

SA Fire & Emergency Services Commission

South Australian 2019-2020 Bushfire
Review

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Attention: Mick Keelty



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Dear Mr. Keelty

Conservation SA welcomes the opportunity to make a submission to the Independent review into South Australia's 2019/20 bushfire season

Conservation SA is an independent, non-profit and strictly non-party political peak body organisation representing around 60 of South Australia's environment and conservation organisations. Conservation SA has been a strong advocate for the protection of native vegetation and biodiversity in South Australia since 1971.

Conservation SA is legislated to provide a nominee to the State Bushfire Coordination Committee and each of the regional Bushfire Management Area Committees. This provision of passionate community volunteers guarantees vital input to these committees, ensuring an independent voice for our natural environment.

Fire has been a part of the Australian landscape for millions of years, shaping its vegetation and animal life. When humans entered the continent over 50 000 years ago they learnt to live with and manage fire to the extent that they used fire to manipulate the environment to their advantage.

Since European settlement in South Australia, fire regimes and in turn fire intensity has dramatically changed. This has resulted active exclusion of fire from the landscape creating a shifting of vegetation communities, disappearance of fire dependent flora and fauna species and an increase in fire risk to life, property and the environment.

The recent Black Summer Bushfires across Australia has shown that we need to reconsider how we manage and live with fire. It is not achievable to exclude fire completely, so we need to reconsider where we let people live, the structures they build and how they manage the risk around their properties.

Finally, climate change is here now and drastically increasing bushfire risk. The window to undertake hazard reduction burning is getting shorter while the fire hazard season is extending. To this end as a community, South Australians must learn to live with fire as the

risk of fire will always be with us. Conservation SA is committed to be a key player to assist South Australians adapt to the increasing challenges we face.

If you require further information, please don't hesitate to contact me on 8223 5155 or craig.wilkins@conservationsa.org.au

Yours Sincerely

A handwritten signature in blue ink, appearing to read 'Craig' followed by a stylized flourish.

Craig Wilkins
Chief Executive

Detailed Comments

Australia is a world leader in the fields of modelling and quantifying bushfire behaviour, bushfire risk management, bushfire impacts on natural ecosystems and the ways in which nature recovers after fire.

We draw upon this substantial scientific legacy to provide an overview of the science that is applicable to the Terms of Reference (ToR)

- ToR part 1 Reducing Bushfire Ignitions,
- ToR part 2. Community Preparation and Resilience
- ToR part 3. – State Bushfire Plan and State Bushfire Coordinating Committee
- ToR part 5. – Bushfire Zoning

We note that “resilience” is only used in the ToR in the human and socio-economic context; there should be a greater awareness of the need to also balance these objectives with those of environmental resilience.

We pay particular attention to the evidence that prevention, including hazard reduction measures (ToR 1 dot point 5) can reduce the extent and severity of bushfires. The latest science underpinning estimates of the efficacy of hazard reduction burning shows that:

1. It reduces the intensity and spread of bushfires and enhances fire suppression activities *under some circumstances*. Its effectiveness, however, is lowest on days of extreme fire weather when most loss of life and property occurs.
2. Its effectiveness in altering fire behaviour is highest in the first ~6 yrs in many vegetation types, but can diminish significantly thereafter.
3. It needs to be applied strategically and targeted close to assets (e.g. houses), rather than haphazardly applied across broad landscapes.
4. The effectiveness of hazard reduction burning varies depending on historical climate and land management factors.
5. It is most effective when carried out within 500 m of the asset to be protected, and may be ineffective if, after conducted, vegetation is retained close to the asset.
6. It is infeasible in landscapes dominated by pasture or crops.
7. It can have both positive and negative effects on natural ecosystems, depending when and where it is implemented.
8. It should not be equated with indigenous cultural burning; the latter was primarily done to achieve other objectives.

The Black Summer Bushfires, where significant fires were burning in northern and southern NSW, eastern Victoria, South Australia and Western Australia at the same time, has stretched the nation’s resources and capability to respond to such events. Conservation SA welcomes the opportunity to comment on the need to deal with the present and increasing threat of bushfire, informed by the best science available. It is clear that we need to examine the causes of these fires, not just mitigation strategies to enhance resilience.

Briefly, the Bureau of Meteorology recorded that much of eastern Australia in 2019 was:

- a. The driest on record for the three year period January 2017 to December 2019. Mean national rainfall was 100mm lower than the previous driest three-year period (1965-67).
- b. 2019 was the warmest year on record for Australia.
- c. Severe fire weather conditions (national annual accumulated Forest Fire Danger Index) throughout 2019 were the highest they have been since national records began in 1950.

These were unprecedented conditions. Indicators are that prolonged drought, linked to climate change, has increased the flammability of the parts of the landscape we could previously rely on being damp enough to slow down/extinguish past bushfires (Nolan et al. 2020). Fire behaviour in the Black Summer fires has taken seasoned staff by surprise – due to extremely low humidity and record high temperatures. We are clearly entering uncharted waters.

Below we provide evidence-based responses to the ToR

Prevention

1. Reducing Bushfire ignitions

Bushfires such as the Black Saturday fires (Victoria, February 2009) have been extensively dissected by a previous Royal Commission and its recommendations provide much context for interpreting the recent South Australian Black Summer fires, and how one might respond to them. Recommendations from the Black Saturday Royal Commission that seem most relevant to the current fire season's events include:

- Broad hectare targets for hazard reduction burning were recommended following the Black Saturday fires (e.g. 5% of Crown Land in Victoria should be burnt each year) and were subsequently adopted by South Australia but were found to be “unachievable, unaffordable or unsustainable” and “ineffective in achieving the primary intent of the Bushfires Royal Commission recommendations to ensure the protection of human life and community safety” (Bushfire Royal Commission Independent Monitor 2013)
- The state-wide hectare target recommended for South Australia created a perverse incentive for land management and fire agencies to treat large areas in remote locations (that represented a low risk to life and property), rather than smaller, more costly and difficult burns in places where they would provide better protection of human assets (Handmer and Keating 2015). Furthermore, “hectares treated objective puts a significant constraint on the capacity for communities and stakeholders to have their views genuinely incorporated into decision-making because the directive to burn a certain number of hectares overrides all other considerations. Hence there is a disincentive to genuinely engage communities and stakeholders” (Handmer and Keating 2015).
- A primary cause of failure to achieve hazard reduction targets has been the brief and shrinking fire-weather window in which agencies can safely conduct hazard reduction burning, without causing damage to the very assets they are attempting to protect. Several studies (e.g. Jolly et al. 2015; Quinn-Davidson and Varner 2012) have

demonstrated, and senior fire managers from multiple states (<https://www.abc.net.au/news/2020-01-10/hazard-reduction-burns-bushfire-prevention-explainer/11853366>) have reiterated, that failure to achieve hazard reduction hectare targets is due to being constrained by an ever decreasing window of opportunity in which to safely conduct burning..

The latest science underpinning estimates of the efficacy of hazard reduction burning indicates:

1. Hazard reduction burning can reduce the intensity and spread of bushfires, and can aid suppression activities, but only under some circumstances

The primary value of hazard reduction burning is generally accepted by fire agencies as a tool to assist in fire control when fire weather conditions are moderate to benign (e.g. Boer et al. 2009, McGaw et al. 2013).

2. Its effectiveness in altering fire behaviour is greatest in the first ~6 yrs after burning in many forest types, and can diminish significantly after that

The capacity for hazard reduction burning to reduce fuels to have a measurable impact on fire behaviour is limited to the immediate period (i.e. ~6 yrs) following treatment (e.g. Fernandes and Botelho 2003, Cary et al. 2009; Bradstock et al. 2010; AFAC 2015; Penman and Cirulis 2019).

3. To be most effective, hazard reduction burning needs to be strategically targeted around assets, rather than haphazardly across broad landscapes

Floreac et. al. (2019) found that planned burning close to assets in the urban interface in WA was more effective at reducing damages (i.e. loss of houses) than burning in the more distant landscape. Hence, it appears that local-scale solutions are necessary to design effective prescribed burning to protect assets in local communities.

4. The effectiveness of hazard reduction burning varies depending on historical climate and land management factors.

Fuel management strategies applied in one region are not necessarily applicable in another, and fuel management studies of one ecosystem should not be assumed to generalise to other systems (Price et al. 2015). Hazard-reduction burning can have a statistically significant effect on the extent of wildfires in certain systems and contexts such as in forested areas with distinct annual drought periods (Price et al. 2015).

In many bioregions prescribed burning is likely to have very little effect on subsequent extent of unplanned fire, unless large areas of fire treatment substantially reduce the area burned by unplanned fire. For example, a 2009 study in Western Australia showed that prescribed burning less than about 4% of a million hectares of forested landscape per year (i.e. 40,000 hectares) did not reduce wildfires (Boer et al. 2009).

5. It is most effective when carried out within 500 m of the asset to be protected, and may be ineffective if, after conducted, vegetation is retained close to the asset.

Fuel reduction close to houses (within 40 m) was more effective at reducing their loss in the Black Saturday fires than undertaking hazard reduction burning distant from the house (Gibbons et al. 2012). “A shift in emphasis away from broad-scale fuel-reduction to intensive fuel treatments close to property will more effectively mitigate impacts from wildfires on peri-urban communities” (Gibbons et al. 2012). Penman et al. (2014) found that planned burning at the interface between assets and the forest was the most cost effective means of reducing risk to those assets.

In 2009’s south-eastern Australian fires, 15% fewer houses were destroyed if prescribed burning occurred at the observed minimum distance from houses (500 m) rather than the observed mean distance from houses (8.5 km) (Gibbons et al. 2012). This study concluded that the levels of fuel reduction required to reduce house losses are unlikely to be feasible at every house for logistical and environmental reasons. Because of this, infrastructure protection is not guaranteed by hazard reduction burning. Infrastructure is more likely to be saved from wildfire where trees and shrubs have been thinned or removed to a distance of 30-40 meters, the grass is mown and the garden kept green (Gibbons et al. 2012).

6. It is not feasible in landscapes dominated by improved pasture or crops.

Bushfires have been shown to burn through farmland dominated by pasture or crops as occurred in 2015 in the Pinery fires where 91 houses were destroyed. The extent of burning required to reduce risk of wildfire makes hazard reduction burning infeasible in landscapes reliant on crops and pasture as their dominant income (Gill 2005). In agricultural lands grazing offers an alternative way of reducing overall fuel loads, especially in relation to pasture grasses (Gill et al. 2013).

7. Its effectiveness is lowest on days of extreme fire weather (when most loss of life and property occurs), but it can assist suppression efforts on more benign days.

The value of hazard reduction burning is primarily to assist with the suppression of fire under *moderate to benign* fire weather conditions. Wildfires on severe or extreme weather days, however, account for the vast majority of area burnt, property losses and fatalities. Shane Fitzsimmons (NSW RFS Commissioner) noted that the ability of hazard reduction burning to aid in fire suppression efforts during such extreme conditions is negligible (<https://www.abc.net.au/news/2020-01-08/nsw-fires-rfs-commissioner-weights-in-on-hazard-reduction-debate/11850862>). This is supported by scientific evidence. Bradstock (2008) concluded that “maximum severity [of wildfire] in each case is associated with severe fire weather – particularly high wind speeds in association with high temperatures plus low fuel moisture and relative humidity. Effects of weather on severity predominate over effects of terrain and vegetation type and condition.....” Moritz et al. (2004) suggest that during extreme fire weather “fire may spread through all age classes of fuels, because the importance of age and spatial patterns of vegetation diminishes in the face of hot, dry winds”.

8. Hazard-reduction burning can have both positive and negative effects on natural ecosystems, depending when and where it is implemented.

Plant and animal communities in Australia have evolved with fire regimes exhibiting different fire severity, frequency, extent, season, and configuration. Fire can be a necessary component for the maintenance of some vegetation communities (e.g. heathlands, grasslands), but also cause the destruction of others (e.g. alpine peatlands). It is too simplistic to claim that the Australian bush 'needs' fire, or has uniformly evolved to cope with fire. There are examples where too frequent, too intense or too extensive fires have contributed to the local extinction of native species (e.g. Bowman et al. 2014). Generalisations from authors like Gammage (2011) that "Most of Australia was burnt about every 1-5 years depending on local conditions and purposes" are not accurate and are not supported by science (Murphy et al. 2013).

In light of the above, Conservation SA makes the following recommendations on Hazard reduction, particularly prescribed burning:

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1. Area based targets for prescribed burning **should not** be used, rather an evidence-based approach targeted to reduce greatest risk in the landscape to both built and natural assets should be employed. Where a prescribed burn can reduce risk to both natural and built assets in the same treatment should be the priority.
 2. The Fire Management Zone Standard for Use for South Australia provides an effective tool to allocate treatment zones based on risk to built and natural assets. More effort needs to be made to apply the zoning standard more widely across all areas of South Australia. This requires justification for all zones and the capacity to undertake treatments where the zones are applied. Currently the skill to adequately apply and treat zones is not adequately resourced in South Australia.
 3. Burning more vegetation more often will not prevent bushfires from occurring on catastrophic risk days when most losses and damage occur. Smaller, strategically targeted prescribed burning, closer to assets needs to become the norm in South Australia. Strategic Fire Management Zones (S-Zones) provide the mechanism for this to occur. DEW and other fire management agencies need to be encouraged to allocate S-Zones appropriately in any future fire planning.
 4. Native vegetation on roadsides needs to be maintained but appropriately managed especially in areas where significant traffic may occur on high and above fire danger days. Often native vegetation on roadsides can provide a barrier at which to stop or hold up pasture and crop fires.
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Community Preparation and Resilience

Investment in early warning phone messaging and apps and educating the public to ‘leave early’ has contributed to a remarkable drop in fatalities associated with this season’s fires (3 in SA in 2019/2020), compared to 9 deaths from the 2005 Wangary fires , despite over 300,000 ha burnt this season compared to 75,000 ha in 2005.

Other complementary strategies that need to be considered include:

- Improved early detection of ignitions
- Reducing potential sources of ignitions (e.g. putting power lines underground)
- Enhanced rapid attack/suppression (e.g. aerial suppression)
- Other methods of fuel removal (e.g. slashing, mulching, rolling)
- Improved acceptance of the responsibility for fuel management on private land by landholders and government fire management agencies

There remains a level of uncertainty from the general public over what is and is not permitted regarding the modification of native vegetation to effectively reduce risk to life, property and the environment.

There exists across the state a team of Fire Prevention Officers (FPOs) who are employed by most Local Governments. While they all receive in house training from the CFS, once back in their respective areas, interpretation of the Fire and Emergency Services Act, section 105F, is often left to their discretion and unchallenged.

A clear and unambiguous Code of Practice for Bushfire Preparedness on Private Land would aid in allaying much of this ambiguity and provide landholders with a broad strategy of their responsibilities and the limits of a FMOs power.

Conservation SA recommends

1. A suite of web based information materials e.g. video explainers, concise fact sheets explaining what property owners can and are obliged to do legally especially in regards to the F&ES Act and NV Act.
2. An audit of the effectiveness of Section 105F notices in reducing bushfire risk.
3. More rigid training for prospective Local Government Fire Preventions Officers to ensure that a more uniform understanding and interpretation of legislation is applied.
4. Development of a Code of Practice for Burning on Private Land to give landholders and fire management agencies clarity of responsibility with regards to bushfire prevention activities.

State Bushfire Plan and State Bushfire Coordinating Committee

In the state we are currently operating under a draft state plan written in 2010. Each of the 9 Bushfire Management Area Committees has had at least one plan written and approved and some are currently developing their second plan to the present date

The air of uncertainty since the Holloway Review has seen the CFS reluctant to commit to a serious attempt at rewriting the state plan. In the recent round of amendments to the F&ES Act the ability to finish the plan was further hampered when attempting to fit the State Bushfire Plan into the State Emergency Management Plan template.

The level of uncertainty created through legislative amendments has been exacerbated by the clear lack of organisational capacity to be able to meet the dual role of primary bushfire hazard response agency and creator and manager of bushfire policy.

With the widening window of the bushfire hazard season, many staff who in the 'off' season produced state bushfire policy now find themselves committed to operations for a significant portion of the year. This has profoundly diminished the capacity of the CFS to effectively lead state bushfire policy. Staffing of policy areas is woefully underfunded with the Bushfire Management Planning Unit, with only 2 full time staff and reliant on federal funding.

The State Bushfire Coordinating Committee is formed to prepare state bushfire policy as stated in the F&ES Act. Many of the members of the SBCC are representing their organisations on the committee rather than attending meetings to make the SBCC work to achieve its aims. Many individuals on the committee do not contribute to meetings in any meaningful way and it is unclear what skills they bring to developing state bushfire policy. Rather than just being conduits of information back to the organisations they represent, SBCC members need to be skilled in working as a committee and have skills that can be useful to the committee.

The SBCC has an important role to play in developing and guiding State Bushfire Planning but the competing interests from other Emergency Management committees throughout the state has diminished the role of the SBCC. The ability of community to be involved in the Bushfire Planning process has gradually been diminished as the lack of capacity of CFS due inadequate staffing cannot effectively support them.

Conservation SA recommends

1. A new State Bushfire Management Plan be completed as soon as is practical, ideally prior to the 20/21 fire danger season.
 2. The CFS must be provided with resources (staff and funding) to undertake both hazard response and policy and planning independently of each other.
 3. The SBCC membership be reviewed to ensure that members are able to best serve the goals of the committee i.e. producing policy and guiding BMCs to reduce the risk of Bushfire in South Australia
 4. Review the chairmanship and executive role of CFS to the SBCC. The committee may be better served by an independent chair and executive officer.
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Bushfire Zoning

Bushfire zoning is the critical mechanism across the state to provide clarity about how risk in the landscape is assessed and treated. Appropriate zoning leads to effective treatments at an appropriate scale where it is most required. The recent revised SA Fire Management Zone

Standard and Guidance for Use provides a flexible approach to treatments to reduce bushfire risk.

Confusion exists as what Bushfire Zoning means as different government agencies have their own methodology that do not align, e.g. CFS, DEW and DPTI Bushfire Zones all vary, resulting in confusion.

The new Zone Standard is yet to be implemented as it was only endorsed in February. The CCSA encourages all fire management agencies to stay within the guidelines of the new standard especially the use of S Zones to effectively treat risk in areas of high environmental significance.

It is critical that all state agencies align their zones to the current state standard and work together to align bushfire risk zones.

Conservation SA recommends

1. That all fire management agencies are required to use the revised Fire Management Zone standard in all future fire planning.
 2. Require all state government agencies that use a bushfire risk rating system in policy or operations operate under a single system to provide clarity for end users.
 3. All zoning that is applied from any agency be represented spatially on all digital mapping platforms e.g. Fire Management Maps, CFS BMAP, Nature Maps, DPTI planning portal.
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Recovery

Rapid Damage Assessment

During the wildfire response and immediately after the main threat has passed is the critical time to assist native fauna species that may be affected by fires. The recent SA Black Summer Bushfires have shown that South Australia is a little behind other states in the ability to assess damage immediately after a major fire. This is primarily due to lack of qualified staff, especially in regional areas.

This led to an inordinate amount of resources being focussed on one or two iconic species rather than the species requiring urgent attention.

It is imperative that IMTs always be housed with a competent and well resourced DEW ecologist to ensure that fire activities are conducted with a view to limiting damage to natural assets e.g. unnecessary chaining of large sections of roadside vegetation or preventing damaging and unhelpful backburns and providing guidance to operational staff so they can be assured they are making good decisions.

Conservation SA recommends

1. A clear natural values recovery strategy document that can guide recovery actions in future bushfire events

2. An update of the health of vulnerable to endangered species across the state to provide a snapshot of condition, threat from varying degrees of loss from bushfire and recovery strategies for individual species.
 3. IMT staff across the state who are regionally knowledgeable and known by local fire management agencies to provide sound ecological advice.
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References

- AFAC (2015). Overview of prescribed burning in Australasia. Report for the National Burning Project
– Subproject 1. Australasian Fire and Emergency Service Authorities Council Limited. March 2015.
- Boer MM, Sadler RJ, Wittkuhn RS, McCaw L, Grierson PF (2009) Long-term impacts of prescribed burning on regional extent and incidence of wildfires—evidence from 50 years of active fire management in SW Australian forests. *Forest Ecology and Management* **259**, 132-142.
- Bowman DMJS, Murphy BP, Neyland DLJ, Williamson GJ, Prior LD (2014) Abrupt fire regime change may cause landscape-wide loss of mature obligate seeder forests. *Global Change Biology*, **20**, 1008-1015.
- Bradstock, R.A., Bedward, M., Kenny, B.J., Scott, J., (1998) Spatially-explicit simulation of the effect of prescribed burning on fire regimes and plant extinctions in shrublands typical of south-eastern Australia. *Biological Conservation* **86**, 83-95.
- Bradstock RA (2008) Effects of large fires on biodiversity in south-eastern Australia: disaster or template for diversity? *International Journal of Wildland Fire* **17**, 809– 822.
- Bradstock RA, Hammill KA, Collins L, Price O (2010) Effects of weather, fuel and terrain on fire severity in topographically diverse landscapes of south-eastern Australia. *Landscape Ecology* **25**, 607–619.
- Bushfire Royal Commission Independent Monitor (2013) Annual Report July 2013. Victorian Government, Melbourne.
- Cary GJ, Flannigan MD, Keane RE, Bradstock RA, Davies ID, et al. (2009) Relative importance of fuel management, ignition management and weather for area burned: evidence from five landscape-fire-succession models. *International Journal of Wildland Fire* **18**, 147–156.
- Fernandes PM, Botelho HS (2003) A review of prescribed burning effectiveness in fire hazard reduction. *International Journal of Wildland Fire* **12**, 117–128.
- Floreac V, Burton M, Pannell D, Kelso J, Milne G (2019) Where to prescribe burn: the costs and benefits of prescribed burning close to houses. *International Journal of Wildland Fire* doi.org/10.1071/WF18192
- Gammage B (2011) *The Biggest Estate on Earth. How Aborigines Made Australia*. Allen and Unwin, Sydney
- Gibbons P, van Bommel L, Gill AM, Cary GJ, Driscoll DA, Bradstock RA, Knight E, Moritz MA, Stephens SL, Lindenmayer DB (2012) Land management practices associated with house loss in wildfires, *PLoS ONE* **7(1)**, e2912.
- Giljohann, K.M., McCarthy, M.A., Kelly, L.T., Regan, T.J., 2015. Choice of biodiversity index drives optimal fire management decisions. *Ecological Applications* **25**, 264-277.
- Gill AM, Groves RH, Noble IR eds. (1993) *Fire and the Australian Biota*. Australian Academy of Sciences, Canberra.
- Gill, A. M. 2005. Landscape fires as social disasters: an overview of “the bushfire problem.” *Global Environmental Change B Environmental Hazards* **6** : 65 – 80 .
- Gill, A.M., Stephens, S.L., Cary, G.J., 2013. The worldwide “wildfire” problem. *Ecological Applications* **23**, 438-454.

- Handmer J. and Keating A. (2015) Bushfire fuel management targets: Options analysis. In: Review of performance target for bushfire fuel management on public land. Inspector-General for Emergency Management, Victorian Government, Melbourne.
- Jolly WM, Cochrane MA, Freeborn PH, Holden ZA, Brown TJ, Williamson GJ, Bowman DMJS (2015) Climate-induced variations in global wildfire danger from 1979 to 2013. *Nature Communications* **6**, 7537.
- McCaw WL (2013). Managing forest fuels using prescribed fire: a perspective from southern Australia. *Forest Ecology and Management* **294**, 217–224
- Moritz MA, Keeley JE, Johnson EA, Schaffner AA (2004) Testing a basic assumption of shrubland fire management: how important is fuel age? *Frontiers in Ecology and Environment* **2**, 67–72.
- Murphy BP, Bradstock RA, Boer MM, Carter J, Cary GJ, Cochrane MA, Fensham RJ, Russell-Smith J, Williamson GJ, Bowman DMJS (2013) Fire regimes of Australia: a pyrogeographic model system. *Journal of Biogeography* **40**, 1048-1058.
- Nolan RH, Boer MM, Collins L, Resco de Dios V, Clarke H, Jenkins M, Kenny B, Bradstock RA (2020) Causes and consequence of eastern Australia's 2019-20 of megafires, *Global Change Biology* **26**, 1039-1041.
- Penman TD, Bradstock RA, Price OF (2014) Reducing wildfire risk to urban developments: simulation of cost-effective fuel treatment solutions in south-eastern Australia. *Environmental Modelling & Software* **52**, 166–175.
- Penman T, Cirulis B (2019) Cost effectiveness of fire management strategies in southern Australia. *International Journal of Wildland Fire*. doi: 10.1071
- Price, O. F., Penman, T. D., Bradstock, R. A., Boer, M. M. & Clarke, H. (2015). Biogeographical variation in the potential effectiveness of prescribed fire in south-eastern Australia. *Journal of Biogeography*, 42 (11), 2234-2245.
- Prober SM, Yuen E, O'Connor MH, Schultz L (2016) Ngadju kala: Australian Aboriginal fire knowledge in the Great Western Woodlands. *Austral Ecology* **41**, 716-732.
- Quinn-Davidson LN, Varner JM (2012) Impediments to prescribed fire across agency, landscape and manager: an example from northern California. *International Journal of Wildland Fire* **21**, 210–218.
- K. Tolhurst, 'Effects of fuel reduction burning on flora in a dry sclerophyll forest' in *Fire and Biodiversity: The Effects and Effectiveness of Fire Management*, Proceedings of a Conference held 8 9 October 1994, Footscray, Melbourne, published as Biodiversity Series, Paper No 8 Biodiversity Unit, Department of Environment, Sport and Territories, Canberra, 1996, pp. 97 107
- J. C. Z. Woinarski and H. F. Recher, 'Impact and response: a review of the effects of fire on the Australian avifauna' in *Pacific Conservation Biology*, vol. 3, 1997, pp. 183 205.