

# FIRE NOTE

ISSUE 63 JULY 2010



## BUSHFIRE ARSON: WHAT DO WE KNOW NOW?

### SUMMARY

Fires in the open are deliberately started for a range of legitimate reasons such as cooking, pest management, camping and fuel reduction burning. Unfortunately, however, sometimes fires are deliberately started with the intent of causing damage. The lighting of these fires is called arson. Arson generally is defined as the act of intentionally and maliciously destroying or damaging property through the use of fire. The concept of bushfire arson is somewhat different to general arson, in that it does not require malice or intent. The offence of bushfire arson can be deliberate, but has evolved to entail those situations where a person is reckless in causing a fire and reckless regarding the spread of the fire to vegetation or property belonging to another (Model Criminal Code Officers Committee 2001:46).

It is difficult to know exactly how much bushfire arson costs the Australian community, but arson of all types is estimated to cost the Australian community \$1.62 billion annually (Rollings 2008).

As part of understanding the risk of bushfire arson in Australia, a Bushfire Cooperative Research Centre project was undertaken from 2003 through 2010 by the Australian Institute of Criminology (AIC) in partnership with the ACT Department of Justice. The project reviewed current bushfire arson patterns and Australian and international prevention practices with a view to better understanding and ultimately reducing bushfire arson in the Australian landscape.

### ABOUT THIS FIRE NOTE

This research is from Project C3: Bushfire Arson, within Bushfire CRC Program C: Community Self-Sufficiency for Fire Safety.

### CONTEXT

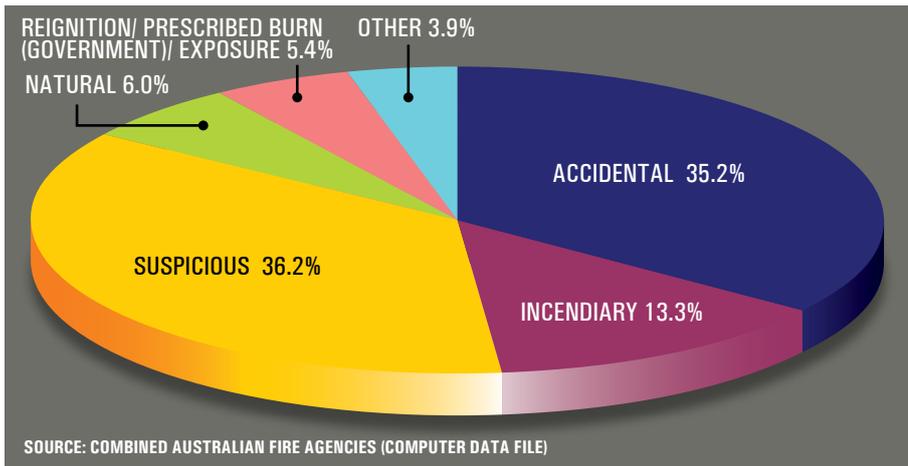
**Bushfire arson is a patterned activity, and it is the identification of these patterns that offers the most potential to reduce the damage caused by this crime. This research examined those patterns, and also clarified how arson is defined in law, the size of the problem, the sort of people who are lighting the fires, what is being done about it and what is working.**

### BUSHFIRE CRC RESEARCH

According to data from the Australian Institute of Criminology, fire services attend around 54,000 (+/- 6000) vegetation fires per year.

Bushfire CRC research analysing more than 280,000 fires in Australia covering the best available data from 1997-2006 (Bryant 2008a) found that 60 percent of fires have a known cause and around half of these are listed as either suspicious or incendiary (maliciously lit) fires (See Figure 1). From this we can suggest (given there are between 45,000 and 60,000 fires in vegetation in Australia), there

**Figure 1: Causes of known vegetation fires**



are between 13,000 and 18,000 bushfires identified as suspicious or malicious each year.

### Patterns in arson

There are often clear patterns in the timing or locations of bushfire arson occurrences. Observing when and where these fires occur, and how they vary from area to area and the interplay between biophysical factors such as fuel load and curing rates and socio-dynamic factors of the surrounding population, is an important step in understanding bushfire arson. Such information can be used to develop prevention strategies or to narrow a search for suspects in particular situations. Research undertaken into trends surrounding deliberately lit vegetation fires (Bryant 2008 a and b) documented the following observations regarding vegetation fires in Australia (see also Figures 2 and 3, next page). This information is based on a collation of data on all fires nationally, and the timing may vary from place to place.

- Most natural vegetation fires occur from 12 to 6pm. Deliberate vegetation fires peak between 3 and 6pm., and non-deliberate vegetation fires peak between 1 and 4pm.
- The 3 to 6pm peak for deliberate fires is anecdotally attributed to children as they move around after school. Where fires have been directly attributed to children 16 years or younger, the fires peak earlier on weekends.
- 48 percent of all deliberate vegetation fires occur overnight between 6pm and 6am compared with 30 percent of all non-deliberate vegetation fires.
- In many areas night-time fires are often associated with Friday or Saturday nights and the following early morning. The highest proportion of night time fires occurs in urban or semi-urban environments.

### END USER STATEMENT

“This project has been an outstanding success as it has collated a significant amount of diverse information from many different sources and produced many well-reasoned reference documents for end users to apply.”

– **Ralph Smith, Bushfire & Environmental Protection Branch, Fire & Emergency Services Authority of WA.**

- There was no variation across the week of the number of fires occurring due to natural causes. However, human-induced ignitions (those labelled accidental, incendiary or suspicious) peaked on the weekend. It is suggested (but not proven) the most likely reason for this weekend peak is because more people are in bush settings on weekends than on weekdays.
- The timing of vegetation fires reflects interactions between climate and human activities. Differences in the time of year for different states reflect different climatic conditions.

### Who commits arson?

Understanding who may be likely to commit bushfire arson is part of developing a response to this issue, but is made difficult because of the small number of bushfire arsonists that are caught and prosecuted. The research suggests the general profile of arsonists tends to be that they are 25- to 30-year-old white males from broken homes with low academic performance and poor social skills. They may also have a history of alcohol abuse and involvement with other crimes, but there is a wide range of people who have been involved in arson for a range of complex reasons (Muller 2008). This research indicates that convicted arsonists in

custody fit the above profile, but many more are diverted from the criminal justice system because they are juveniles (younger than 17 or 18 depending on the jurisdiction). We also know that younger children are involved disproportionately because of the spike in bushfire ignitions after school, and one of the strongest predictors of ignitions is areas with high rates of single parent families with children under 15.

Some data from arsonist and bushfire arsonist offenders appearing in the New South Wales courts between 2001 and 2006 indicate that the majority were male (about 90 percent). The age of individuals appearing ranged from 10 to 76 years, and the average age was about 27. Twenty-two percent of arson offenders and 31 percent of bushfire arson offenders were aged under 18, with most aged between 15 and 17 years (Muller 2008). Research also suggests:

- Children are often involved in lighting fires, although deliberately lit fires by children are usually different from adult fire-setting. Most fires started by children are accidents resulting from playing with fire or experimentation, but a small group of children engage in problematic fire-setting and a few go on to light fires regularly.
- While they are an extremely small number of the total number of firefighters across Australia, it is not unknown for firefighters to perform arson. Researchers found that the low occurrence and lack of a distinctive profile of arsonists in the population mean that it is unlikely that a fully effective screening test will be developed in the near/medium term.
- There is little evidence to suggest that if someone has already been convicted of arson that they will repeat this offence. (Slightly more than half of all arson defendants and one third of bushfire arson defendants appearing before the NSW courts between 2001 and 2006 had a prior conviction in the previous seven years, but very few had a previous conviction for arson.)
- Deliberately lit bushfires are often attributed to pyromaniacs. Pyromania is a psychiatric diagnosis that involves a fascination with fire that is well beyond curiosity, however, it is very rare.

### Response to arson

#### Primary crime prevention – changing situational factors

Given that bushfire arson offenders are difficult to identify, catch or convict, Muller (2008) suggests that primary crime prevention

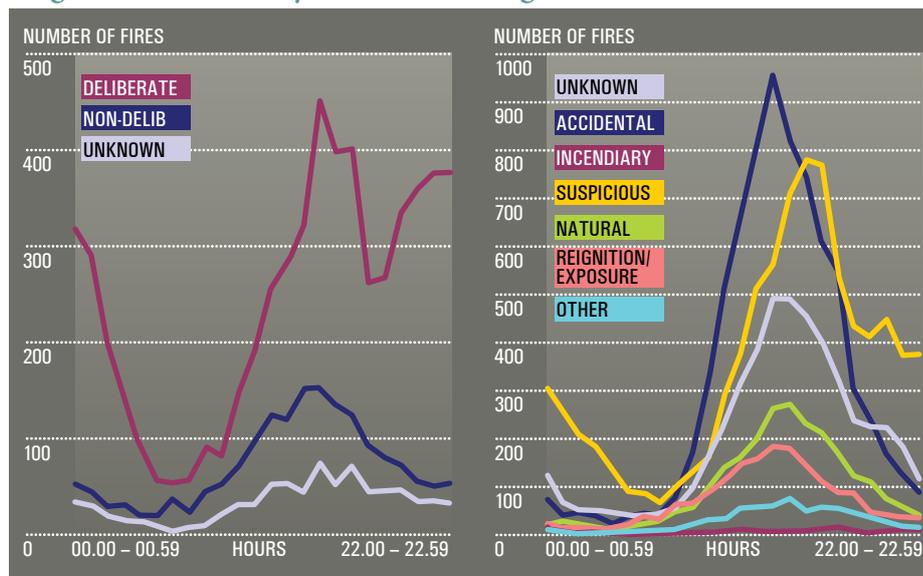
strategies may be the most effective part of an overall strategy for bushfire arson. Primary crime prevention is about making the crime harder to commit and hence less likely to occur. There are a number of ways of undertaking this to increase the effort required for arson and decrease the rewards. Many of these sorts of initiatives are in place in various jurisdictions and include:

- Controlling access and reinforcing guardianship of property – Approaches such as locking gates and encouraging people to report suspicious behaviour or using closed circuit television. (This is not simple in most areas of Australia because of large areas of vegetation and low population density.)
- Fuel reduction and prescribed burning – This approach reduces the benefit to arsonists because their fires will not be as large. It also increases the risk that the arsonist will be caught if the fires are harder to light. The Western Australian Fire and Emergency Service Authority (FESA) has done this in the Rockingham area.
- Abandoned cars – Removing abandoned cars and making them harder to steal is a useful initiative. (Burnt stolen cars accounted for one third of all intentionally lit bushfire in Beerhurrum district, Queensland.)
- Arson education – Programs educating the community and raising awareness about the dangers of deliberate fires. For example, FESA has established a community centered multi-agency approach based on recognising that bushfires are often lit by children with no malicious intent but a poor understanding of the consequences. This has included primary school presentations, shopping centre displays and door knocking. Other community awareness programs reinforce guardianship so people are more likely to be aware of and report suspicious behaviour.

### Secondary crime prevention – programs targeting known offenders

Even if primary crime prevention programs are successful it is important to deter known arsonists or high risk individuals to reduce the potential that they will continue in arson activities. Juvenile arson intervention programs are run by all state and territory fire agencies in Australia by trained facilitators with the involvement of the parents. Anecdotal and some empirical evaluation indicate that these programs are successful in Australia (Muller and Stebbins 2007), however, researchers identified no current programs for adults suspected of arson, nor for convicted arsonists in jail.

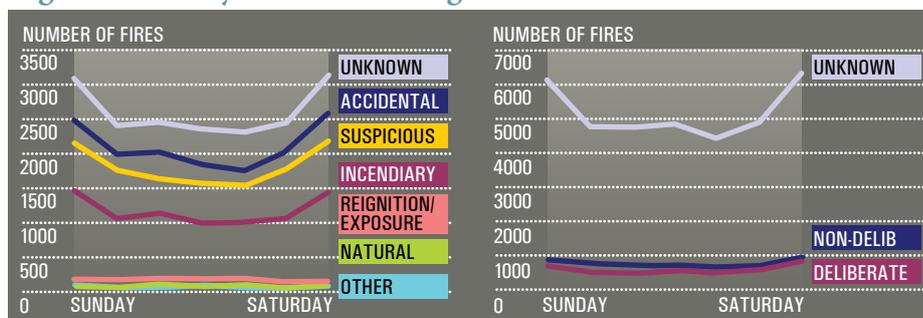
### Figure 2: Time of day variations of vegetation fires



Source: FESA (WA) – AFAC 1997-1998 to 2001-2002.

Source: CFA (Vic) 1999-2000 to 2003-2004.

### Figure 3: Weekly variations of vegetation fires



Source: New South Wales Fire Brigade 1997-98 to 2001-2002.

Source: Queensland Fire and Rescue Service 1997-98 to 2001-2002.

### Tertiary prevention – criminal justice interventions

#### Legislation

All Australian states and territories have enacted offences resulting from the unlawful and malicious use of fire. In each jurisdiction it is an offence to use fire to destroy or damage property. In addition, there is a Commonwealth offence of destroying or damaging property. Where a fire results in the death of a person,

this would be prosecuted under general manslaughter or murder provisions. Most jurisdictions have specific offences concerned with the setting of bushfires. All states and territories regard arson as a serious indictable offence with heavy penalties ranging from 10 years to 25 years imprisonment. Most jurisdictions also have a range of summary offences relating to the inappropriate lighting of fires in national parks, forests and other open areas.

### THE CHANGING MEANING OF ARSON

The word arson itself came into the English language in the 17th century, originally with two meanings – malicious damage to another's property by fire, and a threat to the state by incendiaries. Arson gradually lost its treason element, although reminders of this meaning still survive in Australian legislation where an important symbol of rural unrest – the burning of haystacks – is still specifically mentioned. Despite its ancient origins, arson has been a particularly difficult crime to define by law, chiefly because of its overlap with crimes of criminal damage and offences against person. The real problem, however, lies in defining intent. When somebody sets fire to a building, the intent is to burn that building and it is unlikely that the whole city will burn down, but when somebody sets fire to vegetation the consequences are far less knowable. The legal meaning of the word arson has changed again in recent years to try to encompass the difference in intent between structural and vegetation fires. Arson now has two meanings in law – malicious damaging of property by fire, which applies mainly to structural arson, and the lighting of fires "reckless as to the consequences", which applies mainly to bushfire arson.



## Apprehension and sentencing

In the five years to September 2006, 133 bushfire arsonists were charged in NSW courts, about 27 per year (Muller, 2008). The average number of bushfires deliberately or suspiciously lit based on averages calculated for the years between 1995/96 and 2003/04 in NSW was 8265 (Bryant, 2008). There is little public information available, however, on the sentencing of arsonists in Australia. Over a five-year period in Victoria 276 individuals were sentenced for a principal offence of arson. Though arson in Victoria carries a maximum penalty of 15 years imprisonment, only around one-third of those sentenced received a term of imprisonment. Research by this project (Muller 2008) on the 1099 arson and 133 bushfire-arson defendants who appeared in NSW courts between 2001 and 2006 showed that two-thirds of the defendants were found to be guilty. It also showed that custodial sentences ranged from one week to 45 months, with an average of 11 months. Fines were received by 88 firesetters and ranged from \$50 to \$1500, with an average of \$441.

## HOW THE RESEARCH COULD BE USED

This body of research has been heavily drawn upon to inform the development of a national action plan for the prevention of bushfire arson. The action plan was instigated following a national forum held in March 2009, chaired by the Commonwealth Attorney-General, The Hon. Robert McClelland, drawing together examples of bushfire arson prevention and

education initiatives. A number of states are already using a range of approaches to minimise bushfire arson in their jurisdictions – this research provides a framework for this to progress, and also provides advice about developing successful bushfire prevention strategies. In addition, this Bushfire CRC research – through the Australian Institute of Criminology – has developed a Community Bushfire Arson Prevention Handbook, funded by the Bushfire CRC, launched in May this year by Mr McClelland. The handbook, – which is available at <http://www.aic.gov.au/publications> – serves as a guide for communities who want to prevent bushfires, by walking users through steps that can help to prevent bushfire arson.

## FUTURE DIRECTIONS

The application of this research through the implementation and evaluation of targeted crime prevention programs is encouraged. Such programs will require partnerships between fire agencies, police, local governments, educators, health and community workers. Agencies are strongly encouraged to evaluate these programs and to share their findings to encourage learning and to facilitate good practice. The Bushfire CRC project Evaluating Community Education Programs provides a useful framework which could be applied to do this. Also encouraged is a research approach that integrates arson ignitions into general fire risk, taking advantage of the patterned nature of arson to develop an integrated fire risk model.

## REFERENCES

- Australian Productivity Commission (APC) 2008. Australian Productivity Commission: report on government services 2008 – Part D emergency management.
- Bryant C 2008 a. Understanding bushfire: trends in deliberate vegetation fires in Australia. (Bushfire CRC report) Technical and background paper series no. 27. Canberra: Australian Institute of Criminology.
- Bryant C 2008 b. Deliberately lit vegetation fires in Australia. (Bushfire CRC report) Trends & issues in crime and criminal justice no. 350. Canberra:AIC.
- Muller DA 2008. Offending and reoffending patterns of arsonists in NSW. (Bushfire CRC report) Trends & issues in crime and criminal justice no. 348. Canberra:AIC.
- Muller DA & Stebbins A 2007. Juvenile arson intervention programs in Australia. (Bushfire CRC report) Trends & issues in crime and criminal justice no. 335. Canberra:AIC.
- Nicolopoulos N et al. 1997. Socio-economic characteristics of communities and fires. NSW Fire Brigades statistical research paper 4/97.
- Rollings SK 2008. Counting the costs of crime in Australia: a 2005 update. Research and public policy series no. 91. Canberra:AIC.
- Willis M 2004. Bushfire arson: a review of the literature. (Bushfire CRC report) Research and public policy series no. 61. Canberra:AIC.
- NOTE: In addition to the publications above, the research team has published nearly 70 publications on bushfire arson so far, including Bushfire Arson Bulletins issued by the Australian Institute of Criminology (which are one-page summaries of research) to substantial peer reviewed volumes and can be found at [www.aic.gov.au](http://www.aic.gov.au)*

Fire Note is published jointly by the Bushfire Cooperative Research Centre (Bushfire CRC) and the Australasian Fire and Emergency Service Authorities Council (AFAC).

Bushfire Cooperative Research Centre  
Level 5/340 Albert Street  
East Melbourne VIC 3002  
Telephone: 03 9412 9600  
[www.bushfirecrc.com](http://www.bushfirecrc.com)

Bushfire CRC is a national research centre in the Cooperative Research Centre (CRC) program, formed in partnership with fire and land management agencies in 2003 to undertake end-user focused research.  
Bushfire CRC Limited ABN: 71 103 943 755

Australasian Fire and Emergency Service Authorities Council  
Level 5/340 Albert Street  
East Melbourne VIC 3002  
Telephone: 03 9418 2388  
[www.afac.com.au](http://www.afac.com.au)

AFAC is the peak representative body for fire, emergency services and land management agencies in the Australasia region. It was established in 1993 and has 26 full and 10 affiliate members.