Rural/Urban Community Safety and Bush Fires

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Abstract

For lifestyle reasons some members of the Western Australian community choose to live in the rural/urban interface. The attractiveness of a rural setting in close proximity to urban areas offers the best of both worlds' and trends in metropolitan Perth indicate the number of residents locating in the rural urban interface is increasing.

Protection of the community, the visual amenity, lifestyle differences and the biodiversity are all potential conflicts that face the fire manager in these rural urban interface areas. To provide the rural urban interface community with effective protection from bush fire requires a holistic approach based on the needs, aspirations of all community members. In many instances the local community that is potentially at risk needs to be educated on those risks and the consequences of action, as well as inaction, if they choose to ignore the risks.

Fire Services, local governments and the community appear to have differing perceptions about awareness levels of requirements of bush fire preparedness within the community. In the example chosen for this paper, prior to the fire occurring, fire services personnel had conducted a range of high profile human contact programs in the area and the local government had also sent out self help guidance to promote community preparedness from fire. Householders affected by the fire, banded together during the fire. A formalised post fire interview was conducted with residents from the fire affected area and they admitted that they were aware of the information being offered, but chose not to attend the information sessions. It is disappointing that although the bush fire and households protection information was available to this rural interface community, residents however largely chose not to follow the advice provided.

This study identifies a number of factors that Fire and Emergency Service Authorities need to take into consideration when undertaking community preparedness activities in the rural urban interface areas.

Background

This paper focuses on an extensive fire that occurred in February 2001 in an area north of Perth on WA's Swan Coastal plain. The area is characterised by a mixture of wetlands, banksia woodland, light industrial and semi-rural properties. In this area of Perth fire behaviour in February was consistent with summer drought conditions. Maximum temperature was in the mid $30^{\circ C}$, relative humidity was in the vicinity of 15%, winds were around 20km/hr and the fire danger index varied from 42 on day 1, to 29 day 2 and 51 on day 3. The fire involved suppression resources for 7 days while the majority of the property damage was sustained on day 3 when with an unexpected wind change, the fire spread rapidly through a rural urban estate.

Within a very short period the fire threatened 138 households largely consisting of small semi rural properties of around 1.5 to 2 ha. Much of the area is covered in natural bush with some homes being poorly prepared to survive a bush fire.

The fire is believed to have been the result of arson by persons who are unidentified and for motives unknown. The fire burnt in fuel ages of around 8 years old.. The winds varied in direction over the duration of the fire.

The fire burnt around 1500ha in different soil structures consisting of limestone ridges, wetland zones and heavy coastal sands. During the phase of the fire that impacted on the rural estate, the rate of spread was estimated at 1,500 metres per hour with crowning in the trees causing spotting and hop overs 200 – 300 metres of the main head fire.

There fortunately was no direct loss of life from the fire, although one person suffered a fatal heart attack during the fire. Minor injuries were recorded to a small number of fire fighters and members of the community.

Losses to private property and business trade are estimated to be at least $500,000. This figure does not include infrastructure costs and lifeline losses which were considerable by Australian standards at that time. Fire fighting operations within the estate was intensive with up to 40 fire appliances 'hopping' from property to property protecting vulnerable structures, largely attributed to the poor preparedness levels of many of the properties.

Resources

The resources that attended the fire came from a range of agencies such as:
- FESA Fire and Rescue Service
- FESA Bush Fire Service
- Local bush fire brigade volunteers
- City of Wanneroo
- FESA State Emergency Service
- Department of Conservation and Land Management
- WA Police Service
- Western Power
- Family and Children Services
- Department of Environmental Protection
- Main Roads Department
- Water bombers – 2 x fixed wing
- Air reconnaissance helicopter

and also resources from private industry and welfare groups such as
- Salvation Army
- RSPCA
- tree fallers
- water tankers
- earth moving machinery contractors.

There were in the vicinity of 76 brigades and 169 appliances used during the fire. There were also 24 FESA Fire Managers, 4 Chief Bush Fire Control Officers and 16 CALM fire managers used in the management of the incident.

Community Preparation

This estate was on the border of an area protected by FESA career firefighters. It should be acknowledged that local career and volunteer fire crews had identified this area as one of potential risk and jointly undertaken aggressive prevention and preparedness activities in this high bush fire risk area prior to the fire.

The first arriving fire suppression crews were the career firefighters who undertook the initial fire attack. This crew was very soon after arrival supported by the volunteer bush fire brigades and City of Wanneroo fire suppression resources.

There was a general perception by those interviewed in the formal post fire interview that those "who participated in the programs with the fire fighters were thought to have benefited through an increased understanding of fire safety, although, the majority of the community members chose not to be involved."[1]

Community Information

One of the qualities that attract residents to the rural urban interface is the relative isolation from their neighbours and consequently it is not uncommon for them to want to be left alone. Finding ways to engage the community in these areas will pose considerable challenges.

What community information system can Fire and Emergency Service Authorities utilise to convey important fire safety information to the community?

The level of communication and personal contact between households within the estate was found to vary depending on a number of factors. One of the significant community uniting factors identified was whether there was children in the household. It appears that children assist in bringing the community together through common contact or needs, such as through activities at the school and bus runs. Where there was no common structured contact many people in the estate mainly kept to themselves. When the residents did want to communicate with one another the general method was through an unofficial community notice board.

Post fire the need for a formal noticeboard at a known local point was identified as important for community notices.

Local businesses were also seen as an important method of getting information into the community. When people first moved to the area the local real estate agent provided information that was initially seen as valuable. This information however needs to be consistent with "official" Fire and Emergency Services Authority and local government requirements.

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[1] "Safer Communities Project. Report on Carramar Community's Communication Strategies, Perceptions of Organisations and Approaches to Safety. Page 2"

The local post office and local paper were also seen as valuable message conduits for the community.

Communication strategies in these areas need to be multi faceted to ensure penetration of this largely "non involvement community". While they were prepared to band together in times of emergency, this unity unfortunately is not evident post emergency.

Community Preparation

- **Pre Fire**

Prior to the fire FESA Fire Services Division attempted to assist the community prepare for a potential bush fire. Human contact programs had been delivered into the community and the local shire had distributed self help guides in the form of checklists to all residents in the shire, not just this specific area. It is acknowledged that some residents had prepared well for the forthcoming fire season but most unfortunately appeared to have ignored the advice.

From visual observations by the fire fighters at the time of the fire, community preparedness by the majority of the householders was quite poor with very heavy fuel loadings too close to many dwellings. In a many cases, homes had trees overhanging their roof and large quantity of leaf litter in the gutters.

The perception amongst the residents appears to be that emergency services will be available on the day and protect all the houses in the estate regardless of the fire prevention works undertaken. Sadly this is not the case and residents in these high fire risk areas need to be urged to ensure they become more prepared and encourage self sufficiency in preparing their properties for fire encroachment.

- **During the fire**

During the fire the major access route that services a number of small isolated coastal towns to the north with the Perth metropolitan area was closed for 4 days. The fire burnt on both sides of the arterial road and tall trees were adjacent to the road that could potentially pose a safety threat to road users. Consequently, until the trees could be inspected and declared safe the road was closed to the general public.

Access into the community was restricted at a number of times during the fire. This precluded residents returning to their properties, particularly during periods whilst the fire was burning adjacent to the homes. As can be imagined residents did not respond well to this exclusion, and those that had done little fire prevention works could probably have thought the worst was happening to their homes.

Residents felt that they had been denied the freedom of choice. Post fire interviews indicated that people upon reflection recognised that the Police were "doing their job and were probably

just as scared as residents"[2] Evacuation considerations as whether to evacuate or not in this rural interface area is a difficult call for the fire Incident Manager.

The provision of timely accurate community information to residents will always be a challenge. The local government emergency co-ordination centre was activated and the local radio station was also utilised. It is probably through pre-determined mediums such as these that offer the most effective alternatives. The mediums they can access community information need to be communicated to residents prior to the fire.

Many of the residents in this and other rural interface communities work away from the area they reside so when reports of fires occurring in these areas are broadcast by the media, fire agency control rooms anticipate many call from concerned residents inquiring whether the fire poses threat to their properties. Management of this information in a timely manner continually proves to be difficult to manage.

- **Post fire**

The two agencies that attracted highest praise post fire were the fire services and Western Power, despite the Fire Service publicly criticising the low level of fire preparedness of residents within the estate. The local authority was not recognised during post fire interviews as attracting praise and this is disappointing because the local government implemented a community recovery plan during the early phases of the emergency when it was evident that community disruption would result. This recovery plan and action was widely recognised by local government and State Government staff as being highly successful. This demonstrates that government staff at all levels may have different perceptions to some of the local residents following a major incident. Local and State Government staff were under the mistaken impression that the local residents had welcomed the coordinated post fire visits in the early weeks after the fire.

It was possible to ascertain through the formal interviews that residents thought that they were well prepared for a potential bush fire. These same residents, when interviewed, were able to identify at least one property where they did not feel as though they were prepared. Again, this demonstrates a difference in perception as to what effective preparedness entails.

Firebreaks were also considered an area of concern. Many residents felt that they provided a false sense of security and were ineffective with a fire of this intensity. It was felt that firebreaks should be renamed and called fire access roads.

Within 12 months following the fire a number of residents, possibly 12, moved from the area and it is impossible to determine if the fire had a bearing on their decision to leave. The next fire season after the fire the local government authority conducted their regular inspection of the area for compliance with the fire break laws. Around 50% of the areas inspected were deficient and as a consequence incurred an infringement notice. It was also disappointing that many of the residents who soon after the fire had spoken of action to rectify fire preparedness deficiencies still had not actioned their identified shortfalls for the next fire season.

It is also important to recognise that the recovery work undertaken by the local government was well coordinated and initiated to return the area back to normal service levels and

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[2] Safer Communities Project. Report on Carramar Community's Communication Strategies, Perceptions of Organisations and Approaches to Safety. Page 8"

stability. The criticism of the local government by some residents is very puzzling and may possibly be symptomatic of their relationship with local government pre-fire. The criticism is difficult to justify particularly as many residents opted not to undertake the prevention and preparedness work that the Fire Service and local government had recommended prior to the fire.

FESA fire crews again were aggressive in the provision of preparedness activities prior to the next fire season but disappointingly community support for these initiatives from the estate residents was not widespread.

Other community centred education

FESA identified in November 2001 that general information and media campaigns, depending on the specific community, not achieve the anticipated attitudinal changes. The program developed in 2001 related to targeted arson reduction activities but has parallels to improving preparedness levels in the rural urban interface areas.

A three phase approach has been found to be effective which is based on:
1. Primary school contact with a very competent FESA educator
2. Shopping centre display with a highly visual display and staff from FESA and where possible with partner agencies and volunteers
3. Door knocking within the targeted zones with FESA staff and where possible with partner agencies and volunteers.

In association with this holistic approach personal contact, is a number of message instruments that are left with the person. Items such as fridge magnets, school rulers and fliers all containing the same message, but structured for the differing audience groups.

FESA has also utilised media based campaigns such as Summer Safe 2002 /03. The Summer Safe campaign had a number of objectives which were:
1. To increase and maintain the proportion of bush fire prevention and preparedness by residents in bush fire risks
2. To increase residents ability to successfully implement strategies to prevent and prepare for the bush fire season
3. To motivate residents to implement and continue prevention and preparedness strategies throughout the bush fire season.

Another method used to encourage community preparedness and awareness is through the Bush Fire Ready Action Groups (BRAG). BRAG is a community centred protection system based on the Victorian Fire Guard model but modified for local conditions and needs. The BRAG system is undertaken through the following process:
1. Passive publicity is not the most effective method of raising community awareness in fire safety issues
2. The Community needs to be engaged in joint action
3. Trained volunteer facilitators work with interested community groups
4. The facilitation of street groups occurs when convenient for all, usually evenings and weekends

Alternatives

People who live in the rural / urban interface generally do so for lifestyle reasons. These can be for reasons of aesthetic benefits, increased block sizes, privacy or alternative lifestyle options.

When people make these lifestyle choices they generally do not consider the potential bush fire event that may or may not occur, and if it does occur it may or may not affect that property. Consequently they do not generally consider the need for building protection zones eg 20 metre circle of safety, and hazard separation zones between bush fire hazards and the building.

These lifestyle choices may consider the aesthetics of the area at the time of purchase. An area that is burnt to reduce the fuel load can in many instances not be as aesthetically pleasing as the same area 12 months after the burn. This necessitates an awareness campaign for the community of bush regeneration post fire.

Fuel reduction by burning or physical removal can have the same negative aesthetic impact. Alternatives to fuel reduction in the hazard separation zone need to be considered and developed. With fuel reduction, the protection to the buildings is consistent, whether the householder is present or not. Alternatives, such as, sprinkler systems in the hazard separation zone designed to increase the moisture content of the fine fuel to a level that will not support a bush fire require someone to be present to activate the system. The alternative systems of appropriately managing the hazard separation zone is an area that requires research to ascertain effectiveness and practicability. Particularly as a water based system such as sprinklers is dependent on power and water and both can be lost during a bush fire.

Way forward

FESA with its partner agencies eg Police, CALM, and local government will be trialing a community centred bush fire preparation and prevention activity this spring. The process will involve the direct human contact of:
1. Primary school presentations
2. Shopping centre display
3. Door knocking.

As FESA has done in other areas, post activity FESA will be consulting representatives within the community to see if the preparedness and prevention message has had an effect. FESA will also be inspecting a number of properties in key areas to see if the situation post activity improves.

It is expected that more BRAG will be created in the target areas. This should facilitate the community being better prepared for the potential bush fire risks in the future. The BRAG process will enhance community members helping to protect themselves and their properties.

FESA will also be continuing to seek scientific solutions to ensure that the community is protected from bush fires whilst environmental and community values can be protected or enhanced.

Conclusions

Ensuring community preparedness for fires in rural urban interface areas is and will continue to be a challenge. Lifestyle influences in these communities are not conducive to high levels of community engagement and the programs that agencies establish in these areas need to take these factors into consideration.

There will always be difference in perceptions as to the level of preparedness required for these rural interface areas to survive encroachment of fire. Many residents have an over reliance on the fire service to provide protection in a poorly prepared environment. Future strategies need to be targeted to making them aware of their own responsibility in making their home fire safe.

Apathy of residents will continue to be a problem in that they believe the 'big one has been' and we will be right for a few years. The challenge to turn these high-risk localities around and to ensure they are more self sufficient in fire protection is a challenge that will require specific programs tailored to meet the requirements of individual rural/urban interface areas.

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