**Trends in Australian bushfire fatalities over the last 100 years**

**Dr Kat Haynes**
Centre for Risk and Community Safety, RMIT University, Melbourne and Risk Frontiers, Macquarie University, Sydney.

**BB Amalie Tibbits**
Centre for Risk and Community Safety, RMIT University, Melbourne

---

**Fatality Database**

Original database compiled by Risk Frontiers, Macquarie University
Contains the dates, locations, circumstances of death, demographics and the names of deceased.
Data is incomplete and we are currently improving the data with coronial records
Filling in lots of detail from the witness statements about the decisions the victims made.
‘Houses protect people and people protect houses’

- Safest option is to evacuate well in advance
- Evidence for a different approach came slowly
- AFAC’s policy:
  ‘Communities at risk from bushfires should be allowed and encouraged to take responsibility for their safety. Where people have adequately prepared themselves, their houses and properties they should remain with their homes during a bushfire’
• How robust is this evidence?
• What do we need to understand about human behaviour (around fires) in order to successfully implement the ‘stay or go’ policy?
• Difficulties retrieving the data

http://www.abc.net.au/canberra/stories/s799744.htm

555 deaths listed also and additional 123 fire-fighters listed which we have removed

Peaks in: 1926 – 32 VIC, 8 NSW; 1939 – 66 VIC, 8 NSW; 1944 – 41 VIC, 7 NSW; 1967 – 61 Tas; 1983 – 35 VIC, 27 SA.
Deaths by State

<table>
<thead>
<tr>
<th>State</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>5</td>
</tr>
<tr>
<td>NSW</td>
<td>107</td>
</tr>
<tr>
<td>NT</td>
<td>1</td>
</tr>
<tr>
<td>QLD</td>
<td>12</td>
</tr>
<tr>
<td>SA</td>
<td>56</td>
</tr>
<tr>
<td>Tas</td>
<td>63</td>
</tr>
<tr>
<td>VIC</td>
<td>302</td>
</tr>
<tr>
<td>WA</td>
<td>9</td>
</tr>
</tbody>
</table>

Gender distribution of deceased

Male 379, Female 136, the gender of 40 victims is unknown.
Age distribution of deceased

Have the ages of 90 children and 296 adults. Data is missing 169

Cause of death

Known causes of death 378, unknown = 177
Action Taken

- 16% inside a defensible property
- 81% outside / indefensible refuge
- 3% other

Know the action of 355, unknown 200

Action of those who died inside a property

Of the 56 people who we know died inside their property:
- 7% (4) were actively defending their property
- 63% (35) were not defending and were sheltering
- 30% (17) were in their home but their activities are unknown

Of those who were defending:

<table>
<thead>
<tr>
<th>Year</th>
<th>Gender</th>
<th>Age</th>
<th>Cause of death</th>
</tr>
</thead>
<tbody>
<tr>
<td>1906</td>
<td>Male</td>
<td>?</td>
<td>Burnt</td>
</tr>
<tr>
<td>1906</td>
<td>Male</td>
<td>?</td>
<td>Burnt</td>
</tr>
<tr>
<td>1985</td>
<td>Male</td>
<td>54</td>
<td>Heart attack after helping firemen save his home</td>
</tr>
<tr>
<td>2003</td>
<td>Male</td>
<td>61</td>
<td>Smoke inhalation, saved his and neighbours homes</td>
</tr>
</tbody>
</table>

10 invalids listed in the database:
- 1 in indefensible refuge
- 5 sheltering in homes and not defending
- 4 in home and activities unknown
Actions of those evacuating

Of the 203 people evacuating (including those in indefensible refuge):
5% (10) evacuating to shelter (on foot / in a car)
35% (70) evacuating from shelter (on foot / in a car)
70% (97) evacuating general (on foot / in a car)
12% (25) found in indefensible refuge

Actions of those evacuating

We know the actions of 84 in vehicles*:
53 died evacuating their home or place of work in or near their car
20 died in their cars travelling through the area
11 died travelling to save their home, property, crops and livestock

*252 on foot
*of 37 coded so far only 10 died inside their cars
Victorian deaths 1951 onwards

<table>
<thead>
<tr>
<th>Activity</th>
<th>Numbers killed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defending wider property</td>
<td>10</td>
</tr>
<tr>
<td>Saving livestock</td>
<td>5</td>
</tr>
<tr>
<td>Evacuating to shelter</td>
<td>2</td>
</tr>
<tr>
<td>Evacuating from shelter</td>
<td>1</td>
</tr>
<tr>
<td>Evacuating general</td>
<td>3</td>
</tr>
<tr>
<td>In indefensible refuge</td>
<td>1</td>
</tr>
<tr>
<td>Sheltering in home</td>
<td>2</td>
</tr>
<tr>
<td>In home activity unknown</td>
<td>1</td>
</tr>
</tbody>
</table>

Relationship between gender and action taken

Know the gender and activity of 347 victims, missing 208
Relationship between gender and action taken
Victoria 1951 onwards

Activates of children and young people

23% (90) of fatalities under 20. 15% (58) under 12.

Know the activities of 69 children and young adults
Trend in child fatalities during evacuation

54 children and young people evacuating
Female trend is very similar plus an increase in sheltering in the home

2007 Greek Fires

- June – August 2007
- Estimated 3000 forest fires
- 79 people killed
- More than 200 000 hectares burnt

Athens, 25 August 2007
Source: BBC News
Despite reports that the fire had been contained it broke through on Tuesday morning and rapidly travelled over the Peninsular.

- Residents not prepared
- Early evacuation not possible
- Many women and children attempted to flee to safety

Conclusions - Implementation problems
Fire fighter deaths 1900-2006

Distribution of child deaths
Fatality trends of adults and children

Numbers killed

Year

Under 20
Male
Female
Linear (Male)
Linear (Female)
Linear (Under 20)