Multi-Level Perspective

Understanding the Community Context
- Embeddedness
- Self-Efficacy
- Leadership
- Social Cohesion
- Trust in agencies
- Attitudes

Getting the Messages ‘Right’
- Timing
- Content
- Medium
- Source

Understanding the ‘Receivers’
- Individual Differences

Decisions in the lead-up
PLANNING

Decisions on the day
RESPONSE!

Logistical challenges
Community level influence on individual behaviours with respect to bushfire readiness & decision making in the face of immediate threat

PROFESSOR CARMEN LAWRENCE
PROFESSOR DAVID MORRISON
DR RAOUl OEHMEN
Large Differences in Community Preparedness

- Large differences observed between communities in terms of preparation
- Differences in terms of expectations
- If so, what causes these community wide differences?
  - Interconnectedness?
  - Sense of place?
  - Demographics
  - Shire visibility
Although communities differed there is a linear relationship between perceptions of risk and preparation.

**Likelihood**

- Hadn’t thought about it
- Very Unlikely
- Unlikely
- Likely
- Very Likely

**Threat**

- Hadn’t thought about it
- Very Low
- Low
- High
- Very High
Individuals

- Individuals differ in a multiplicity of ways:
  - Age, Income, education, personality

- These characteristics influence an individual’s
  - Interpretation of the hazard
  - Perception of the risk it poses
  - Their decision to act (or not act)

- Collectively, these actions influence the community
The GAP: Community Level Factors

- Gap in research regarding community level characteristics and how they influence individuals.
  - Communities create the conditions that individuals use to interpret situations
  - Conditions can either facilitate or constrain an individual’s perception of the risk and their decision to act.
What community level factors contribute to community level differences & influence individual preparedness?

Why?

- Communities are a significant resource for risk management
- Level of people’s active involvement in community networks = key predictor of preparedness across different hazards
- Community structures are vital for the dissemination of preparedness
Interactions: Multi-level

State
- Trust in organisations conducting controlled Burns
- government to public

Primary

Individual
- Personality Factors
- Property Location
- Property Characteristics
- Ideology

Deciding/Acting/Preparation
Selection of Communities

10 Local Government Areas: Fire Affected South-West

- 5 High Prepared
  - 2 Urban Fringe: Armadale, Bunbury
  - 3 Rural: Busselton, Denmark, Donnybrook

- 5 Poor Prepared
  - 2 Urban Fringe: Chittering, Mandurah
  - 3 Rural: Nannup, Manjimup, Collie

Selected Households Outside of Main Town Site

Chosen using FESA & WALGA Information
Questionnaire

- Developed from literature and preliminary analysis of interviews in fire prone areas.

Preparedness

- Interest is sources of variance that lead individuals to take Preparatory Action: Hence DV is Individual Prep
- Measure created by Dunlop & McNeil
  - Collection of National Prep Activities List
  - Refinement through testing in 6 communities
Questionnaire – Individual level

- Demographics
  - Age, Employment, Income, Household Composition
  - Type of property, livestock/pets, time on property

- Individual Experiences and Actions
  - Previous experience living through bushfire
  - Attachment to Place of Residence (Town and Property)
  - Involvement in Community Bushfire Prevention Activities
    - Volunteer Bushfire Brigade
    - Emergency management committee
Questionnaire – Community level

- Local Government Actions
  - Local Government Prevention & Enforcement Activities
  - Local Government Education Materials

- Community Level Factors
  - Social Capital (Onyx & Bullen)
    - Participation, Social Proactivity, Trust & Safety, Connections: Neighbours & Family
  - Aggregated Risk Perception
  - Aggregated confidence in Local & State Government Services
### Response Rate

<table>
<thead>
<tr>
<th>Area</th>
<th>City/Shire</th>
<th>No. Sent Out</th>
<th>No Received</th>
<th>%Received</th>
<th>Households in LGA</th>
<th>Prop. LGA Surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Armadale</td>
<td>1000</td>
<td>201</td>
<td>20.10%</td>
<td>25045</td>
<td>3.99</td>
</tr>
<tr>
<td>2</td>
<td>Bunbury</td>
<td>1000</td>
<td>148</td>
<td>14.80%</td>
<td>14769</td>
<td>6.77</td>
</tr>
<tr>
<td>3</td>
<td>Busselton</td>
<td>866</td>
<td>102</td>
<td>11.80%</td>
<td>15848</td>
<td>5.46</td>
</tr>
<tr>
<td>4</td>
<td>Denmark</td>
<td>1000</td>
<td>209</td>
<td>20.90%</td>
<td>1437</td>
<td>69.59</td>
</tr>
<tr>
<td>5</td>
<td>Donnybrook</td>
<td>795</td>
<td>143</td>
<td>18.00%</td>
<td>2453</td>
<td>32.41</td>
</tr>
<tr>
<td>6</td>
<td>Chittering</td>
<td>677</td>
<td>128</td>
<td>18.90%</td>
<td>1892</td>
<td>35.78</td>
</tr>
<tr>
<td>7</td>
<td>Mandurah</td>
<td>899</td>
<td>139</td>
<td>15.50%</td>
<td>35372</td>
<td>2.54</td>
</tr>
<tr>
<td>8</td>
<td>Nannup</td>
<td>135</td>
<td>24</td>
<td>17.80%</td>
<td>857</td>
<td>15.75</td>
</tr>
<tr>
<td>9</td>
<td>Manjimup</td>
<td>974</td>
<td>112</td>
<td>11.50%</td>
<td>4931</td>
<td>19.75</td>
</tr>
<tr>
<td>10</td>
<td>Collie</td>
<td>1000</td>
<td>117</td>
<td>11.70%</td>
<td>3943</td>
<td>25.36</td>
</tr>
<tr>
<td>Other</td>
<td>(undisclosed)</td>
<td>0</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>8346</td>
<td>1342</td>
<td>16.10%</td>
<td>106547</td>
<td>7.83</td>
</tr>
</tbody>
</table>
Communities significantly differ on preparedness ($F(9,1313)=6.92, \ p<0.001$)
Individual & Community Level Variance

- Communities differ significantly on a range of different variables
  - Social Capital (F(9,1311)=9.41, p < 0.001)
  - Risk Perception (F(9,1251)=10.07, p < 0.001)
  - Prior Bushfire Experience (F(9,1291)=6.50, p < 0.001)
  - Involvement in Community Bushfire Prep Activities (F(9,1297)=8.44, p < 0.001)
  - Confidence in Local Government (re Fire) (F(9,1256)=5.22, p < 0.001)
High & Low Prepared Communities

- Only moderate support for initial selection of communities
- Individual Level: High prep communities:
  - Scored sig. higher on Preparedness (H:57.1, L:53.9, p<0.001)
  - Had more participation in Community Prep Activities (H:0.28, L:0.15, p<0.001)
    - Bushfire Ready Group (H: 0.13, L: 0.03, p<0.001)
    - Volunteer Bushfire Brigade (H: 0.13, L:0.09, p<0.05)
- Community Level: High Prep Communities:
  - Had less confidence in Local Gov. (H: 1.36, L: 1.40, p<0.05)
  - No different on Property Inspections (H: 0.62, L: 0.57, ns.)
  - Issued the same No. of Compliance Notices (H:0.04, L:0.06, ns.)
  - Issued same No. of Fines (H:0.016, L:0.021, ns.)
Contrasting Two Communities

<table>
<thead>
<tr>
<th>Armadale</th>
<th>Collie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Preparedness</td>
<td>Lowest Preparedness</td>
</tr>
<tr>
<td>(61)</td>
<td>(48)</td>
</tr>
<tr>
<td>High Risk Perception</td>
<td>Low Risk Perception</td>
</tr>
<tr>
<td>p&lt;0.05</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>High Personal Fire Exp.</td>
<td>Low Personal Fire Exp.</td>
</tr>
<tr>
<td>p&lt;0.05</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>Low Confidence in Government</td>
<td>High Confidence in Government</td>
</tr>
<tr>
<td>LG: 3.65</td>
<td>LG: 4.49</td>
</tr>
<tr>
<td>DEC: 19.15</td>
<td>DEC: 25.04</td>
</tr>
<tr>
<td>DFES: 16.84</td>
<td>DFES: 19.86</td>
</tr>
</tbody>
</table>

All p<0.05
Individual & Community Level Variance

- Hierarchical Linear Modelling
- Only Null Model thus far
  - Investigates whether the amount of variance in Preparedness that is contained at the community level is significant.
  - Variance between individuals within a community = 373.19
  - Variance between communities = 17.32, p < 0.001

- Intra-class correlation coefficient = 0.044
  - 4% of the variance in preparedness is at the community level
  - Small but significant; suggests multi-level modelling is needed
  - Further analyses will attempt to explain this variance with Community Level predictors
Individual Preparedness

- While the more complex community level analyses have not yet been completed, on an individual level (not looking at communities) we are able to explain a significant amount of the variance.
- When demographic variables have been accounted for, significant predictors of preparedness are:
  - Social Capital (additional 7.3% of variance)
  - Being involved in a Community Preparedness Activity (+ 2.8%)
  - Place Attachment (+ 2.1%)
- In total this model accounts for 22% of the variance in preparedness
Local Government Actions

- Awareness of the local government inspections is linked to no significant additional preparedness behaviours ($t(1,1283)=1.6, \text{ ns.}$)
- Having had your property inspected is linked to no significant additional preparedness behaviours ($t(1,1281)=1.43, \text{ ns.}$)
- Having receiving a notice for failure to comply is linked to no significant additional preparedness behaviours ($t(1,1279)=0.242, \text{ ns.}$)
- Having been fined for failure to comply is linked to no significant additional preparedness behaviours ($t(1,1274)=0.319, \text{ ns.}$)
- Being in receipt of bushfire preparedness media is linked to no significant additional preparedness behaviours ($t(1,1310)=0.976, \text{ ns.}$)
National Questionnaire

- Next questionnaire to range of communities across other fire affected states
  - Ability to model not only LGA variance, but also State level variance
- Questions need to accommodate differing State legislation regarding bushfire responsibility.

- Do other States show similar effects to WA.
- Do the differing roles of LGA’s across states impact preparedness?
Future questionnaires will be refined based on the lessons learnt here.

85% of the variance in responses accounted for by a single factor.

Very high correlations between disparate questions. Either:
  • Good LG’s are good at everything, OR
  • individuals do not have the information to make a distinction, hence provide an ‘overall impression’

Similar effect between DFES & DEC.