figure 41. Actions that interviewees reported engaging in on the day of the fire.

Social Networking Sites

Mail-out Questionnaires

Respondents were asked whether they accessed any social networking sites such as Facebook or Twitter on the day of the fire to gain information about the fire (Figure 42). The majority of residents (89%) did not access any social networking sites; however, of the 105 respondents that did, Facebook was the most frequently accessed site (Figure 43). The 'Other' response category revealed some consistent responses with 4% of respondents using social networking utilizing forum websites (2% Roleystone forum, 2% Stockyard forum) to gain more information on the day of the fire.

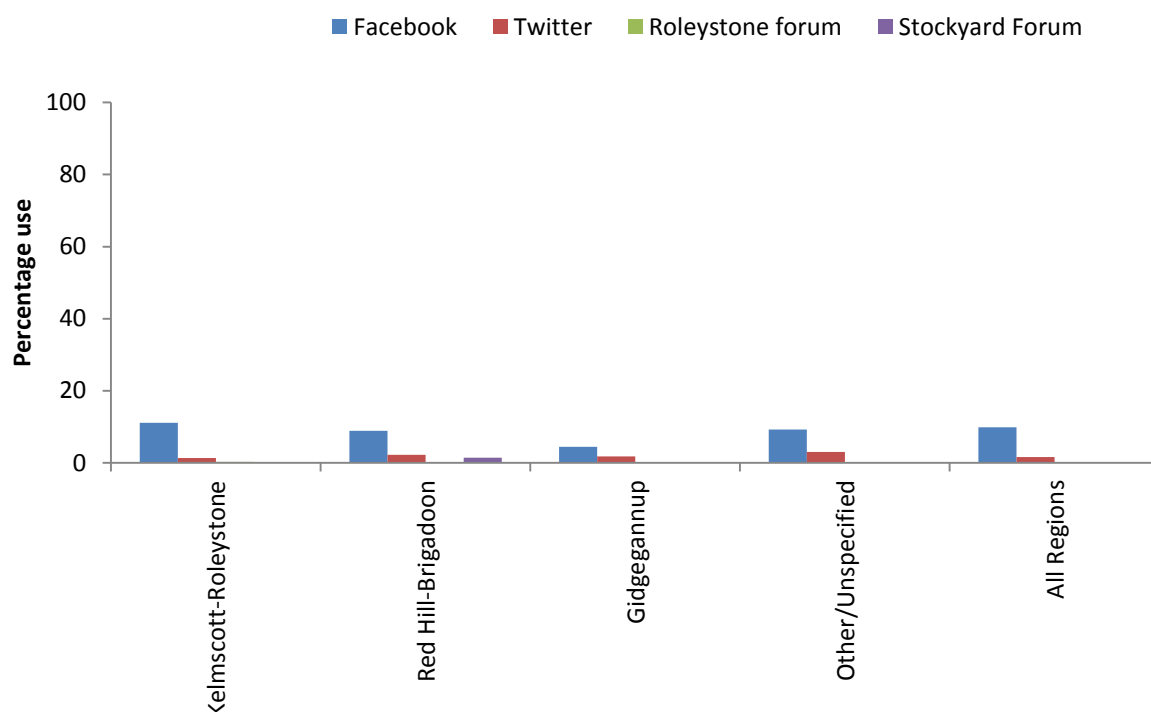


Figure 42. Percentage of respondents accessing social networking sites.

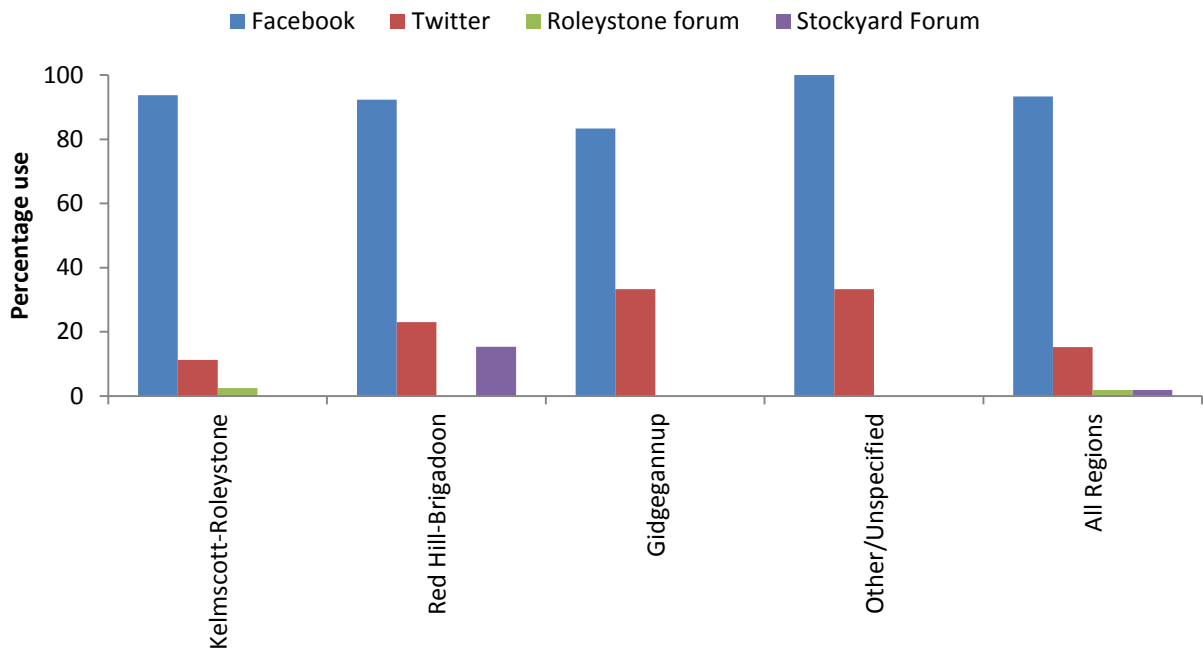


Figure 43. Percentage accessing this particular site of the respondents who indicated they used a social networking site to gain information about the fire.

Factors Contributing to Residents Leaving Their Homes

Community Interviews and Household Surveys

Residents' decisions to leave their property seemed to be influenced by a variety of factors (see Figure 44). Some of these included seeing or smelling smoke, seeing flames, or pressure from neighbours, friends and family. The most commonly reported factor in the Kelmscott–Roleystone area was seeing or smelling smoke and the second most common factor was receiving an official instruction to leave – with the majority of residents reporting that this came in the form of a police evacuation order. In the Red Hill–Brigadoon area, interviewees reported leaving their home to ensure the safety of pets and horses ($n = 4$) or owing to orders to leave from emergency services personnel ($n = 3$). In Gidgegannup, 98% of interviewees did not leave their homes

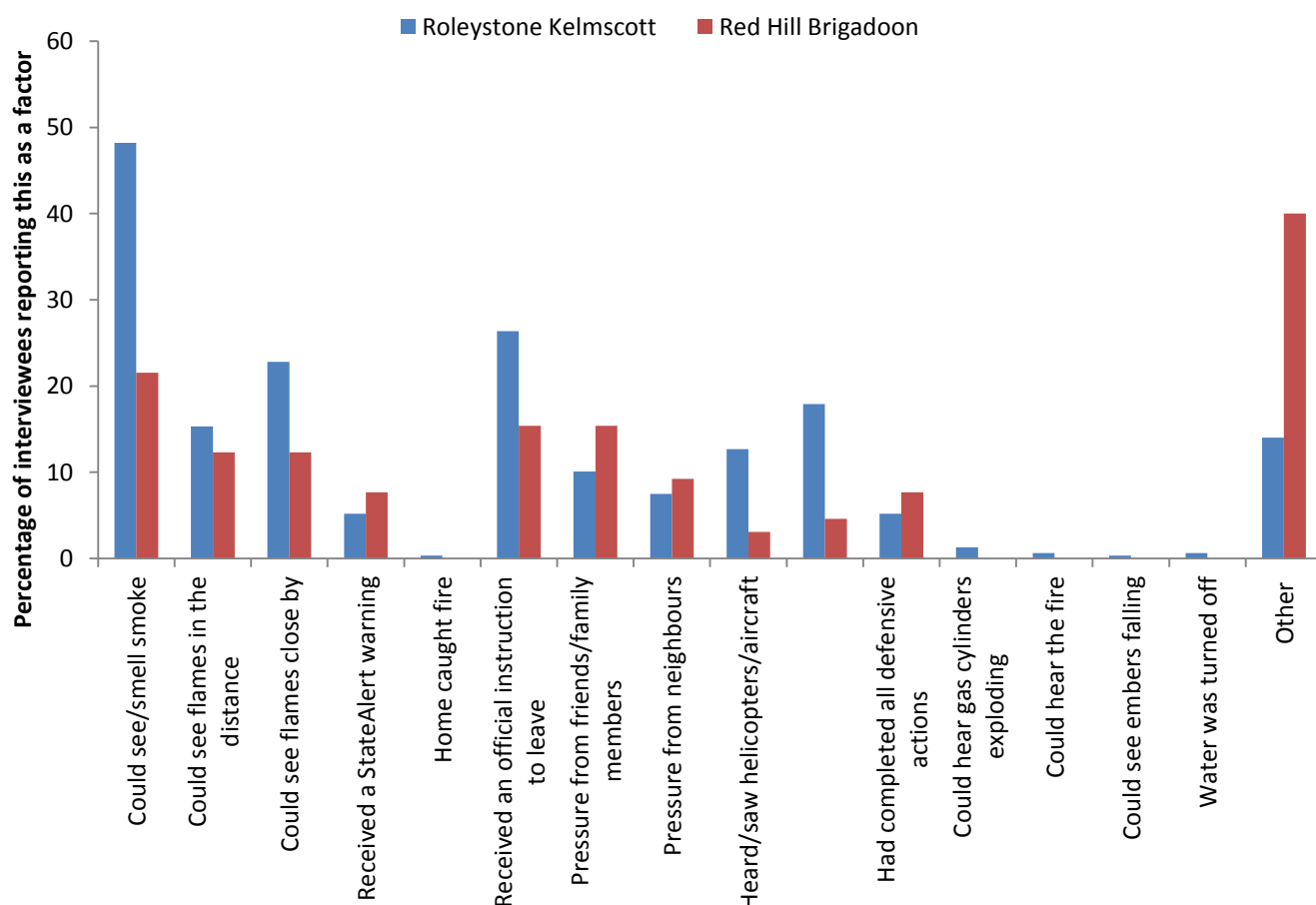


Figure 44 Factors contributing to residents' decisions to leave their homes on the day of the fire.

Bars represent the percentage of interviewees in Kelmscott–Roleystone, Red Hill–Brigadoon and Gidgegannup areas that reported this factor as one of the key factors contributing to their decision to leave.

Mail-out Questionnaires

More than 60% of respondents to the mail-out questionnaire left their home at some point owing to the fire. A higher proportion of Kelmscott–Roleystone residents left their home than Red Hill–Brigadoon residents and only a very small number of Gidgegannup residents left their home. In some cases, this was simply to gain more information about the fire (Figure 45). These outcomes are consistent with those reported in the interviews. This is perhaps owing to the different nature and direction of the two different fires and the forced evacuation of Kelmscott–Roleystone residents.

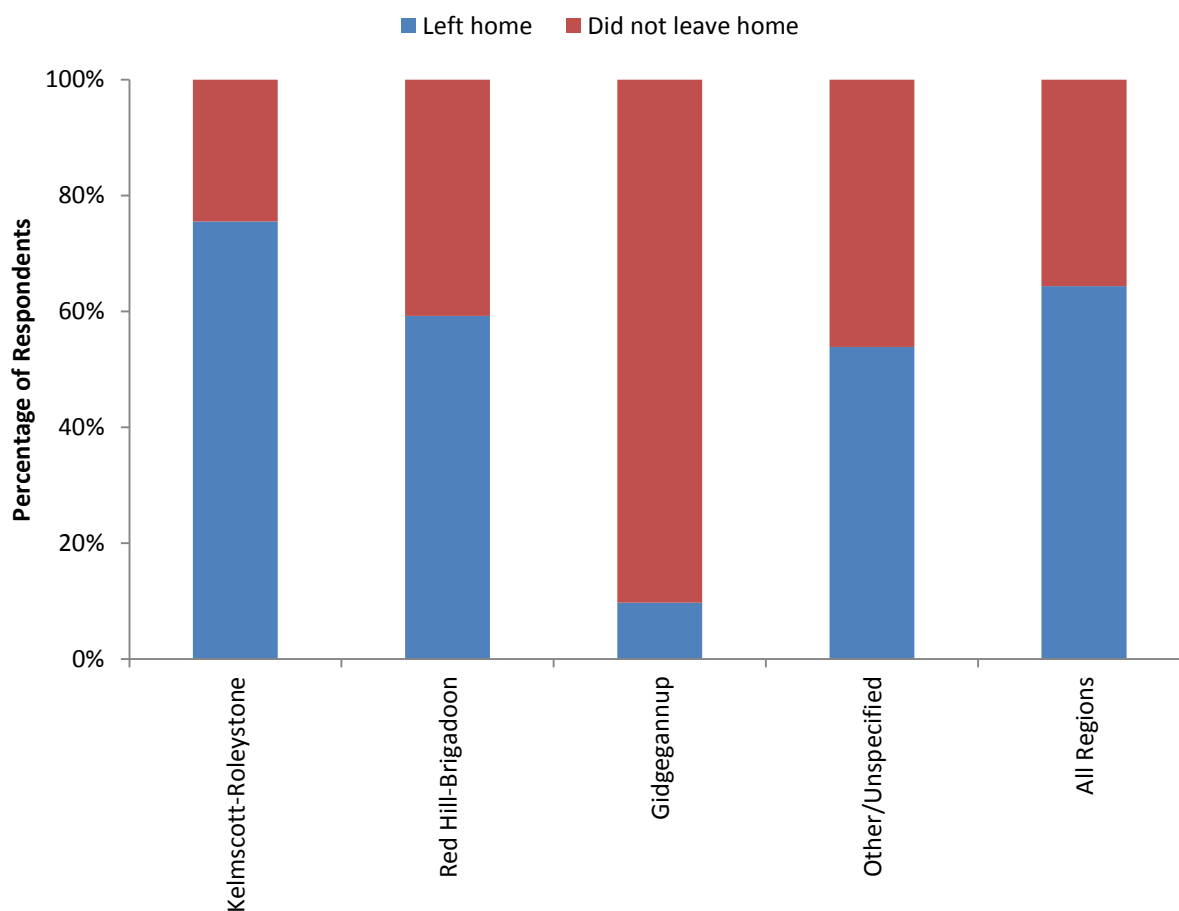


Figure 45. Percentage of respondents who left their home at some stage owing to the fire.

Respondents were also asked to provide the reasons they left their property and these are shown in Table 9. The most frequent contributing reason was being told by police, firefighters or emergency services personnel to leave, followed by feeling it was too dangerous to stay to protect their house.

Table 9. Percentage of respondents who indicated that this factor contributed to their decision to leave their property.

Reason for leaving	Kelmscott– Roleystone	Red Hill– Brigadoon	Gidgegannu p	Other/ Unspecified	All regions
Total no. of respondents	86	77	10	35	608
Police, fire or emergency services told me to leave	53.91	40.26	0.00	60.00	51.64
I felt it was too dangerous to stay and protect my house	45.68	27.27	30.00	25.71	41.94
I saw/smelled smoke nearby	37.04	16.88	10.00	22.86	33.22
There was fire in the immediate vicinity of my property	31.48	20.78	0.00	11.43	28.45
I saw flames nearby	32.30	14.29	0.00	8.57	28.13
I wanted to remove other household members or visitors from danger	27.57	36.36	20.00	20.00	28.13
Relatives, friends or neighbours told me to leave	28.81	25.97	0.00	20.00	27.47
Utilities or equipment failed and I was unable to defend my property without them	6.58	7.79	0.00	5.71	6.58
I received an official warning via media (Internet, radio, TV)	2.88	9.09	0.00	5.71	3.78
To fight the fire	0.62	0.00	60.00	5.71	1.81
To further assess the status of the fire	0.62	2.60	10.00	0.00	0.99
I sustained an injury while defending the house	0.82	1.30	0.00	0.00	0.82
Wanted to remove pets from danger	0.82	1.30	0.00	0.00	0.82
To get things that were needed to defend the property	0.62	1.30	0.00	0.00	0.66
My house caught fire	0.82	0.00	0.00	0.00	0.66
Other	0.62	0.00	0.00	0.00	0.49

Respondents to the mail-out questionnaire were asked to elaborate on why they left their property if they did. Below are some examples:

"After being home 5 mins police came and told me I had to evacuate."

"After repeated warnings (phone) from FESA or emergency services I left at 1800 hrs."

"I left to protect myself and children from the fire, my husband was overseas."

"I could hear explosions and the crackling of the fire."

"I have lung problems and found difficulty breathing."

"Didn't feel able to defend the house given the weather conditions."

"We received a text to alert us to the dangers of the fire and we left to avoid putting any of the family or animals at risk of harm."

One of the reasons people reported leaving their homes was due to utilities failing on the day of the fire. Residents expected to lose many utilities or services during the event of a bushfire (Figure 46) and although the expectation of loss was much higher than actual loss of services (Figure 47), some residents reported not realising the impact the loss of a certain service on their bushfire survival plan.

"Without power my remote control to open my double garage door would not work. The manual alternative was a cord which I could only just reach did not have sufficient strength to haul the door open. Tried standing on a chair but my lack of height and strength could not get the door to retract in to the garage roof and it just slid down back to the closed position."

"Returned to house and began helping husband water house down then water was cut off. Called water board to complain but water supply was NOT restored."

"No power; no phone or radio - during fire."

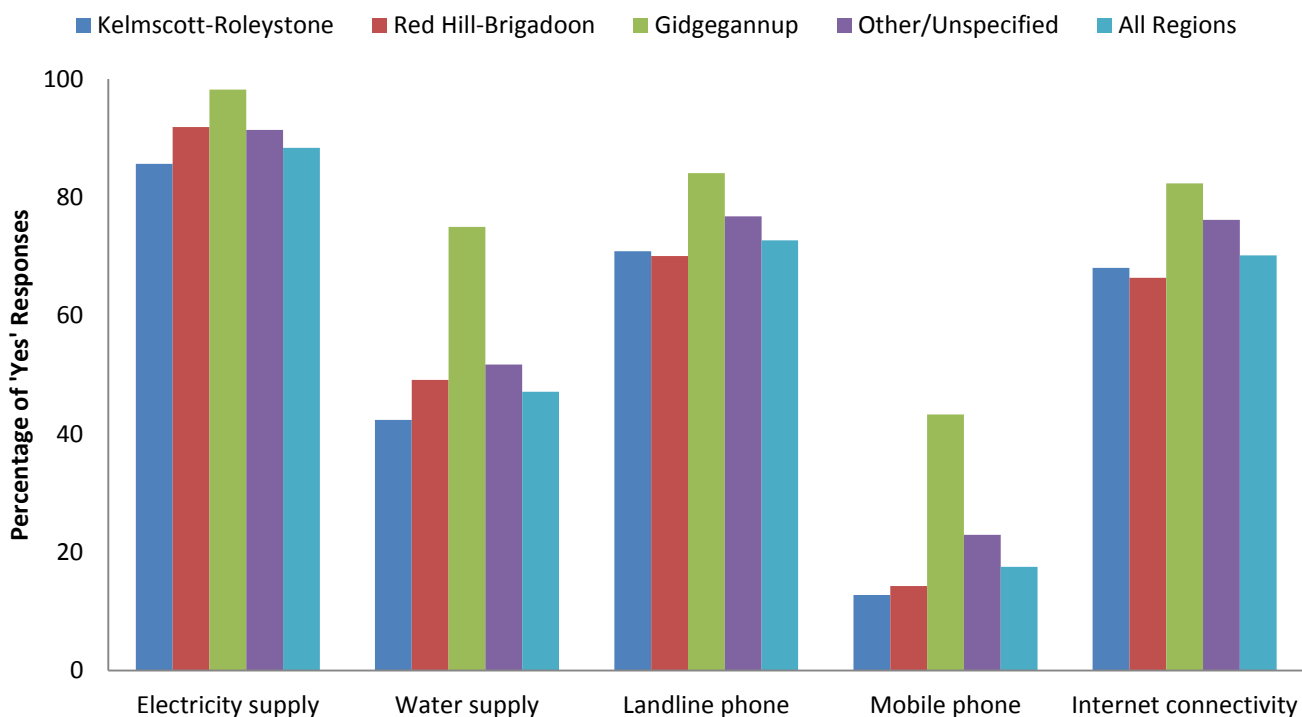


Figure 46. Services residents expected to lose prior to February 2011.

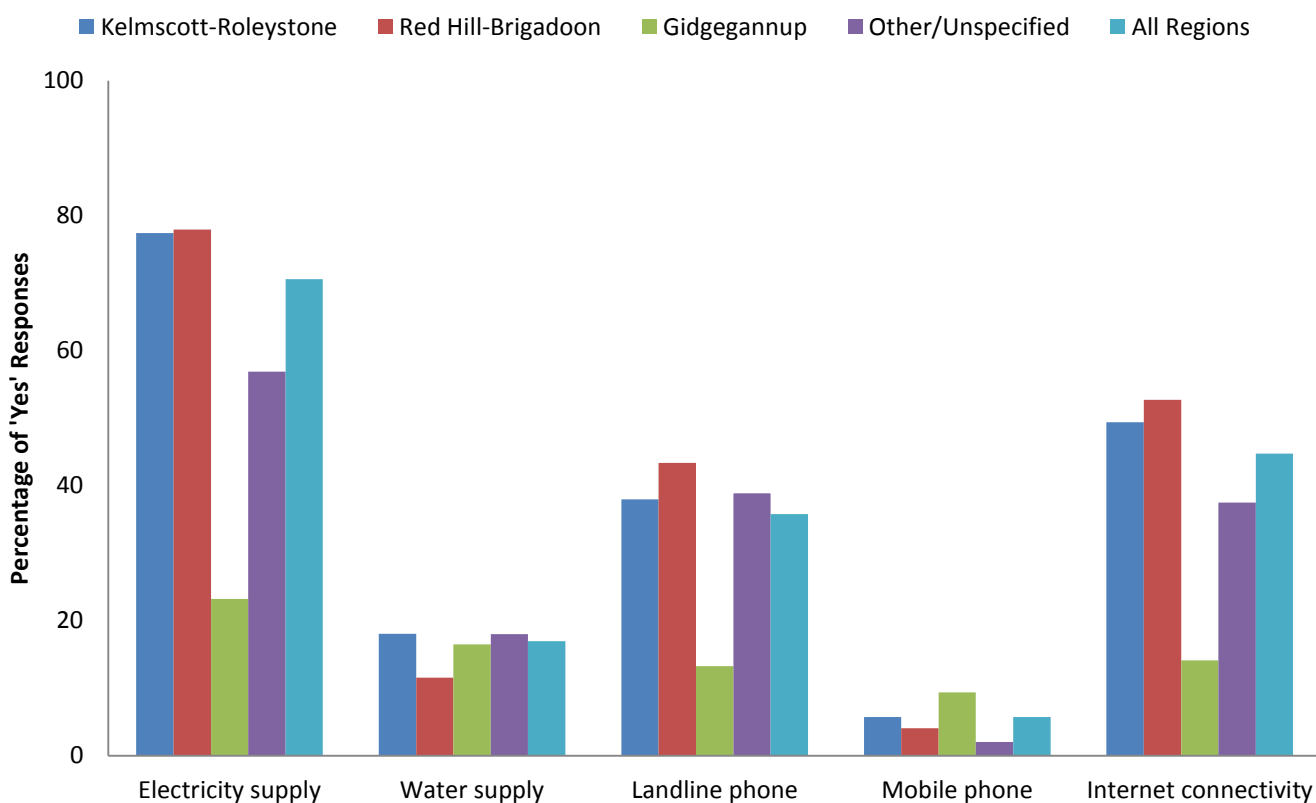


Figure 47. Services residents reported losing on the day of the fire.

Residents were also asked where they evacuated to after leaving their house (Figure 48). The majority of respondents went to a nearby town that was safe from the fire, but only slightly fewer went to another house nearby. Very few residents from Gidgegannup left their home owing to the fire ($n = 10$) but half of those that did leave, did so to fight the fire ($n = 5$).

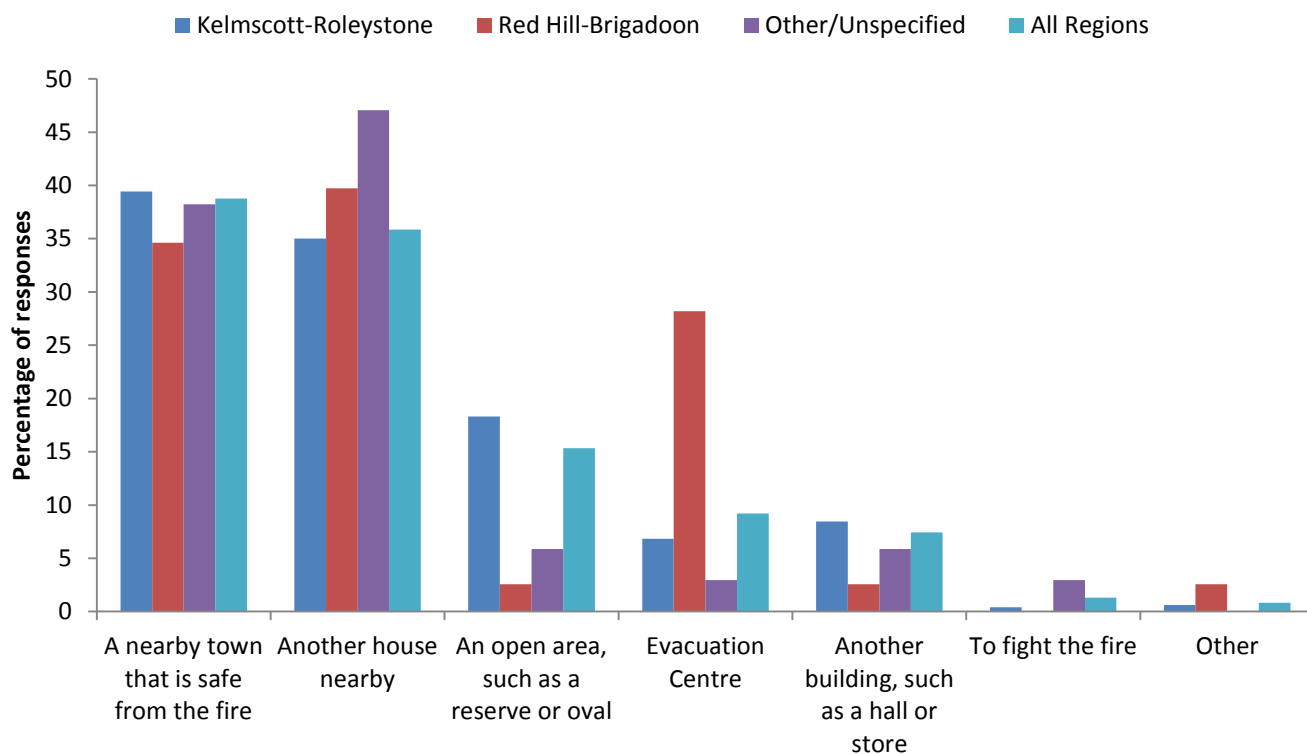


Figure 48. Percentage of respondents who evacuated to these particular places after leaving their house owing to the fire.

NB: Gidgegannup was removed from graph as it was not at threat from the fire.

Residents were also asked to indicate how far from their property the fire was when they left their home (Figure 49). Across all interview areas the majority of residents left their home when the fire was within 1km of their property, though some residents did not evacuate until the fire was on their property. Residents from the Red Hill–Brigadoon area indicated that they left their home when the fire was further away (i.e. more than 1 km).

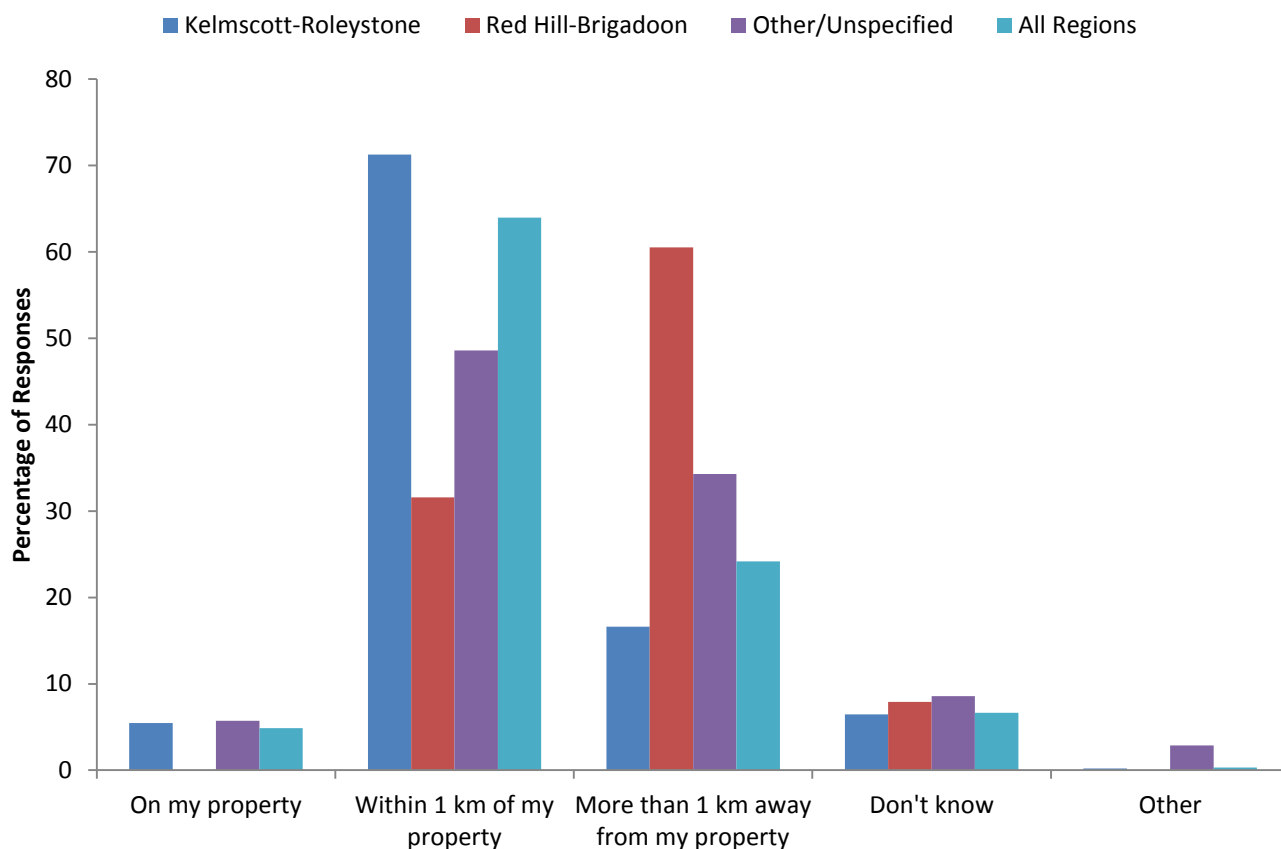


Figure 49. Percentage of residents who indicated the fire was a particular distance away from their property when they evacuated.

NB: Gidgegannup was removed from the graph as they were not at threat from the fire.

Evacuation Centre

Armadale Arena

Community Interviews and Household Surveys

Armada Arena, a local sporting centre, was used as an official evacuation centre during and following the Kelmscott–Roleystone bushfire. Emergency services personnel were directing displaced residents in the area to Armada Arena for safety and further information regarding the bushfire. Interviewees in Kelmscott and Roleystone were asked whether they went to Armada Arena and whether they felt the information provided there was sufficient (Figure 50). Over half of the Kelmscott–Roleystone residents interviewed did not go to Armada Arena, though in some cases this was because another member of the household other than the interviewee attended on behalf of the entire household. Of those interviewees that did go to Armada Arena, the majority (75%) of them found the information provided sufficient. However, some people commented that the public announcement equipment was ineffective, and the presence of the media was at times intrusive and distressing.

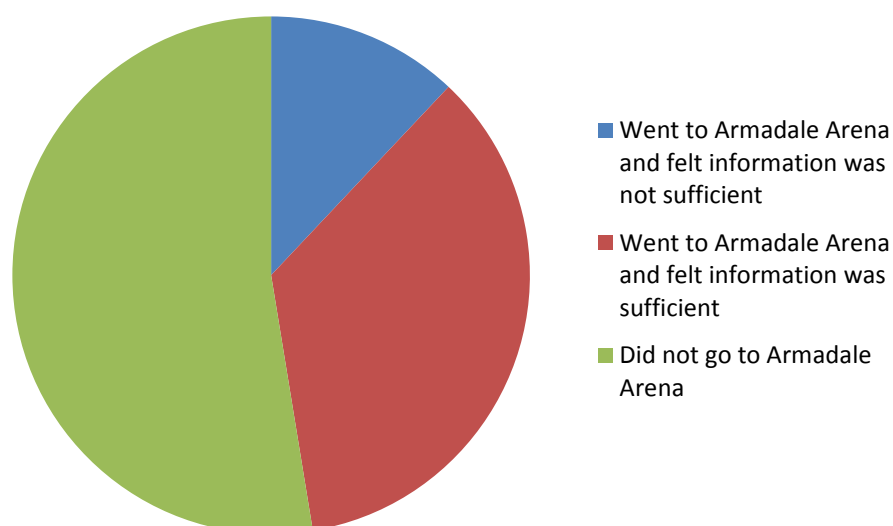


Figure 50. Attendance of Kelmscott–Roleystone residents at the Armadale arena, and proportion who felt the information provided was sufficient.

Structures Igniting

Community Interviews and Household Surveys

Interviewees were asked whether they saw structures ignite during the fire. The fire did not reach Gidgegannup and so no residents saw structures ignite; however, 36.1% of interviewees from the Kelmscott–Roleystone area and 6.3% of interviewees from the Red Hill–Brigadoon area reported they saw structures ignite.

Mail-out Questionnaires

When residents reported on their actions on the day of the fire, a number mentioned seeing structures igniting and burning around them:

“There is nothing apart from the obvious things mentioned before which prepares you seeing homes at the top of your street of 30 years burning.”

“Saw neighbour[’s house] burn when embers ignited evaporative air conditioner.”

Feedback and Future Research Participation

Community Interviews and Household Surveys

Residents were asked if they would like to receive a short summary of the research findings of the study they had participated in by either email or post and were also asked whether they would be prepared to be contacted in the future regarding opportunities to participate in other research. Over 88% of total respondents indicated they would like to receive a summary of the results and over 65% of respondents indicated they would be prepared to be contacted for future research. This provides a group of 294 residents prepared to be contacted regarding future research opportunities. The number of respondents wishing to receive a summary and willing to participate in future research is shown in Table 10.

Table 10. Number of respondents who indicated they would like to receive a summary of research findings and would be willing to participate in future research.

The percentage of the total respondents is shown in parentheses.

	Kelmscott– Roleystone	Red Hill–Brigadoon	Gidgegannup
Requested feedback summary	294 (88.0%)	53 (91.4%)	47 (88.7%)
Willing to be contacted for future research	216 (65.4%)	40 (70.2%)	38 (73.1%)



Appendix 1 February 2011 Fires in Roleystone, Kelmscott and Redhill Interview Protocol

1. For the record, what is the street address of this property? How long have you lived here? What were the main reasons you came to live here in this particular community?
2. How would you describe this community (—is it a strongly linked community, networked, do people know their neighbours, etc.)
3. Before the fire of 6 February, how concerned were you about the possibility of a bushfire threatening your home? Did you think you and your family were at risk from a bushfire?
4. Have you and your family been through a bushfire before? If so, where and when? How did this affect your planning and preparation?
5. Do you have any other experience, training, or education with bushfire?
6. Prior to February 2011, what preparations had you made to protect your home in the event that a bushfire broke out and threatened your home? (Ask if they have a **ROOF-MOUNTED evaporative air conditioner**) What were the main sources of information you used for making these preparations?
7. (IF HOUSEHOLD IS **NOT** SINGLE OCCUPANT) Have you had discussions with others in your household about preparation for bushfires? (Please tell me more about the discussions you have had – how often do you discuss these issues? What issues were discussed?)
8. Have you ever had discussions with your neighbours or anyone else in the local community about what you should do in the case of fire?
 - 8a. (IF YES TO 8.) Were you aware of your neighbour's fire plans? If so did you or your neighbours ask each other for help at any stage?
9. Did you (and your family) have a bushfire plan? If so, what was the plan? What were the main reasons you decided on **this** plan?
 - 9a. Did you use any information from formal (authorities, agencies etc) or informal (friends/neighbours/relatives) networks to develop your fire plan – if so where did you get it from/hear it etc and what form did it take?
 - Who in the family was responsible for establishing the plan, if children are involved who is responsible for them?
 - Who generally takes responsibility for maintaining fire-related risks (e.g. cutting trees, emptying gutters) and equipment (e.g. generators, sprinkler systems)?
10. On hot dry days when bushfires are possible, do you do anything in particular? Do you look for information and signs of a fire? If so, what sources of information do you use to keep updated on the current and predicted fire danger?
11. Think back to the lead up to the weekend of the fire, or the day before the fire. What was the fire weather forecast? Did you think it was going to be a day of bad fire weather? Did you know there was a total fire ban in place? As you understand it, what can you **do**, and **not do**, on a Total Fire Ban day?
12. What, if any, preparations had you made for a possible bushfire **on the day of the fire**? What were the main sources of information you used for making these preparations?
13. What were your expectations regarding receiving warnings about fires in your area?

14. Were you here, on your property, when the fire broke out?
IF “YES”, PROCEED to **Question 15**; IF “NO” ASK ABOUT THE CIRCUMSTANCES

15. How did you first become aware of the fire?

--(if they received a warning ask how they received the warning e.g. friends/relatives/radio/TV/sms/state authorities/local authorities/neighbour/paper/social media etc)

--When you first knew about the fire, how concerned were you about possible danger for you (and your family)? ----What would you say was your main worry initially? (May need to tease out a bit e.g. where did you seek info, directly after you became aware?)

15a. Are you aware of the StateAlert warning system? (if yes) Did you receive a StateAlert warning (what time)? (if not, then describe the StateAlert system and then ask if they received any messages like the ones you described)

16. What did you decide to do about the fire initially?

17. Walk me through the main things that happened on the day of the fire and what you decided to do as the day unfolded, starting from **before** you knew about the fire. (**INTERVIEWER**: your aim is to get a narrative of the significant events which occurred for the interviewee. Pay particular attention to:

(a) information about the fire including: an order to evacuate, media warnings, calls/texts/sirens/visits from family, friends, neighbours, agencies; who they turned to for help (if anyone) and environmental cues such as smoke, embers, (b) the effects of these items of information—how they changed the interviewee's understanding of the situation, and the risks and concerns; (c) decisions about what to do; and (d) actions taken, and how these actions compare to their intended fire plan. IN PARTICULAR: BE ALERT TO FOLLOW-UP ISSUES OF: (a) COMMUNICATION, ESPECIALLY **SOCIAL NETWORKING and any communications from local/state authorities of any type**; AND (b) **STRESS/ANXIETY** AND THEIR EFFECTS ON DECISION MAKING.

18. (For those who **left their home** before or during the event) Why did you choose to leave? Where did you relocate to?

18a. (If they indicated that they **relocated to Armadale Arena**) Were you provided with sufficient information on the bushfire whilst you were at the Armadale Arena relocation point?

18b. How long after did you return to your home?

19. (For those who stayed) Did you see any homes or structures ignite?

20. Looking back, what information about the fire was most important in making your final decision and where did you get/hear/see this information about what to do?

21. What information about the fire was missing that made it difficult for you to decide what to do and by what method would you have preferred to receive the extra information? (probe if answer seems practical/impractical – i.e. if they say TV, were they actually watching it, or of sms do they have coverage?)

22. Knowing what you know now about the fire, what, if anything, would you do differently?

23. What has it been like for you since the fire?

INTERVIEWER: be careful in discussing post-fire issues, do NOT cross the line into ‘counselling’, refer the interviewee to the Help Sheet attached to the Participant Information Statement, if appropriate.



Appendix 2

Roleystone/Kelmscott Fire 6 February 2011 Research Taskforce: Interview Checklist

Property Street Address: _____ Date: _____ Recorder: _____ Folder: _____ File# _____

Household composition on the day of the fire _____

Past experience with bushfires? ☐ Yes ☐ No If Yes, when _____ did it affect planning? ☐ Yes ☐ No

Action on day (tick one only)

- | | | |
|---|--|---|
| <input type="checkbox"/> Not at home just by chance | <input type="checkbox"/> Successful attempt to defend home | <input type="checkbox"/> Left just in time |
| <input type="checkbox"/> Left well before fire impact | <input type="checkbox"/> Unsuccessful attempt to defend home | <input type="checkbox"/> Took last-resort shelter |
| <input type="checkbox"/> Not at home— deliberate decision based on fire danger weather <input type="checkbox"/> Other _____ | | |

Outcome (Tick one only)

- | | | |
|---|---|--|
| <input type="checkbox"/> House survived, no damage or minor damage only | <input type="checkbox"/> House survived but damaged | <input type="checkbox"/> House destroyed |
|---|---|--|

Was any other construction (e.g. shed) damaged/destroyed?

☐ Yes ☐ No

Did/does the house have an evaporative air conditioner installed?

☐ Yes ☐ No

Preparatory actions taken in the lead-up (tick all that apply)

- | | | |
|--|--|---|
| <input type="checkbox"/> Had a detailed fire plan | <input type="checkbox"/> Protective Clothing | <input type="checkbox"/> Maintained a clear space around home |
| <input type="checkbox"/> Installed Sprinkler System | <input type="checkbox"/> Evacuation Route Mapped Out | <input type="checkbox"/> Cleared gutters |
| <input type="checkbox"/> Had water supply independent of mains | <input type="checkbox"/> Had pump with power source independent of mains | <input type="checkbox"/> Discussed fire risk with neighbours/locals |
| <input type="checkbox"/> Other _____ | | |

Where did they get info on preparation? (tick all that apply)

- | | | |
|--|---|--|
| <input type="checkbox"/> Local brigades | <input type="checkbox"/> Official web site | <input type="checkbox"/> 'Common sense' |
| <input type="checkbox"/> Experience from living in rural area | <input type="checkbox"/> Community meetings | <input type="checkbox"/> Trusted their 'gut' |
| <input type="checkbox"/> Consulted official documents (e.g. FESA P.A.S. leaflet) | <input type="checkbox"/> Informal discussions with friends/neighbours | |
| <input type="checkbox"/> Other _____ | | |

Initial intentions ("Fire Plan")

- | | |
|--|--|
| <input type="checkbox"/> Stay and defend (unambiguous) | <input type="checkbox"/> Disagreement/conflict among family members |
| <input type="checkbox"/> Wait and see how bad it is then decide* | <input type="checkbox"/> Some people leave early, others stay and defend |
| <input type="checkbox"/> Whole family leaves early* | <input type="checkbox"/> No concrete plan |
| <input type="checkbox"/> Other _____ | |

* be discerning here – often people say their plan is to 'leave early' but they end up actually waiting and seeing, only to leave at the last minute. 'Leave early' in this context is intended to mean *well before* the fire threat is imminent (e.g. first sign of fire, first warning).

Information they use to monitor current or predicted fire danger? (tick all that apply)

- | | | |
|--|--|---|
| <input type="checkbox"/> Fire danger rating road signs | <input type="checkbox"/> Bureau of Met website | <input type="checkbox"/> FESA website |
| <input type="checkbox"/> TV | <input type="checkbox"/> Radio | <input type="checkbox"/> Don't pay much attention |
| <input type="checkbox"/> Other _____ | | |

At the time, did they know there was a total fire ban in place on the day of the fire? ☐ Yes ☐ No

What activities do you know are illegal on TFB days?

- | | | |
|---|---|----------------------------------|
| <input type="checkbox"/> Cook outside using an open fire | <input type="checkbox"/> move vehicles/equipment across paddock | <input type="checkbox"/> harvest |
| <input type="checkbox"/> Undertake hot work (e.g. metal work/grinding) without an exemption | <input type="checkbox"/> Don't know | |
| <input type="checkbox"/> Other _____ | | |

Were they at home when they learned about the fire?

☐ Yes ☐ No



How did they **INITIALLY** learn about the fire?

- | | |
|--|---|
| <input type="checkbox"/> Saw smoke | <input type="checkbox"/> Saw flames |
| <input type="checkbox"/> Received official warning via TV | <input type="checkbox"/> Warned by police/SES/firefighters |
| <input type="checkbox"/> Received official warning via radio | <input type="checkbox"/> Official 'StateAlert' warning (sms/landline) |
| <input type="checkbox"/> Received official warning via web | <input type="checkbox"/> Contact from friends/neighbours/family |
| <input type="checkbox"/> Other _____ | _____ (e.g. landline/Twitter) |

Preparatory actions taken after learning of fire in area on the day (Tick all that apply)

- | | | |
|---|---|--|
| <input type="checkbox"/> Turned on radio for info | <input type="checkbox"/> Telephoned friends/neighbours/family | <input type="checkbox"/> Collected valuables to take to safety |
| <input type="checkbox"/> Turned on TV for info | <input type="checkbox"/> Turned on sprinklers + generators | <input type="checkbox"/> Arranged safety of pets/livestock |
| <input type="checkbox"/> Looked on the FESA website | <input type="checkbox"/> Went on Facebook or Twitter | <input type="checkbox"/> Blocked gutters and filled with water |
| <input type="checkbox"/> Looked on another website | <input type="checkbox"/> Organised protective clothing | <input type="checkbox"/> Emailed friends/neighbours/family |
| <input type="checkbox"/> Other _____ | | |

Where did they get info on preparation on the day? (tick all that apply)

- | | | |
|--|---|--|
| <input type="checkbox"/> Local brigades | <input type="checkbox"/> Official web site | <input type="checkbox"/> 'Common sense' |
| <input type="checkbox"/> Experience from living in rural area | <input type="checkbox"/> Community meetings | <input type="checkbox"/> Trusted their 'gut' |
| <input type="checkbox"/> Consulted official documents (e.g. FESA P.A.S. leaflet) | | |
| <input type="checkbox"/> Other _____ | | |

Actions after learning of fire (number in order mentioned)

- | | |
|--|---|
| <input type="checkbox"/> Initialise the home defences (e.g. sprinklers, generators) | <input type="checkbox"/> Return to home (if away from home at the time of the fire) |
| <input type="checkbox"/> Travel somewhere to be better able to see where the fire is | <input type="checkbox"/> Go back inside home and wait and see what happens |
| <input type="checkbox"/> Call friend/family/neighbour | <input type="checkbox"/> Gather family and pets and leave the home |
| <input type="checkbox"/> Call emergency authorities (fire/police) | <input type="checkbox"/> Gather valuables so as to be ready to leave |
| <input type="checkbox"/> Gather the family and leave the home | <input type="checkbox"/> Do nothing directly because of the fire |
| <input type="checkbox"/> Other _____ | |

If they left their home, what were the key trigger(s) that made them decide to leave? (number in order mentioned)

- | | |
|---|---|
| <input type="checkbox"/> Could see/smell smoke | <input type="checkbox"/> Pressure from friends/family members |
| <input type="checkbox"/> Could see flames in the distance | <input type="checkbox"/> Pressure from neighbours |
| <input type="checkbox"/> Could see flames close by | <input type="checkbox"/> Heard/saw helicopters/aircraft |
| <input type="checkbox"/> Received a StateAlert warning | <input type="checkbox"/> Received official warning about fire, other than StateAlert |
| <input type="checkbox"/> Home caught fire | <input type="checkbox"/> Had completed all defensive actions (i.e. felt they had done all they could) |
| <input type="checkbox"/> Received an official instruction to leave (e.g. Police evac order) | |
| <input type="checkbox"/> Other _____ | |

If they left their home, did they go to Armadale Arena?

☐ Yes ☐ No

Did they feel information was sufficient at Armadale Arena?

☐ Yes ☐ No

Did they see any homes or structures ignite?

☐ Yes ☐ No

Summary/highlights of the interview:

Appendix 3 Preliminary Interview Checklist Data Summary

		Was interview conducted in Roleystone/Kelmscott, Red Hill or Gidgegannup area?			Total
		Roleystone/Kelmscott	Red Hill	Gidgegannup	
Past experience with bushfires	Yes	190	52	43	285*
	No	112	13	11	136
Total		302	65	54	421

If Yes, did this affect planning	Yes	100	36	35	171
	No	80	14	8	102
Total		180	50	43	273*

* The total number of respondents who had past experience with bushfires ("yes" responses given above) differ slightly from the total responses in this table as some residents did not indicate whether their past experience affected planning.

Action on day	Not at home, just by chance	38	0	13	51
	Left well before fire impact	104	22	1	127
	Not at home — deliberate decision based on fire danger weather	0	0	0	0
	Successful attempt to defend home	56	25	0	81
	Unsuccessful attempt to defend home	0	0	0	0
	Left just in time	84	14	0	98
	Took last-resort shelter at:	0	0	0	0
	Other	21	6	40	67
Total		287	65	54	406

Outcome	House survived, no damage or minor damage only	289	65	54	408
	House survived but damaged	9	0	0	9
	House destroyed	3	0	0	3
Total		301	65	54	420

		Was interview conducted in Roleystone/Kelmscott, Red Hill or Gidgegannup area?			Total
		Roleystone/Kelmscott	Red Hill	Gidgegannup	
Was any other construction (e.g. shed) damaged/destroyed?	Yes	49	7	0	56
	No	236	58	54	348
	Total	285	65	54	404

Did/does the house have an evaporative air conditioner installed?	Yes	138	25	14	177
	No	163	40	40	243
	Total	301	65	54	420

Preparatory actions taken in the lead-up (tick all that apply)	Had a detailed fire plan	30	15	4	49
	Installed sprinkler system	28	15	7	50
	Had water supply independent of mains	33	32	46	111
	Protective clothing	15	17	9	41
	Evacuation route mapped out	22	7	18	47
	Had pump with power source independent of mains	18	26	30	74
	Maintained a clear space around home	228	56	48	332
	Cleared gutters	232	51	48	331
	Discussed fire risk with neighbours/locals	67	22	31	120
	Other	93	36	43	172
	Total	278	63	53	394

		Was interview conducted in Roleystone/Kelmscott, Red Hill or Gidgegannup area?			Total
		Roleystone/Kelmscott	Red Hill	Gidgegannup	
Where did they get info on preparation? (tick all that apply)	Local brigades	17	10	23	50
	Experience from living in rural area	72	28	23	123
	Consulted official documents (e.g. FESA P.A.S. leaflet)	77	23	22	122
	Official web site	16	11	5	32
	Community meetings	17	8	18	43
	'Common sense'	190	37	27	254
	Trusted their 'gut'	17	1	1	19
	Informal discussions with friends/neighbours	45	17	14	76
	Other	94	24	18	136
Total		276	63	53	392

Initial intentions ('Fire Plan')	Stay and defend (unambiguous)	26	11	7	44
	Wait and see how bad it is then decide	58	20	14	92
	Whole family leaves early	90	7	23	120
	Disagreement/conflict among family members	4	0	0	4
	Some people leave early, others stay and defend	35	11	5	51
	No concrete plan	90	14	0	104
	Other	33	6	10	49
	Total	301	65	54	420

		Was interview conducted in Roleystone/Kelmscott, Red Hill or Gidgegannup area?			Total
		Roleystone/Kelmscott	Red Hill	Gidgegannup	
Information they use to monitor current or predicted fire danger? (tick all that apply)	Fire danger rating road signs	62	11	18	91
	Bureau of Met. website	19	6	6	31
	FESA website	50	22	21	93
	TV	67	14	6	87
	Radio	103	26	21	150
	Don't pay much attention	73	8	6	87
	Other	75	26	24	125
Total		295	64	54	413

At the time, did they know there was a total fire ban in place on the day of the fire?	Yes	200	28	23	251
	No	95	36	28	159
Total		295	64	51	410

What activities do you know are illegal on TFB days?	Cook outside using an open fire	258	60	52	370
	Undertake hot work (e.g. metal work/grinding) without an exemption	192	55	49	296
	Move vehicles/equipment across paddock	120	53	45	218
	Harvest	76	38	38	152
	Don't know	9	1	0	10
	Other	58	9	2	69
Total		303	64	54	421

		Was interview conducted in Roleystone/Kelmscott, Red Hill or Gidgegannup area?			Total
		Roleystone/Kelmscott	Red Hill	Gidgegannup	
Were they at home when they learned about the fire?	Yes	238	60	28	326
	No	64	5	24	93
Total		302	65	52	419

How did they INITIALLY learn about the fire?	Saw smoke	209	8	11	228
	Received official warning via TV	2	0	2	4
	Received official warning via radio	4	1	8	13
	Received official warning via web	0	1	0	1
	Saw flames	3	0	0	3
	Warned by police/SES/firefighters	1	2	1	4
	Official 'StateAlert' warning (sms/landline)	6	4	0	10
	Contact from friends/neighbours/family	50	26	15	91
	Other	32	23	17	72
Total		307	65	54	426

		Was interview conducted in Roleystone/Kelmscott, Red Hill or Gidgegannup area?			
		Roleystone/Kelmscott	Red Hill	Gidgegannup	Total
Preparatory actions taken after learning of fire in area on the day (tick all that apply)	Turned on radio for info	106	33	19	158
	Turned on TV for info	20	2	11	33
	Looked on the FESA website	49	27	22	98
	Looked on another website	2	2	0	4
	Telephoned friends/neighbours/family	108	39	17	164
	Turned on sprinklers + generators	50	20	2	72
	Went on Facebook or Twitter	4	1	0	5
	Organised protective clothing	16	10	0	26
	Collected valuables to take to safety	136	38	3	177
	Arranged safety of pets/livestock	61	33	2	96
	Blocked gutters and filled with water	37	9	0	46
	Emailed friends/neighbours/family	2	0	0	2
	Other	98	21	13	132
	Total	289	65	43	397

		Was interview conducted in Roleystone/Kelmscott, Red Hill or Gidgegannup area?			Total
		Roleystone/Kelmscott	Red Hill	Gidgegannup	
Where did they get info on preparation on the day? (tick all that apply)	Local brigades	18	7	4	29
	Experience from living in rural area	48	18	4	70
	Consulted official documents (e.g. FESA P.A.S. leaflet)	9	5	1	15
	Official web site	22	14	3	39
	Community meetings	3	3	1	7
	'Common sense'	180	39	14	233
	Trusted their 'gut'	34	7	1	42
	Other	54	17	3	74
Total		246	61	22	329

Actions after learning of the fire	Initialise the home defences (e.g. sprinklers, generators)	119	36	2	157
	Travel somewhere to be better able to see where the fire is	53	17	6	76
	Call friend/family/neighbour	122	37	23	182
	Call emergency authorities (fire/police)	14	2	0	16
	Gather the family and leave the home	100	11	0	111
	Return to home (if away from home at the time of the fire)	51	4	9	64
	Go back inside home and wait and see what happens	41	19	7	67
	Gather family and pets and leave the home	118	30	1	149
	Gather valuables so as to be ready to leave	164	32	3	199
	Do nothing directly because of the fire	7	0	9	16
	Other	106	27	29	162
Total		296	65	45	406

		Was interview conducted in Roleystone/Kelmscott, Red Hill or Gidgegannup area?			
		Roleystone/Kelmscott	Red Hill	Gidgegannup	Total
If they left their home, what were triggers that made them decide to leave?	Could see/smell smoke	148	14	0	162
	Could see flames in the distance	47	8	0	55
	Could see flames close by	70	8	0	78
	Received StateAlert warning	16	5	0	21
	Home caught fire	1	0	0	1
	Received an official instruction to leave (e.g. Police evac. order)	81	10	0	91
	Pressure from friends/family members	31	10	0	41
	Pressure from neighbours	23	6	0	29
	Heard/saw helicopters/aircraft	39	2	0	41
	Received official warning about fire, other than StateAlert	55	3	0	58
	Had completed all defensive actions (i.e. felt they had done all they could)	16	5	0	21
	Other	52	26	1	79
	Total	254	45	1	300

		Was interview conducted in Roleystone/Kelmscott, Red Hill or Gidgegannup area?			Total
		Roleystone/Kelmscott	Red Hill	Gidgegannup	
If they left their home, did they go to Armadale Arena?	Yes	138	0	0	138
	No	153	1	1	155
	Total	291	1	1	293

Did they feel information was sufficient at Armadale Arena?	Yes	121	0	0	121
	No	46	0	1	47
	Total	167	0	1	168

Did they see any homes or structures ignite?	Yes	106	4	0	110
	No	187	59	49	295
	Total	293	63	49	405



Appendix 4 Capturing the Community's Bushfire Experience Questionnaire and Demographic Information Household Member

As part of the present project we are interested in gaining an understanding of people's emotional state both prior to, and following the recent bushfires. Your responses below will assist with this.

Address: _____

Gender: M ☐ F ☐ AGE: _____ Years residing in this community: _____

Employment status: employed ☐ not employed ☐ retired ☐

Experience in emergency services: No ☐ Yes ☐ - please describe: _____

Nature of Household: owner-occupier ☐ rental (family) ☐ rental (share-house) ☐

Anyone in the household with a disability, infirmity, or illness which caused or is likely to experience difficulties with a bushfire event?

No ☐ Yes ☐ _____

Insurance:

Yes, sufficient ☐ Yes, but under-insured ☐ No ☐

Responsibility for fire preparedness

We are interested in the division of responsibility within the household in preparing the property for the risk of bushfires. Please rank members of the household according to their contribution to such preparation and estimate the percentage that each member contributes.

1. Member of the household _____. Their relationship to you (if not yourself) _____
Their % responsibility for bushfire preparation _____
2. Member of the household _____. Their relationship to you _____
Their % responsibility for bushfire preparation _____
3. Member of the household _____. Their relationship to you _____
Their % responsibility for bushfire preparation _____



Discussion about fire safety

Within your household would you say that you discuss fire safety (please circle):

Not at all
1

A little
2

Moderately
3

Quite a Bit
4

All the time
5

Feedback:

Would you like to receive a brief release summarising some of the main findings of this research when they become available?

Yes ☐ No ☐

If Yes, please send me this information via:

Post ☐ Email ☐

Would you be prepared to be contacted in the future regarding opportunities to participate in other research?

Yes ☐ No ☐

If yes, please provide a contact email and or telephone number

Email (as above ☐)

Phone _____

Office use only

Date of Interview:...../...../2011; Time Concluded:.....am/pm

Interviewer:.....; Record Number: #.....M1

Worry Domains Questionnaire – Individual Questions

A number of statements are listed below describing different areas of worry, including concerns about bushfires. Please select the appropriate response to show how much **you, yourself**, have worried **in the 3 months prior to the recent bushfire** about the following.

	Not at all	A little	Moderately	Quite a bit	All the time
In the 3 months <u>prior to the bushfires</u>.....					
1. I have worried that the environment is becoming polluted/ruined	1	2	3	4	5
2. I have worried that I could lose people close to me as a result of bushfire	1	2	3	4	5
3. I have worried that I haven't achieved much	1	2	3	4	5
4. I have worried that I might fall behind with my work because of disruptions cause by bushfire	1	2	3	4	5
5. I have worried that I couldn't afford to pay bills	1	2	3	4	5
6. I have worried that I might make myself look foolish	1	2	3	4	5
7. I have worried that the beauty of the Australian bushland could be devastated by fire damage	1	2	3	4	5
8. I have worried that I would not be able to afford things	1	2	3	4	5
9. I have worried that other people will disapprove of me	1	2	3	4	5
10. I have worried that the consequences of bushfire might prevent me from fulfilling important goals	1	2	3	4	5
11. I have worried that I lack confidence	1	2	3	4	5
12. I have worried that I have left work unfinished	1	2	3	4	5
13. I have worried that I will lose close friends	1	2	3	4	5
14. I have worried that my community may be badly hit by a bushfire	1	2	3	4	5
15. I have worried that I could not keep my workload up to date	1	2	3	4	5
16. I have worried that I'll never achieve my ambitions	1	2	3	4	5
17. I have worried that I may be unable to respond competently if a bushfire emergency arises	1	2	3	4	5
18. I have worried that people treat each other terribly all over the world	1	2	3	4	5
19. I have worried that a bushfire in this region would have a negative impact on me financially	1	2	3	4	5

Please answer each of these questions about how you have felt **since the bushfire event**. Circle one number next to each question to indicate how you have felt.

	Not at all	Mildly	Medium	Quite a bit	Very much
1. During or after the bushfire, did you ever feel numb or distant from your emotions?	1	2	3	4	5
2. During or after the bushfire, did you ever feel in a daze?	1	2	3	4	5
3. During or after the bushfire, did things around you ever feel unreal or dreamlike?	1	2	3	4	5
4. During or after the bushfire, did you ever feel distant from your normal self or like you were watching it happen from outside?	1	2	3	4	5
5. Have you been unable to recall important aspects of the bushfire?	1	2	3	4	5
6. Have memories of the bushfire kept entering your mind?	1	2	3	4	5
7. Have you had bad dreams or nightmares about the bushfire?	1	2	3	4	5
8. Have you felt as if the bushfire was about to happen again?	1	2	3	4	5
9. Do you feel very upset when you are reminded of the bushfire?	1	2	3	4	5
10. Have you tried not to think about the bushfire?	1	2	3	4	5
11. Have you tried not to talk about the bushfire?	1	2	3	4	5
12. Have you tried to avoid situations or people that remind you of the bushfire?	1	2	3	4	5
13. Have you tried not to feel upset or distressed about the bushfire?	1	2	3	4	5
14. Have you had trouble sleeping since the bushfire?	1	2	3	4	5
15. Have you felt more irritable since the bushfire?	1	2	3	4	5
16. Have you had difficulty concentrating since the bushfire?	1	2	3	4	5
17. Have you become more alert to danger since the bushfire?	1	2	3	4	5
18. Have you become jumpy since the bushfire?	1	2	3	4	5
19. When you are reminded of the bushfire, do you sweat or tremble or does your heart beat fast?	1	2	3	4	5

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SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

DIRECTIONS

While recent events may have influenced your mood and behaviour the following questionnaire is particularly interested in **how you feel generally** under normal conditions. A number of statements which people have used to describe themselves are given below. Please read each statement and then circle the appropriate number to the right of the statement to indicate how you **GENERALLY** feel.

		Almost never	Sometimes	Often	Almost always
1.	I feel pleasant	1	2	3	4
2.	I feel nervous and restless	1	2	3	4
3.	I feel satisfied with myself	1	2	3	4
4.	I wish I could be as happy as others seem to be	1	2	3	4
5.	I feel like a failure	1	2	3	4
6.	I feel rested	1	2	3	4
7.	I am 'calm, cool, and collected'	1	2	3	4
8.	I feel that difficulties are piling up so that I cannot overcome them	1	2	3	4
9.	I worry too much over something that really doesn't matter	1	2	3	4
10.	I am happy	1	2	3	4
11.	I have disturbing thoughts	1	2	3	4
12.	I lack self-confidence	1	2	3	4
13.	I feel secure	1	2	3	4
14.	I make decisions easily	1	2	3	4
15.	I feel inadequate	1	2	3	4
16.	I am content	1	2	3	4
17.	Some unimportant thought runs through my mind and bothers me	1	2	3	4
18.	I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
19.	I am a steady person	1	2	3	4
20.	I get in a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

The questions on this page are only relevant if you were at home when the fire struck or went home after the fire struck.

Please indicate the extent to which, **during the fire**, you were worried about the following. If a question is not applicable (e.g. your family does not live with you or you have no children) please select the “not applicable” (N/A) option:

	Not at all	A little	Moderately	Quite a bit	All the time	
1. I was worried that if I didn't try to defend my home against the fire, it would make me appear 'weak' to others	1	2	3	4	5	N/A
2. I was worried that if I stayed to defend the home I might lose members of my family	1	2	3	4	5	N/A
3. I was worried about my family's safety	1	2	3	4	5	N/A
4. I was worried that I would not be living up to my responsibility to my family if I didn't get my family members (e.g. children) to safety	1	2	3	4	5	N/A
5. I was worried about feeling like a coward if I had to leave my home	1	2	3	4	5	N/A
6. I was worried that others would look down on me if I fled my home	1	2	3	4	5	N/A
7. I was worried that I would not be living up to my responsibility to my family if I let my home burn down	1	2	3	4	5	N/A
8. I was worried about my own safety	1	2	3	4	5	N/A
9. I was worried that something terrible would happen to my partner (e.g. wife, husband)	1	2	3	4	5	N/A

Thank you very much for your participation!

Appendix 5

Professor David Morrison
School of Psychology
Mailbag M304
The University of Western Australia
35 Stirling Highway, Crawley WA 6009
Phone +61 8 6488 3240
Fax +61 8 6488 1006



THE UNIVERSITY OF
WESTERN AUSTRALIA
Achieving International Excellence

Householder response to the February 2011 Fires in Roleystone, Kelmscott and Red Hill

Dear resident,

We are asking you to participate in a survey of your experience of the February 6th February 2011 Fires in Roleystone and Kelmscott. The survey has been sent to a sample of households in and around areas affected by the bushfires. We recognise that many families have lost property and possessions in the bushfires and we sincerely apologise for any distress receiving this survey may cause.

This survey is being conducted by the UWA School of Psychology in conjunction with the Bushfire Cooperative Research Centre (Bushfire CRC). The Bushfire CRC undertakes research on behalf of all Australian fire and emergency service agencies. The results of this survey will form one part of the knowledge base that these agencies will use to help to improve community bushfire safety. By telling us about your experience, expectations and knowledge of the bushfires, you will be making an important contribution to the prevention of future bushfire disasters.

Participation in this survey is voluntary. All information collected will remain confidential, subject to legal constraints. This project has been approved by the UWA University Human Research Ethics Committee. Details of the project, ethical issues and risks, and confidentiality are set out in the statement on page 2.

Should you require further clarification please contact Professor David Morrison on (08) 6488 3240 or david.morrison@uwa.edu.au.

Yours sincerely,

Professor David Morrison, University of Western Australia

This research is funded by the Bushfire Cooperative Research Centre and Fire and Emergency Services Authority of Western Australia



You are being invited to participate in a study being conducted by the School of Psychology in conjunction with the Fire and Emergency Services Authority (FESA), and the Bushfire Cooperative Research Centre (CRC). The Bushfire CRC is a major national coordinating centre for fire research and receives funding from all Australian fire and land management agencies, universities, CSIRO, the Bureau of Meteorology and the federal government.

This information sheet describes the project. Please read this sheet carefully and be confident that you understand its contents before deciding whether to participate.

Why have you been contacted?

You have been invited to take part because your property lies in or near an area that was affected, by the February 2011 fires in Roleystone, Kelmscott and Red Hill. Your address has been selected from a list of properties near to the fires that was compiled using fire maps and government records. Other than for the purposes of distributing the survey to you, your name has not and will not be stored.

Which member of the household should complete the survey?

Any member of the household who is **over the age of 18** can complete the survey. Ideally, the survey should be completed by the person with the most detailed knowledge about the household's experience of the February fires.

What is involved in participating?

Completing the survey is **voluntary**. You are not required to answer any questions you don't want to, and you can end the survey at any time. The survey will ask you about your thoughts and actions before, during and after the fire. It can be completed any time it suits you over the next 21 days. It normally takes between 15 to 25 minutes to complete. When the survey is complete you may return it to the Bushfire CRC in the reply paid envelope provided. **Alternatively, the survey can be completed online. Just go to <http://www.psychology.uwa.edu.au/research/bushfire/> where you will find a link to a fully secure survey website.**

What will happen to the information I provide?

Your responses to the survey will remain **anonymous** at all times and you will not be identified in any research output. We are not collecting names and your survey will be identified only by a code that is linked to your address in a password protected file. Only the researchers undertaking the analysis of the survey will have access to this file. Your address will only be disclosed to others if (1) it is to protect you or someone else from harm, (2) a court order is produced, or (3) you provide the researchers with written permission. The results of the survey will be used to produce a report on experiences and responses during the recent fires for the Bushfire CRC.

Because we are using a mail-out survey, we are not obtaining written informed consent. We assume that by completing and returning the survey you are giving your consent to participate. We have enclosed a separate copy of this information sheet so you can retain it for your records.

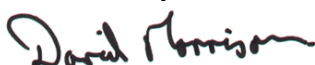
What are my rights as a participant?

You have the right to: i) withdraw your participation at any time; ii) have any unprocessed data withdrawn and destroyed (provided it can be reliably identified); and iii) have any questions answered at any time.

Who should I contact if I have any questions?

You can contact David Morrison the address provided in the header of this page, or Dr Richard Thornton of the Bushfire CRC on (03) 9412 9600.

Yours sincerely,



Professor David Morrison

The Human Research Ethics Committee at the University of Western Australia requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the researcher or, alternatively to the Secretary, Human Research Ethics Committee, Registrar's Office, University of Western Australia, 35 Stirling Highway, Crawley, WA 6009 (telephone number 08 6488-3703). All study participants will be provided with a copy of the Information Sheet and Consent Form for their personal records.

Section 1

Information and warnings about bushfires

In this section we'd like to ask you about information and warnings you received before and during the February 2011 fires in Roleystone, Kelmscott and Red Hill.

The next few questions are about the information you received BEFORE February 2011.

1. In the 12 months **before** the February 2011 fires in Roleystone, Kelmscott and Red Hill, did you encounter any information about **how to prepare your household for bushfires** from any of the following sources? **You may select more than one.**

ABC local radio	<input type="checkbox"/>
Other radio	<input type="checkbox"/>
Emergency services personnel (e.g. firefighters, police)	<input type="checkbox"/>
Family, friends or neighbours	<input type="checkbox"/>
FESA website www.fesa.wa.gov.au	<input type="checkbox"/>
FESA community meetings	<input type="checkbox"/>
Bushfire Ready Group	<input type="checkbox"/>
Prepare. Act. Survive. Your guide to preparing for and surviving the bushfire season	<input type="checkbox"/>
Department of Environment and Conservation (DEC) website	<input type="checkbox"/>
FESA general inquiries 9323 9300	<input type="checkbox"/>
Television	<input type="checkbox"/>
Local government website, newsletter, or general inquiries	<input type="checkbox"/>
Newspaper (please specify)	<input type="checkbox"/>
Online news websites (please specify)	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>
Did not encounter any information	<input type="checkbox"/>

2. In the 12 months **before** the February 2011 fires in Roleystone, Kelmscott and Red Hill, did you encounter any information about **what to do during a bushfire** from any of the following sources? **You may select more than one.**

ABC local radio	<input type="checkbox"/>
Other radio	<input type="checkbox"/>
Emergency services personnel (e.g. firefighters, police)	<input type="checkbox"/>
Family, friends or neighbours	<input type="checkbox"/>
FESA website www.fesa.wa.gov.au	<input type="checkbox"/>
FESA community meetings	<input type="checkbox"/>
Bushfire Ready Group	<input type="checkbox"/>
Prepare. Act. Survive. Your guide to preparing for and surviving the bushfire season	<input type="checkbox"/>
Department of Environment and Conservation (DEC) website	<input type="checkbox"/>
FESA general inquiries 9323 9300	<input type="checkbox"/>
Television	<input type="checkbox"/>
Local government website, newsletter, or general inquiries	<input type="checkbox"/>
Newspaper (please specify)	<input type="checkbox"/>
Online news websites (please specify)	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>
Did not encounter any information	<input type="checkbox"/>

Now we'd like to know about the information or warnings you received ON THE DAY of the February 2011 fires in Roleystone, Kelmscott and Red Hill.

3. Did you know there was a Total Fire	Yes	<input type="checkbox"/>
Ban in place on February 6th 2011	No	<input type="checkbox"/>

4. How did you **FIRST** find out that the bushfire was in your town or suburb?

Please select ONE only.

Heard radio announcement	<input type="checkbox"/>
Learned from the internet	<input type="checkbox"/>
Saw television announcement	<input type="checkbox"/>
Told by family, friends or neighbours	<input type="checkbox"/>
Told by emergency personnel (e.g. firefighters, police)	<input type="checkbox"/>
Smelled or saw smoke	<input type="checkbox"/>
Saw flames approaching	<input type="checkbox"/>
Saw embers landing near the house	<input type="checkbox"/>
Saw fire burning near the house	<input type="checkbox"/>
Received messages on Facebook	<input type="checkbox"/>
Received messages on Twitter	<input type="checkbox"/>
Direct contact from family (e.g. phone call, visit to home)	<input type="checkbox"/>
Direct contact from friends (e.g. phone call, visit to home)	<input type="checkbox"/>
Noticed helicopters flying overhead	<input type="checkbox"/>
Heard sirens from fire appliances	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

5. Did you **EXPECT** to receive an **OFFICIAL** warning if there was a bushfire in your town or suburb?
OFFICIAL warnings include those from authorities such as FESA, the police, other emergency services and ABC local radio.

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

6. Did you **HEAR, SEE or RECEIVE** an **OFFICIAL** warning from any of the following?
You may select more than one.

ABC local radio	<input type="checkbox"/>
Other radio	<input type="checkbox"/>
Emergency services personnel (e.g. firefighters, police)	<input type="checkbox"/>
StateAlert (mobile or landline)	<input type="checkbox"/>
FESA website www.fesa.wa.gov.au	<input type="checkbox"/>
FESA RSS feed	<input type="checkbox"/>
FESA information line 1300 657 209	<input type="checkbox"/>
Department of Environment and Conservation (DEC) website	<input type="checkbox"/>
Community meeting	<input type="checkbox"/>
Television	<input type="checkbox"/>
Online news websites	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>
Did not see, hear, or receive an OFFICIAL warning.	<input type="checkbox"/> Go to Q14



7. After receiving an **OFFICIAL** warning, did you seek out more information about the fire? If so, please indicate which of the following sources you consulted for this extra information.

You may select more than one.

ABC local radio	<input type="checkbox"/>
Other radio	<input type="checkbox"/>
Emergency services personnel (e.g. firefighters, police)	<input type="checkbox"/>
StateAlert (mobile or landline)	<input type="checkbox"/>
FESA website www.fesa.wa.gov.au	<input type="checkbox"/>
FESA RSS feed	<input type="checkbox"/>
FESA information line 1300 657 209	<input type="checkbox"/>
Department of Environment and Conservation (DEC) website	<input type="checkbox"/>
Community meeting	<input type="checkbox"/>
Television	<input type="checkbox"/>
Online news websites	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>
Did not look elsewhere for more information	<input type="checkbox"/>



8. Which **OFFICIAL** source was the **MOST IMPORTANT** in helping you to respond to the bushfire?
Select ONE only.

ABC local radio	<input type="checkbox"/>
Other radio	<input type="checkbox"/>
Emergency services personnel (e.g. firefighters, police)	<input type="checkbox"/>
StateAlert (mobile or landline)	<input type="checkbox"/>
FESA website www.fesa.wa.gov.au	<input type="checkbox"/>
FESA RSS feed	<input type="checkbox"/>
FESA information line 1300 657 209	<input type="checkbox"/>
Department of Environment and Conservation (DEC) website	<input type="checkbox"/>
Community meeting	<input type="checkbox"/>
Television	<input type="checkbox"/>
Online news websites	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

The next five questions are about the source you selected as MOST IMPORTANT in the previous question (Question 8)

9. Was the information you received about the LOCATION of the fire clear enough for you to understand the danger to your household?

Very clear	<input type="checkbox"/>
Clear	<input type="checkbox"/>
Unclear	<input type="checkbox"/>
Warning gave no information about location	<input type="checkbox"/>
Don't know/Don't remember	<input type="checkbox"/>

10. Was the information you received about the SEVERITY of the fire clear enough for you to understand the danger to your household?

Very clear	<input type="checkbox"/>
Clear	<input type="checkbox"/>
Unclear	<input type="checkbox"/>
Warning gave no information about severity	<input type="checkbox"/>
Don't know/Don't remember	<input type="checkbox"/>

11. Did you receive the warning in enough time to respond to the bushfire safely?

Ample time to respond safely	<input type="checkbox"/>
Just enough time to respond safely	<input type="checkbox"/>
Not enough time to respond safely	<input type="checkbox"/>
Don't know/Don't remember	<input type="checkbox"/>

12. Do you think you would have taken any action in response to the fire if you had NOT received an OFFICIAL warning about it?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

13. Please use the space below to describe any issues or difficulties you had with information or warnings before, during or after the bushfire.

Section 2

Before the bushfire

In this section we'd like to find out about your planning and preparations for bushfires **BEFORE** February 2011.

14. Before the February 2011 bushfires, how likely did you think it was that a bushfire could occur in your town or suburb?

Very unlikely	<input type="checkbox"/>
Unlikely	<input type="checkbox"/>
Likely	<input type="checkbox"/>
Very likely	<input type="checkbox"/>
Hadn't thought about it	<input type="checkbox"/>

15. Before the February 2011 bushfires, how significant did you think the threat from bushfires was to life and property in your town or suburb?

Very low	<input type="checkbox"/>
Low	<input type="checkbox"/>
High	<input type="checkbox"/>
Very high	<input type="checkbox"/>
Hadn't thought about it	<input type="checkbox"/>

16. Which of the following best describes your level of planning for bushfires **BEFORE** February 2011?

Never thought about what I would do if a bushfire occurred	<input type="checkbox"/>
Knew I should think about what to do, but hadn't	<input type="checkbox"/>
Had thought about it but was still deciding what to do	<input type="checkbox"/>
Had thought about it and decided I didn't need to do anything	<input type="checkbox"/>
Had decided what to do and was thinking about how to make it work	<input type="checkbox"/>
Had made a firm plan about what to do if a bushfire occurred	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

17. At the beginning of last summer, which of the following did you think you were **MOST LIKELY** to do if a bushfire occurred in your town or suburb? **Select ONE only.**

Stay and try to protect your property throughout the fire	<input type="checkbox"/>
Do as much as possible to protect your property but leave if threatened by the fire	<input type="checkbox"/>
Wait to see what the fire is like before deciding whether to stay and defend or leave.	<input type="checkbox"/>
Wait for police, fire or emergency services to tell you what to do on the day	<input type="checkbox"/>
Leave as soon as you know there is a fire threatening your town or suburb	<input type="checkbox"/>
You would not be at home because you intend to leave on days of high fire danger	<input type="checkbox"/>
Hadn't thought about it	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

18. Given what you intended to do if a bushfire occurred in your town or suburb, had you...

	Yes	No	Not applicable (single person household)
Discussed what you would do with all members of the household?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thought about what each person would need to do?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Considered how things could change if some members of the household were not at home during a fire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Written down important things to do and remember?	<input type="checkbox"/>	<input type="checkbox"/>	
Let relatives and neighbours know about what you intended to do?	<input type="checkbox"/>	<input type="checkbox"/>	

19. Prior to the fires in February 2011, in the event of a fire in the area, did you **expect that you might lose** any of the following services?

	Yes	No	N/A
Electricity supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landline phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet connectivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. On hot dry days when bushfires are possible, do you **actively look for** information or signs of a fire? If so, what sources of information do you use to keep updated on the current and predicted fire danger?

You may select more than one.

ABC local radio	<input type="checkbox"/>
Other radio	<input type="checkbox"/>
Emergency services personnel (e.g. firefighters, police)	<input type="checkbox"/>
Family, friends or neighbours	<input type="checkbox"/>
FESA website www.fesa.wa.gov.au	<input type="checkbox"/>
FESA community meetings	<input type="checkbox"/>
Bushfire Ready Group	<input type="checkbox"/>
Prepare. Act. Survive. Your guide to preparing for and surviving the bushfire season	<input type="checkbox"/>
Department of Environment and Conservation (DEC) website	<input type="checkbox"/>
FESA general inquiries 9323 9300	<input type="checkbox"/>
Television	<input type="checkbox"/>
Local government website, newsletter, or general inquiries	<input type="checkbox"/>
Newspaper (please specify)	<input type="checkbox"/>
Online news websites (please specify)	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>
I do not actively look for information or signs of fire	<input type="checkbox"/>

21. Which of the following had you done to prepare for bushfires? Please indicate whether the action was taken prior to February 2011 or on the day of the fire. If you took an action both PRIOR TO and ON the day of the February 2011 fire please tick both boxes.

	Prior to Feb 2011	ON the day of the fires	Action not taken	Not applicable
Cleared leaves, twigs and long grass for a distance of about 20-30m around the house	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Removed bushes close to the house and cut back overhanging tree branches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Used landscaping or the layout of garden to reduce the fire risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moved combustible materials such as firewood and wooden garden furniture away from the house	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cleared gutters of leaves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installed gutter protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Covered underfloor spaces to prevent embers and flame entering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Covered all gaps and vents to reduce the risk of embers entering the house or cavities (e.g. roof, wall, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obtained and prepared firefighting equipment (e.g. hoses and a pump)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obtained and prepared equipment such as ladders, buckets and mops to put out spot fires	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installed seals and/or draft protectors around windows and doors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installed a sprinkler system on or around the house	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installed shutters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prepared a kit of personal protective clothing for each member of the household	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obtained a battery-powered radio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stored important documents and possessions off-site or in a fire safe compartment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. How would you rate your preparedness for the February 2011 fires in Roleystone, Kelmscott and Red Hill?

Very high	<input type="checkbox"/>
High	<input type="checkbox"/>
Average	<input type="checkbox"/>
Low	<input type="checkbox"/>
Very low	<input type="checkbox"/>

23. Did you want to be more prepared than you were?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/> Go to Q25

24. What prevented you from being more prepared?

25. Please use the space below if you would like to add any comments about your experience of preparing for bushfires.

Section 3

During the bushfire

In this section we'd like to find out about what your household's experiences during the February 2011 fires in Roleystone, Kelmscott and Red Hill.

26. Please use the box below to describe what you did after you learned there was a fire in the area. Please start with the **very first thing** you did.

27. During the fires, did you at any stage **expect to** lose any of the following services?

	Yes	No	N/A
Electricity supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landline phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet connectivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. During the fires, did you at any stage **actually** lose any of the following services?

	Yes	No	N/A
Electricity supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landline phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet connectivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

29. During the fires, did you use any social networking websites to monitor the fire?

You may select more than one.

Facebook	<input type="checkbox"/>
Twitter	<input type="checkbox"/>
Other (Please specify)	<input type="checkbox"/>

30. Did you leave your property at any stage **because of the fire**?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/> Go to Q35

31. When you left, where did you go?

Another house nearby	<input type="checkbox"/>
Another building, such as a hall or a store	<input type="checkbox"/>
An open area, such as a reserve or oval	<input type="checkbox"/>
A nearby town that is safe from the fire	<input type="checkbox"/>
Evacuation Centre	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

32. Why did you leave your house or property?

You may select more than one.

Left because I saw/smelled smoke nearby	<input type="checkbox"/>
Left because I saw flames nearby	<input type="checkbox"/>
Left because there was fire in the immediate vicinity of my property	<input type="checkbox"/>
Left to get things that were needed to defend the property (e.g. petrol pump, generator, petrol etc)	<input type="checkbox"/>
Left because police, fire or emergency services told me to leave	<input type="checkbox"/>
Left because relatives, friends or neighbours told me to leave	<input type="checkbox"/>
Left because I felt it was too dangerous to stay and protect my house	<input type="checkbox"/>
Left because I sustained an injury while defending the house (e.g. Smoke inhalation or burns)	<input type="checkbox"/>
Left because I wanted to remove other household members or visitors from danger	<input type="checkbox"/>
Left because utilities (e.g. water, electricity) or equipment (e.g. generators, pumps) failed and I was unable to defend my property without them.	<input type="checkbox"/>
Left because my house caught on fire	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

33. Please use the box below if you would like to add comments about **why you left your property.**

34. Where was the fire when you left your house or property?

On my property	<input type="checkbox"/>
Within 1 km of my property	<input type="checkbox"/>
More than 1 km away from my property	<input type="checkbox"/>
Don't know	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

Section 4

Attitudes towards bushfires

35. We are interested to learn more about your beliefs and attitudes about living in a fire-risk area and around the division of responsibility for fire preparedness within households. Please select the response which most closely matches your own beliefs around each of the statements below. If a question is not applicable given your situation, please leave it blank.

Please select one option in each row only

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
People who do not try to defend their homes against fires are weak	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Most people in my area are generally well prepared to defend their homes against fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People who try to defend their homes against fire are brave	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People who move into fire-risk areas should be expected to undertake some formal fire awareness or firefighting training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People who try to defend their homes against bushfire are reckless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am confident that I could defend my home against a bushfire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To defend one's home against fire is heroic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People in my area do not seem to take the threat of fire seriously	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There is no chance that a bushfire could affect my property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The government should enforce minimum fire safety standards on property owners in fire-risk areas (e.g. mandatory fuel reduction, pruning of overhanging trees)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can rely on the authorities (e.g. FESA, the police) to tell me when I am in danger of fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is important that neighbours discuss their fire plans with each other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
Leaving your home early when faced with a bushfire is not the 'Australian way'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am ultimately responsible for ensuring my own safety in the face of a bushfire threat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People who leave their homes early in the face of fire risk should be ashamed of themselves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is best to wait for instructions from the authorities before doing anything about a fire in the area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

36. While we acknowledge there are many different kinds of family arrangements, in a household with a married couple and children, who in the household do you think **ought to be primarily** responsible for the following?

Please select one option in each row only

	The man	The woman	Both equally responsible	Neither are responsible
Ensuring the home is physically prepared for bushfire in the lead up to a bushfire season (e.g. clearing gutters, fuel loads reduced, installing sprinkler systems)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Purchasing fire defence equipment (such as fire extinguishers, protective clothes, mops and buckets)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Formulating a formal bushfire survival plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Making the decision about what to do when a fire is in the area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Defending a home when a bushfire threatens it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ensuring the children are safe when a bushfire threatens the home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

37. Roughly how many of your nearby neighbours do you think would do the following in the event of a bushfire in the area?

Please select one option in each row only

	None	Some	Most	All
Try and defend their homes as a family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole family leaves well before the fire impacts the area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wait and see before deciding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Send the wife and children away while the husband stays and defends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 5

Information about you and your household

In this section we would like to find out about your household as it was on the day of the February 2011 fires in Roleystone, Kelmscott and Red Hill.

38. What is the postcode of your bushfire-affected house or property?

39. Are you male or female?

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>

40. Which of the following age groups do you belong to?

18 – 24	<input type="checkbox"/>
25 – 34	<input type="checkbox"/>
35 – 44	<input type="checkbox"/>
45 – 54	<input type="checkbox"/>
55 – 64	<input type="checkbox"/>
65 – 74	<input type="checkbox"/>
75+	<input type="checkbox"/>

41. On the day of the February 2011 fires in Roleystone, Kelmscott and Red Hill, what type of property did you have?

House or unit on residential block	<input type="checkbox"/>
House on a hobby farm - or small acreage	<input type="checkbox"/>
House on a large farm or other large property	<input type="checkbox"/>
Land without a house	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

42. How much of your time were you spending living on this property?

Full time	<input type="checkbox"/>
Part time (holidays or weekends etc.)	<input type="checkbox"/>
Did not live at property	<input type="checkbox"/>

43. How long had you lived in this property?

0 – 5 years	<input type="checkbox"/>
6 – 10 years	<input type="checkbox"/>
11 – 20 years	<input type="checkbox"/>
21+ years	<input type="checkbox"/>
I do not live in the property	<input type="checkbox"/>

44. How long had you been living in this town or suburb?

0 - 5 years	<input type="checkbox"/>
6 – 10 years	<input type="checkbox"/>
11 – 20 years	<input type="checkbox"/>
21+ years	<input type="checkbox"/>

45. Did you own your property or were you renting?

Owned or was buying house or property	<input type="checkbox"/>
Renting – Family household	<input type="checkbox"/>
Renting – Share house	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

46. What kind of insurance did you have on the day of the February 2011 fires in Roleystone, Kelmscott and Red Hill? You may select more than one as appropriate.

House and contents	<input type="checkbox"/>
House only	<input type="checkbox"/>
Contents only	<input type="checkbox"/>
Outbuildings (e.g. sheds)	<input type="checkbox"/>
Farm insurance (e.g. livestock, machinery, fencing)	<input type="checkbox"/>
None	<input type="checkbox"/>

47. What is the composition of your household?

Couple with children or other dependents	<input type="checkbox"/>
One adult with children or other dependents	<input type="checkbox"/>
Couple without children or other dependents	<input type="checkbox"/>
One person household	<input type="checkbox"/>
Shared house with other adults	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

48. On the day of the February 2011 fires in Roleystone, Kelmscott and Red Hill, were you registered as a volunteer firefighter or emergency services volunteer?

Yes, I was registered	<input type="checkbox"/>
No, but I had been registered in the past	<input type="checkbox"/>
No, I had never been registered	<input type="checkbox"/>
If yes, please specify which service	

49. On the day of the February 2011 fires in Roleystone, Kelmscott and Red Hill, were you a member of a Bushfire Ready (BRAG) Group?

Yes, I was a member	<input type="checkbox"/>
No, but I had been a member in the past	<input type="checkbox"/>
No, I had never been a member	<input type="checkbox"/>

Feedback

Would you like to receive a brief release summarising some of the main findings of this research when they become available?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

If Yes, please send me this information via:

Post to _____	<input type="checkbox"/>
Email to _____	<input type="checkbox"/>

Would you be willing to be contacted in the future regarding opportunities to participate in other research?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

If yes, please provide a contact email and or telephone number

Email _____

Phone _____

Thank you for completing this survey. Please post it back to us in the reply paid envelope provided within the next 21 days. If you no longer have the reply paid envelope it can be posted, free of charge, to the address below:

**Bushfire CRC/UWA Research Project
Reply Paid 61050
School of Psychology, University of Western Australia
35 Stirling Highway
Crawley, WA, 600**

Appendix 6 Coverage area

Table 1. List of streets visited in Kelmscott–Roleystone

Alola Street	Grade Road	Morundah Place
Anderson Place	Greendale Road	Nash Street
Ashley Drive	Haimlee Road	Nookawarra Place
Balgor Place	Hamersley Street	Nowra Place
Barns Road	Heath Road	Panorama Drive
Bernard Street	Hicks Road	Peter Street
Biala Street	Hilltop Place	Possum Place
Bromfield Drive	Howard Place	Pound Place
Brooke Place	Katrina Terrace	Roberts Road
Brookton Highway	Kevin Road	Rowley Street
Buchanan Road	Kingsley Terrace	Savage Road
Buckingham Rd	Kundyl Court	Scott Road
Canning Mills Road	Lori Road	Sunset Terrace
Contour Road	Lucich Street	Teresa Court
Coventry Road	Marmion Street	Tranquil Road
David Street	Martin Street	Urch Road
Dyer Street	Merilee Terrace	Weston Terrace
Edmund Terrace	Morrison Drive	Wymond Street

Table 2. List of streets visited in Red Hill, Herne Hill, Millendon, Baskerville, Brigadoon

Abraham Close	Joshua Mews
Bisdee Road	Loton Road
Camargue Road	Machan Road
Campersic Road	Moore Road
Caspian Way	Padbury Avenue
Cathedral Avenue	Range Road
Haddrill Road	Weir Road
Hardwick Road	William Street

Coverage area

Table 3. List of streets visited in Gidgegannup

Askrigg Road	Little Bunning Road
Brompton Heights	O'Brien Road
Burgess Road	Reen Road
Chandler Loop	Reserve Road
Country Road	Richmond Road
Gogulger Stock Route	Sells Close
Hampstead Hill Road	Strawberry Hill Drive
Inthanoona Road	Swale Road
Lakeview Drive	