







PROGRAM C

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Trends in deliberate vegetation fires in Australia: Implications for recording and preventing bushfires

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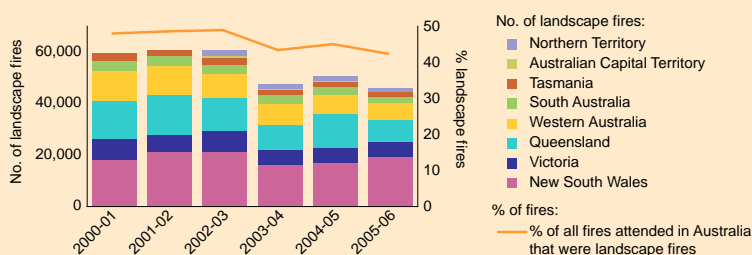
ACT DEPARTMENT OF JUSTICE
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The size of the problem



No. of landscape fires:

- Northern Territory
- Australian Capital Territory
- Tasmania
- South Australia
- Western Australia
- Queensland
- Victoria
- New South Wales

% of fires:

- % of all fires attended in Australia that were landscape fires

Source: Australian Productivity Commission

Landscape fires reported by Australian fire agencies



Data Source

- Vegetation fire data
- Provided by 18 Australian fire and land management agencies
- Analysed over five-year period (approx.)



Definition: Vegetation fires

- Vegetation fires: all fires classified as a wildfire based on AIRS codes (type of incident code = 160 to 179)
- Equivalent to landscape fire - Australian productivity commission
- The type of incidents attended vary between agencies depending on their function, responsibilities and location
- The breakdown of responsibilities are not uniform between states



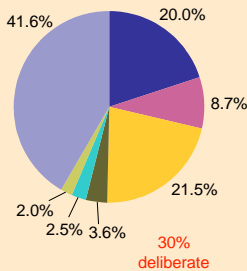
Definition: Deliberate

- Deliberate fires include all fires classified as:
 - incendiary (AIRS ignition factor code = 110 or 120)
 - suspicious (AIRS ignition factor code = 210 or 220) within the ignition factor variable.
- For agencies not using the AIRS database code it include fires classified as:
 - deliberate
 - malicious
 - mischievous
 - arson
 - Illegal burn
 - Suspicious

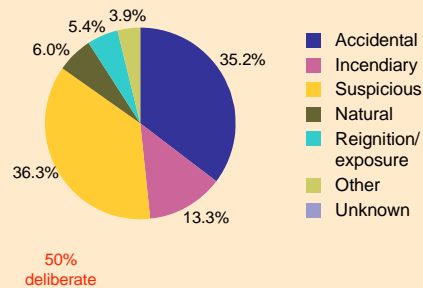


Causes of vegetation fire in Australia

Based on recorded causes*



Based on assigned causes*



*weighted by agency and jurisdiction



Human activity and bushfires

- People are the primary cause of bushfires
- Natural fires only 6% of all fires (larger area)
- Many bushfires occur near a capital city
 - Not just a bush problem
 - Heavy involvement of urban brigades
- Preventing deliberate bushfires can lead to a substantial reduction in overall bushfires



Data difficulties

- The complexity of the AIRS database enables extraordinary flexibility; they are upsides and downsides
- Poorly structured database variables limits usefulness
- Fire incidents duplicated across and potentially within agencies
- Changes in database structure - internal inconsistencies
- Graduated introduction of data recording
- Insufficient information - bushfires, children, firesetter/arsonist, legal outcomes etc.

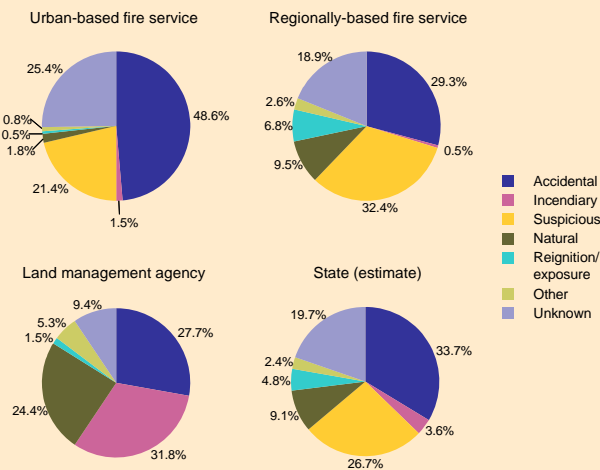


Inconsistencies in fire attribution data

- Fire cause attribution is often ambiguous
- Different agencies have different thresholds:
 - Unknown
 - Suspicious
 - Incendiary
- Rates of deliberate and unknown/suspicious vary between region, agency, state
- Also natural variation due to climate and vegetation
- Certain patterns consistent across datasets

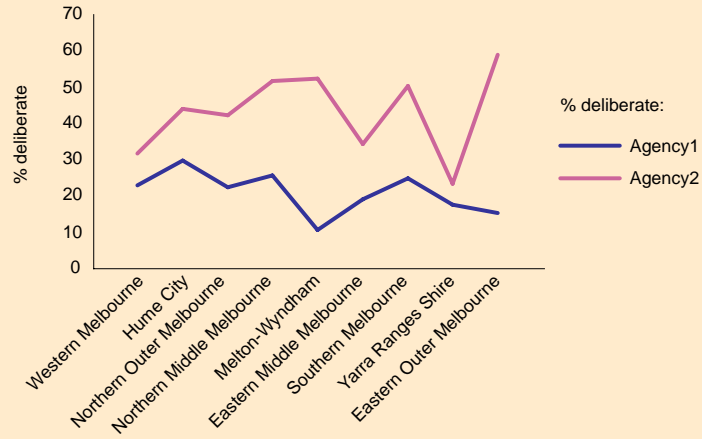


Attributions for fire agencies in one state



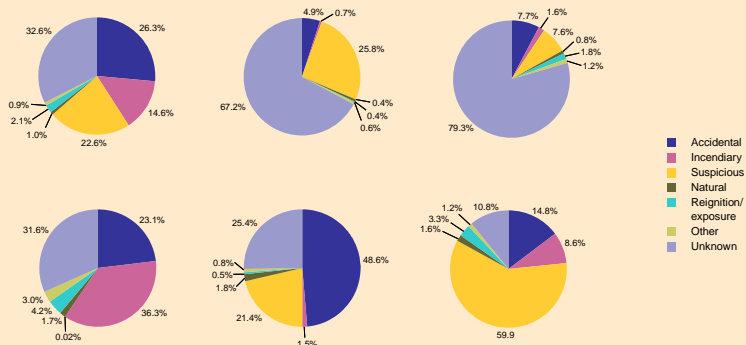


Deliberate fires by district and agency



Attributions of Australian urban fire services

Urban-based fire services





Some particular problems

- Fires lit by children
 - Recorded as either deliberate or child
 - No way to measure effectiveness of intervention
- Cigarette related bushfires
 - Inconsistencies in categorisation
 - Rural and urban variations
- Vehicle fires and bushfires
 - Bushfires caused by burned abandoned/stolen vehicles
 - Difficult to tell numbers from the data

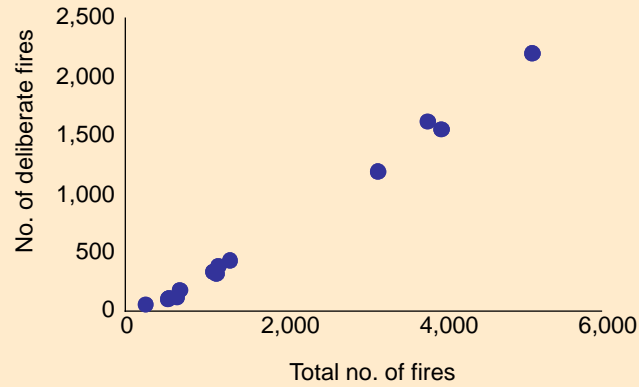


Using the data to prevent bushfires

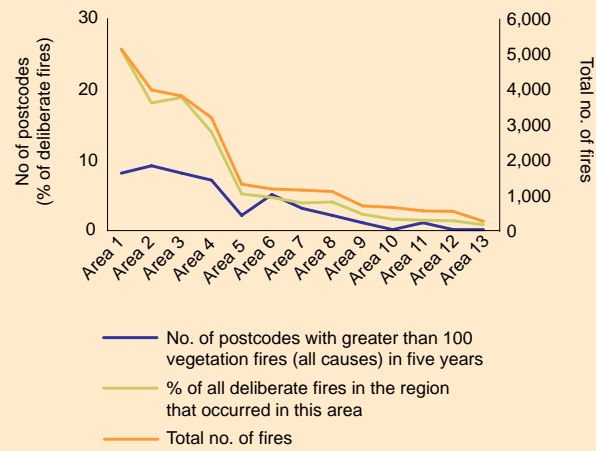
- Relationship between total and deliberate fires
 - Higher number of fires, higher number and proportion deliberate
- Some areas are arson 'hotspots'
 - Large number of fires in a few areas
 - Account for a high proportion of fires in the region
 - Mostly small fires
- Targeted prevention strategies
 - Requires an understanding of local causes



Relationship between deliberate and total fires



Clustering of fires





Bushfire arson prevention strategies

- Public education campaigns
- Targeted fuel reduction
- Illegal rural burns
- Discarded cigarettes
- Juvenile arson intervention programs
- General antisocial behaviour



Conclusions

- Substantial proportion of bushfires deliberate
 - Smaller, but more frequent
- Issues with current data collection
 - Within and between agencies and jurisdictions
 - Considerable ambiguity
- Targeted prevention of deliberate bushfires
 - Requires an understanding of the local problem
 - Good quality data essential