



Fuel Management Activities in Western Australia

Summary of 2018-2019

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DFES
Department of Fire &
Emergency Services

FOR A SAFER STATE



A low intensity planned burn in jarrah forest.



Message from the Executive Director Rural Fire Division



It is my pleasure to present this annual summary of the fuel management activities undertaken to reduce bushfire risk across Western Australia. It shows that managing fuels continues to be recognised as being critical to reducing the harm caused by bushfires. I am pleased that this report shows a continuing trend of increasing collaboration throughout the community to address the hazard of bushfire.

The large number of organisations shown by this report to be committed to managing their bushfire risk is commendable. Together, local governments, State Government and private organisations have completed a significant amount of planned burning and other fuel management across the state. This is a continuation of a legacy of proactive fuel management in WA that greatly enhances our resilience to bushfire.

I thank the organisations that have contributed information to this report and congratulate them on the steps they have taken to recognise and address bushfire risk.

Murray Carter
Executive Director
Rural Fire Division DFES



The result of a planned burn near Augusta

Quick Stats

116 organisations reported on their fuel management programs in 2018-19, collectively completing:

- 743 planned burns totaling 4.5 million hectares and
- 44 thousand hectares and 23 thousand kilometres of other fuel management activities.

Introduction

Bushfire is an ever present danger in Western Australia – the State's large size and varied climate means fires can take hold at almost any time of year. Addressing this hazard is a responsibility that is shared by the entire community and requires a coordinated approach to prevention, preparedness, response and recovery. Managing the fuel that powers bushfires is crucial to reducing the harm they cause.

Each year, the Department of Fire and Emergency Services (DFES) surveys land managers across Western Australia to ask about the steps they have taken to manage bushfire fuel, factors that helped or hindered their fuel management program, collaboration that occurred and lessons learned. This report summarises the responses received from land managers for the 2018-2019 financial year.

Why manage fuel?

Bushfires are most difficult to control and most likely to endanger people and damage things we value when they spread rapidly and burn with great intensity. There are three things that determine the speed and intensity of a bushfire: the climatic and weather conditions, the terrain in which it is burning and the fuel that is being burnt. Of these, land managers can only influence the fuel.

Fuel management is the practice of removing or modifying vegetation and leaf litter so it is not available to be burnt if a bushfire occurs. Fuel management is essential to reducing bushfire risk. Without it, we cannot ensure that people, communities, industry and the environment are protected from the effects of bushfires.

**4.5 MILLION HECTARES OF
PLANNED BURNING WAS
REPORTED IN WESTERN
AUSTRALIA IN 2018/19**



A Bush Fire Brigade burning fuel around houses



Who manages fuel in Western Australia?

In Western Australia, the land owner or occupier is responsible for managing bushfire fuels on their land. Private residents and companies must manage fuel on the land they own or lease according to the requirements set by their local government. These requirements are published in an annual notice, often called a fire break notice.

State Government agencies are not required to comply with fire break notices but do still have an obligation to take reasonable steps to prevent bushfires on land they manage. This includes managing fuels where appropriate. Local governments are similarly responsible for fuel management on all lands vested in them, such as shire reserves.

Bushfire risk management is a shared responsibility, but different groups each have areas where they are primarily responsible for fuel management.

State Government

- National parks, nature reserves, State forest and other conservation reserves
- Unallocated crown land and unmanaged reserves
- Schools, hospitals, correctional facilities and similar facilities with bushland

Local government

- Shire parks, reserves and other shire managed land

Private land managers

- Aboriginal lands
- Pastoral and mining leases
- Farms and private plantations
- Private properties with bushland



Compiling the report

In October 2019, DFES sent a survey to Western Australia's local governments, 15 State Government agencies and 18 private companies with significant land or fire management responsibilities. The survey contained 25 questions about fuel management activities in 2018-2019.

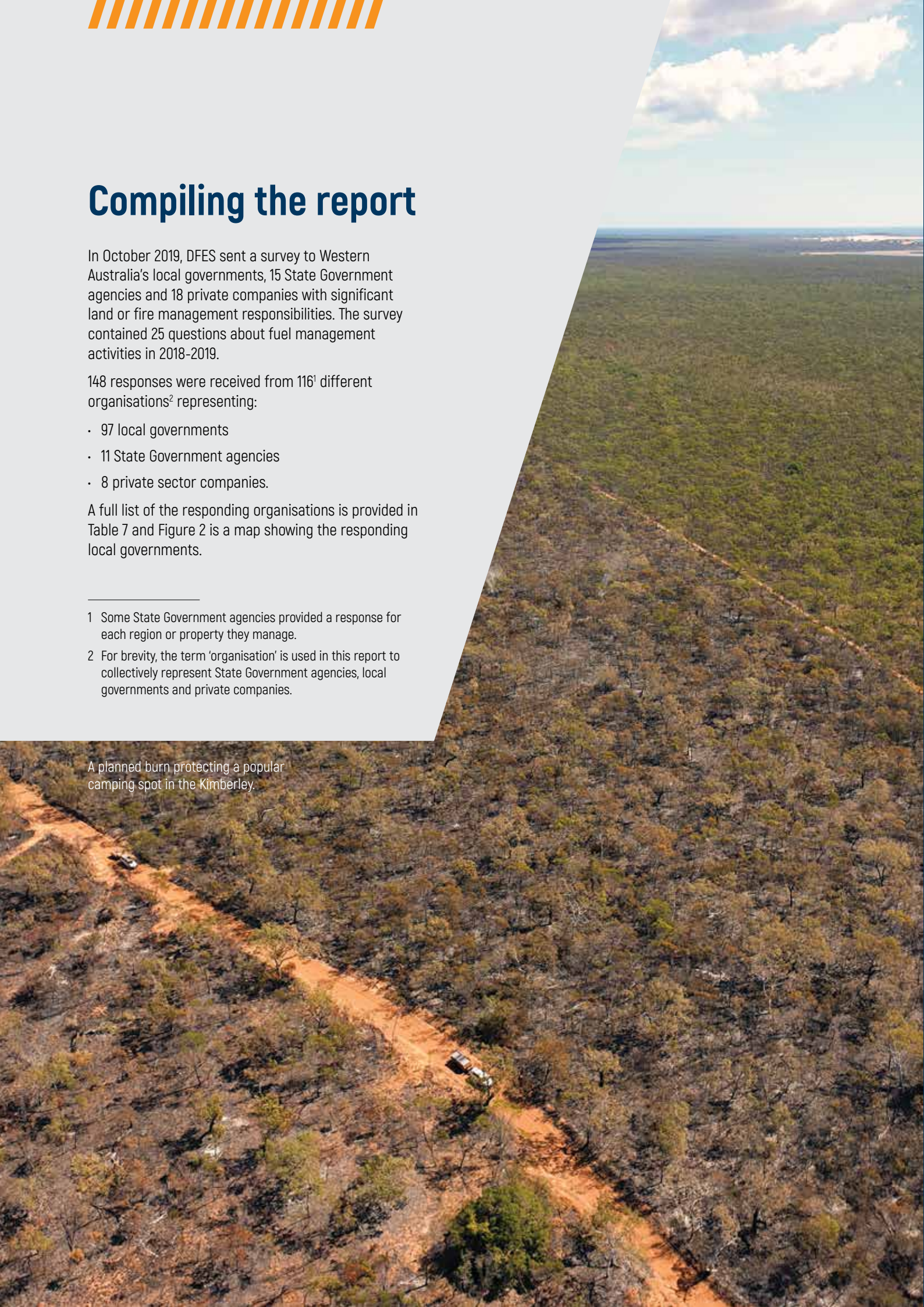
148 responses were received from 116¹ different organisations² representing:

- 97 local governments
- 11 State Government agencies
- 8 private sector companies.

A full list of the responding organisations is provided in Table 7 and Figure 2 is a map showing the responding local governments.

1 Some State Government agencies provided a response for each region or property they manage.

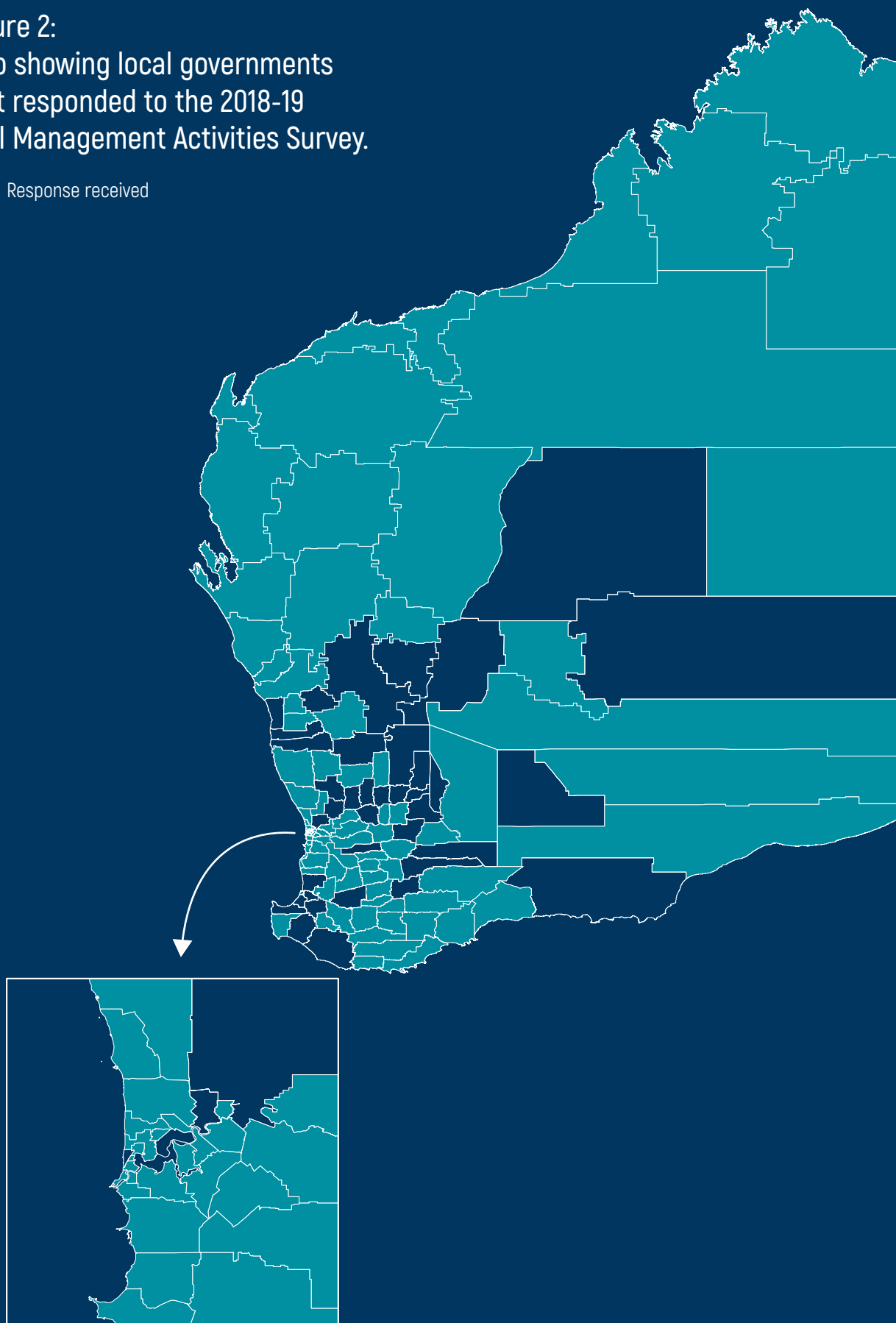
2 For brevity, the term 'organisation' is used in this report to collectively represent State Government agencies, local governments and private companies.



A planned burn protecting a popular camping spot in the Kimberley.

Figure 2:
Map showing local governments
that responded to the 2018-19
Fuel Management Activities Survey.

 Response received



Planned burning

From private properties on the urban interface, to State-managed reserves and vast Aboriginal and pastoral land-holdings, planned burning is used statewide to remove excess bushfire fuel. When conducted appropriately, it is a safe, efficient and environmentally sustainable fuel management method. In fact, when a bushfire hazard reduction strategy requires large areas of fuel to be managed, planned burning is the only practical solution.

In 2018-19, 50 organisations reported undertaking planned burning, collectively completing 743 planned burns totalling 4.5 million hectares. The majority of planned burning was conducted by four organisations, that conduct large operations in the north of the State:

- The Department of Biodiversity, Conservation and Attractions completed 201 burns totalling about 3,563,000 hectares
- Australian Wildlife Conservancy completed 50 burns totalling about 415,000 hectares
- Kimberley Land Council completed 30 burns totalling about 387,000 hectares
- DFES completed 124 burns totalling about 127,000 hectares.

39 local governments completed some planned burning, with the largest amount being 457 hectares in the Shire of Ashburton.

Planned burn escapes

Unforeseen circumstances sometimes cause planned burns to escape their boundaries. Escapes are relatively rare, but are taken seriously as they can cause significant damage. They should always be treated as an opportunity for the bushfire management sector to learn and improve.

In 2018-19, 6 organisations reported having had a burn escape, with a total of 17 escapes affecting about 6,000 hectares of land. The first cold front of winter led to significant burn escapes in June 2019. Fortunately, the lessons learned in a similar event in 2018 were applied, reducing the number, scale and impact of these escapes. For example, Total Fire Bans were applied in several local governments when the approaching weather system was recognised, which greatly reduced the potential for escapes to occur.

**STATE GOVERNMENT AGENCIES
COMPLETED ABOUT 3.7 MILLION
HECTARES OF PLANNED BURNING,
PRIVATE ORGANISATIONS ABOUT
800,000 HECTARES AND LOCAL
GOVERNMENT ABOUT 1,300 HECTARES.**





Mechanical and chemical fuel management

Bushfire fuel can also be reduced using machines, by hand or by using herbicides. These methods are often used around settlements or along important infrastructure, such as roads or rail lines. They are also helpful in situations where it is too risky to conduct planned burning or where people are not available to do so.

Tables 1 and 2 show the amount of mechanical and chemical fuel management activities completed by responding organisations. Table 1 shows the treatments usually measured as an area and Table 2 shows those usually measured as a distance.

In total 96 organisations reported completing 44,000 hectares and 23,200 km of mechanical and chemical fuel management.

Local governments tended to prefer mechanical and chemical fuel management to planned burning. In particular, slashing and chemical treatments comprised more than 75% of the local government treatment area.

Table 1: The amount of mechanical and chemical fuel management completed by respondents for activities usually reported as an area.

Fuel management method	Number of organisations using method	Area treated (ha)
Slashing	75	24,300
Chemical spraying	60	15,400
Parkland clearing	39	900
Other	25	3,400
Total	90	44,000

Table 2: The amount of mechanical fuel management completed by respondents for activities usually reported as a distance.

Fuel management method	Number of organisations using method	Distance treated (km)
Firebreaks or access	81	14,200
Mulching	29	1,100
Scrub rolling	4	200
Other	7	7,700
Total	87	23,200

Enabling fuel management

The survey asked how fuel management activities were funded. Across all respondents, 87% of fuel management activities were funded by organisations' normal operating budget, 10% from State Government administered grants programs and the remainder from other sources.

Organisations were asked who assisted with completing fuel management activities. Not surprisingly, an organisation's own staff were most frequently identified as being integral to activities, with contractors, volunteer brigades and State Government fire agency staff seen as the next most important contributors. Table 3 summarises responses to a question about the reliance on various sources of labour and expertise in completing fuel management.

Table 3: Summary of responses to the question 'How reliant is your organisation on the following sources of labour and expertise in completing your fuel management program?' Some categories have been amalgamated and responses of 'Don't know' omitted from the table.

	Not involved	Participated in activities	Essential to outcomes
Organisational staff	8%	23%	59%
Contractors	17%	29%	39%
Volunteer Brigades	35%	28%	25%
State Government agencies	32%	33%	20%
Bushfire consultants	59%	19%	5%
Other volunteers	60%	21%	2%

Questions about consultation and collaboration revealed the increasingly inclusive nature of fuel management with almost two thirds of respondents reporting having worked with State Government agencies when planning or implementing works. Over half of respondents had communicated their intended fuel management activities to local residents or consulted them on the preferred approach. Volunteer brigades were consulted in about one quarter of cases and acted collaboratively in another quarter. Table 4 summarises responses to a question about the extent to which organisations engaged with stakeholders when planning or implementing their annual bushfire risk management program.

Table 4: Summary of responses to the question 'How much did you engage with the following stakeholders when planning or implementing your organisation's annual bushfire risk management program?' Some categories have been amalgamated and responses of 'Don't know' omitted from the table.

	Not involved	Communicated or consulted	Worked collaboratively
State government agencies	26%	28%	35%
Residents	33%	49%	6%
Volunteer Brigades	37%	26%	25%
Environmental groups	51%	31%	7%
Other volunteers	70%	15%	3%

Restrictions on fuel management activities

The survey asked organisations how much of their planned works they were able to complete and what stopped them from achieving more. This information is used to identify things that could be improved by the whole sector to achieve more fuel management.

Fire breaks, slashing and chemical treatment are all readily completed activities with more than 80% of respondents reporting they completed most of their planned works of these types. Planned burning appears to be the activity that it is most difficult to conduct, with only 49% of respondents reporting they completed most of their planned burns. Meanwhile, 20% of respondents reported completing less than one quarter of their planned burning. Table 5 summarises organisation's responses to a question about the proportion of their planned program of fuel management works they were able to complete.

Table 5: Proportion of respondents that reported completing at least 75% of their programmed fuel management activities. Percentages are based only on those that intended to undertake the activity and had a set program.

Fuel management method	% of respondents that completed at least 75% of planned works
Fire breaks or strategic access	89%
Slashing	88%
Chemical spraying	81%
Mulching	77%
Parkland clearing	75%
Planned burning	49%

Over half of respondents identified seasonal weather conditions as a factor that limited their ability to complete planned fuel management activities. Other commonly reported constraints included the availability of funding, lack of available expertise and the availability of Bush Fire Brigades to assist. Table 6 summarises responses to a question about the extent to which various factors limited organisations ability to achieve planned fuel management works.

Not surprisingly, planned burning was identified as the fuel management activity most impacted by these limiting factors, with two thirds of respondents saying that one of the factors in Table 6 restricted their ability to complete burning. Installing fire breaks or fire access was the activity next most commonly reported as having been restricted.

Table 6: Issues identified as limiting respondents' ability to complete planned fuel management activities. The figure shown is the sum of those who reported the factor limited their works program somewhat, limited their works program significantly or prevented most works from occurring.

Limiting factor	% of respondents who identified as an issue
Seasonal conditions	56%
Availability of funding	42%
Lack of in-house capacity or expertise	37%
Volunteer brigade availability	36%
Environmental approvals	33%
Community concerns	32%
Contractor availability	30%
Grant application process	26%
Cultural or archaeological approvals	21%
Access to information for planning	21%



Other ways of managing bushfire risk

As well as managing fuels, organisations conducted a range of other activities to reduce the risk posed by bushfire. When asked what other steps the organisation took to keep the community safe from bushfire, the most common responses pertained to conducting training or providing education and information to the community about bushfire risk. The next most common response was developing a bushfire prevention plan, with actions related to better regulation and enforcement of fire prevention legislation also identified by a significant number of organisations. Other activities identified by multiple organisations included developing better emergency response arrangements, controls on land use development or building site design, conducting research and improving resourcing for bushfire prevention.

What is working well

It is pleasing that a large number of survey respondents described effective collaboration and engagement with the bushfire sector and the community. This was easily the most common response when asked what aspect of the organisation's approach to bushfire risk management is working well. Many respondents also described specific approaches to fuel management as being particularly effective, with mechanical and chemical fuel reduction cited most, followed by firebreaks and planned burning. Bushfire risk management planning and legal and compliance measures were also mentioned frequently.

What could be done better

The survey asked where there was room for improvement within the organisation's approach to bushfire risk management and what could be improved within the sector as a whole. Looking within their own organisation, the most common responses related to better planning for bushfire risk management, more funding for bushfire risk management programs and better engagement with internal and external stakeholders. Other responses received from multiple organisations included better timing of fuel management activities, more planned burning, increased staff numbers or availability for bushfire risk management activities, better fire management notices or better enforcement of those notices, more or better training and better fire response arrangements.

Looking at the sector as a whole, the most common responses related to the provision of more funding for fuel management activities and better collaboration across the community. Other common responses related to more or better community education, greater availability of personnel for planning or implementing fuel management, improvements to grants processes, simplification of environmental approvals, legislative change to support fuel management, access to more training opportunities and more fuel management on State-managed land.



IN TOTAL 98 LOCAL GOVERNMENTS, STATE GOVERNMENT AGENCIES AND PRIVATE COMPANIES CONDUCTED 743 PLANNED BURNS TOTALING 4.5 MILLION HECTARES, AND 44 THOUSAND HECTARES AND 23 THOUSAND KILOMETRES OF OTHER FUEL MANAGEMENT ACTIVITIES.

Conclusion

It is difficult to draw comparisons between the 2018-2019 fuel management activities report and those from previous years. This is because there has been a significant change in the organisations which responded to the survey and changes in the survey methodology mean much of the data are not directly comparable. This will be addressed so future surveys will support reporting on trends.

What can be seen from this survey though is that the fuel that powers bushfires continues to be well-managed across Western Australia. In total 98 local governments, State Government agencies and private companies conducted 743 planned burns totaling 4.5 million hectares, and 44 thousand hectares and 23 thousand kilometres of other fuel management activities. This represents a tremendous achievement, for which those involved should be commended.

It is also evident that Bushfire risk management is becoming increasingly collaborative and inclusive, which is crucial to its continued success across the State.

As always, there remain opportunities for improvement. Enhanced bushfire risk management planning is one opportunity DFES is investigating, with a project underway to review and revise the guidelines and processes used by local government. DFES also has work underway to make fire management notices more consistent in format and legally effective and to simplify the environmental approval process. Finally, the recent creation of the Bushfire Centre of Excellence is a significant boost to the ongoing effort to improve collaboration, training and community information, as well as supporting greater Aboriginal involvement in fuel management and bushfire prevention.

Table 7: Organisations that responded to the annual fuel management activities survey in 2018-19		
Local Governments		
City of Albany	Shire of Gingin	Shire of Northampton
City of Armadale	Shire of Gnowangerup	Shire of Peppermint Grove
Shire of Ashburton	City of Gosnells	Shire of Perenjori
Shire of Augusta-Margaret River	City of Greater Geraldton	Shire of Pingelly
Town of Bassendean	Shire of Halls Creek	Shire of Plantagenet
City of Belmont	Shire of Jerramungup	Town of Port Hedland
Shire of Beverley	City of Joondalup	Shire of Quairading
Shire of Boddington	City of Kalamunda	Shire of Ravensthorpe
Shire of Boyup Brook	City of Kalgoorlie-Boulder	City of Rockingham
Shire of Bridgetown-Greenbushes	City of Karratha	Shire of Serpentine-Jarrahdale
Shire of Broome	Shire of Katanning	Shire of Shark Bay
Shire of Broomehill-Tambellup	Shire of Kellerberrin	City of South Perth
City of Bunbury	Shire of Kent	City of Stirling
Town of Cambridge	Shire of Kojonup	City of Subiaco
City of Canning	Shire of Koorda	Tamala Park Regional Council
Shire of Carnarvon	City of Kwinana	Shire of Tammin
Shire of Chapman Valley	Shire of Lake Grace	Shire of Three Springs
Shire of Chittering	Shire of Leonora	Shire of Upper Gascoyne
Town of Claremont	City of Mandurah	City of Vincent
City of Cockburn	City of Melville	Town of Victoria Park
Shire of Collie	Shire of Meekatharra	Shire of Wagin
Shire of Corrigin	Shire of Menzies	City of Wanneroo
Shire of Cranbrook	Shire of Mingenew	Shire of Wandering
Shire of Cuballing	Shire of Moora	Shire of Waroona
Shire of Cue	Town of Mosman Park	Shire of Wickepin
Shire of Dandaragan	Shire of Mundaring	Shire of Williams
Shire of Denmark	Shire of Murchison	Shire of Wiluna
Shire of Derby-West Kimberley	Shire of Murray	Shire of Wongan-Ballidu
Shire of Dundas	Shire of Narembeen	Shire of Woodanilling
Town of East Fremantle	Shire of Narrogin	Shire of Wyndham-East Kimberley
Shire of East Pilbara	City of Nedlands	Shire of Yilgarn
Shire of Exmouth	Shire of Ngaanyatjaraku	
City of Fremantle	Shire of Northam	
State Government Agencies		Private Organisations
Central Regional TAFE		ARC Infrastructure
Department of Biodiversity, Conservation and Attractions		Australian Wildlife Conservancy
Department of Communities		Fortescue Metals Group
Department of Education		Horizon Power
Department of Fire and Emergency Services		IBN Claim Group
Department of Health		Kimberley Land Council
Department of Justice		Murdoch University
Department of Planning, Lands and Heritage		Yinhawangka Aboriginal Corporation
Forest Product Commission		
Main Roads WA		
Water Corporation		



Mechanical fuel management protecting Ledge Point.



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