Nature Conservation Society of South Australia

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SA Fire & Emergency Services Commission
South Australian 2019-2020 Bushfire Review
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Re: Independent Review of the SA 2019/20 Bushfire Season

The Nature Conservation Society of South Australia (NCSSA) welcomes the opportunity to provide input to the Independent Review of the South Australian 2019-2020 Bushfire Season. As South Australia's primary nature conservation advocacy organisation, NCSSA has an active interest in the protection and conservation of South Australia's environmental assets with particular attention being paid to nationally and state listed threatened plants, animals and ecological communities, management of remnant native vegetation and protected areas.

NCSSA consider the impact of fire on native vegetation and the habitat it provides for native fauna poses one of the greatest threats to biodiversity conservation across the state and is likely to be exacerbated by the effects of climate change. We continue to provide input to a wide range of plans and policy documents that direct the management of fire in South Australia and currently have staff representing the Conservation Council of South Australia on two of the state's Bushfire Management Committees.

Whilst the efforts of emergency services, volunteer firefighters and other support services during the 2019/20 Bushfire Season were commendable, we believe there are some areas that require considerable improvement if we are to improve our response to future bushfires such as those experienced during the 2019/20 Bushfire Season. Our submission primarily addresses policy and planning matters and issues related to hazard reduction burns to protect life, property and the environment.

We look forward to ongoing involvement with the management of bushfire risk in South Australia and would be available to clarify or discuss any of the points raised in this submission via email to nicki.depreu@ncssa.asn.au or phone (08) 7127 4633.

Yours sincerely,

Nicki de Preu

Nature Conservation Society of South Australia

Prevention

1. Reducing Bushfire ignitions

- *Machinery and power tools;*

Although there are Codes of Practice for the use of machinery and power tools to reduce the risk of this source of ignition, they continue to be a significant factor in bushfire ignitions – particularly in the agricultural areas. An analysis of the causes of bushfire ignitions in South Australia between 2000 and 2004 found that fires relating to machinery and vehicles, including harvesting and slashing were the second greatest cause of ignitions after burn-offs (Bryant, 2008). The Interim State Bushfire Management Plan (State Bushfire Coordination Committee, 2010) states that 10% of all bushfire ignitions between 2000 and 2005 were the result of ignitions caused by machinery. These statistics are of serious concern and we advocate that further education and communication through media and internet is required to make landholders more aware of the risk of using such equipment during the Fire Danger Season and particularly days of Extreme or Catastrophic Fire Danger.

- *Lightning strikes and detection;*

Lightning strikes continue to be a natural source of bushfire ignition responsible for around 7% of bushfires between 2000 and 2005 (State Bushfire Coordination Committee, 2010). Current climate models predict that fires ignited by lightning have, and will likely, continue to increase across temperate regions in the Southern Hemisphere under a warmer climate (Mariani *et al*., 2018). Lightning also results in the production of nitrous oxide that further contributes to atmospheric greenhouse gases. We strongly support the need for ongoing improvements in technology to track and detect lightning strikes to enable earlier response to bushfire ignitions from this cause particularly in remote and inaccessible landscapes such as western Kangaroo Island, Ngarkat and the Flinders and Outback areas. There needs to be continued efforts to monitor and respond to lightning strikes and extinguish small lightning strike fires before they become large bushfires that are more difficult to control and can cause devastating impacts to human life, property and the environment. Bushfires that burn significant areas of habitat for rare and threatened plants and animals is of particular concern to NCSSA, such as the devastation of habitat for the Kangaroo Island Dunnart, Glossy Black Cockatoo and Southern Brown Bandicoot that occurred during the 2019/20 bushfires.

- *Hazard Reduction*

NCSSA acknowledges that the South Australian landscape has evolved under a natural and cultural regime of fire in the landscape and that many of our vegetation communities and native plant species are adapted to periodic fires to maintain their ecological functioning. Human activity (Indigenous and European) has influenced the known history of fire in Australia and impacted greatly on its biological systems (Kershaw *et. al.*, 2002). Since European settlement, human assets have been built in bush fire prone landscapes, not only placing those assets at risk from bush fire but progressively fragmenting the landscape.

Hazard reduction or prescribed burning is a widely used tool used in South Australia and other jurisdictions to reduce fuel loads in high risk areas such as around built assets and infrastructure. It is also used for ecological purposes to allow for regeneration of plant communities and threatened plant species such as programs conducted on Kangaroo Island and the Fleurieu Peninsula to protect nationally endangered ecological communities and threatened plant species. There is, however, increasing evidence that such programs do little to prevent the risk of bushfires spreading under extreme conditions such as that experienced during the 2019/20 Bushfire Season. We understand that all the prescribed burns conducted on Kangaroo Island in 2019 burnt again in the bush fires that devastated the western end of the island. The review should acknowledge that despite the best intentions, no amount of hazard reduction burning will prevent major bushfires from occurring and the essential need to transition away from using a lack of hazard reduction burning as the underlying cause of major bushfires. There is no evidence to support that this is the case.

There is increasing recognition that inappropriate fire regimes such as too frequent or intense fires can lead to:

- loss of critical habitat, as well as animal and plant species (Lunt, 1998; Bunk, 2004; Parsons & Gosper, 2011; Armstrong & Phillips, 2012);

- alter the composition and dominance of vegetation communities and ecosystems (Hobbs, 2002; Crowley *et al.*, 2009; Russell-Smith *et al.*, 2010);
- promote weed and exotic animal invasion (Thompson & Leishman, 2005; Fisher *et al.*, 2009; Pickup *et al.*, 2013); and
- regular burning of vegetation increases the regeneration of fire prone plant species and result in more intense fires (Pastro *et al*. 2011).

There have been a considerable number of research investigations, both in South Australia and interstate that demonstrate inappropriate fire regimes (achieved through either too frequent bushfires or prescribed burning programs) can result in a decline in biodiversity values (Gill *et al*. 1999, Pastro *et al*. 2011).

Fire frequency and intensity are two key elements in hazard reduction burning that need to be carefully managed to ensure that ecosystems are not damaged irreversibly. Importantly, where fire regimes occur outside of the sequence to which the plants and animals in a particular area have adapted to, extinction of species can occur. Informed fire management is essential for effective biodiversity conservation because fire regimes interact with plant and animal survival techniques and play a significant and positive role in sustaining and promoting plant and animal diversity. Knowledge of the interactions between the elements of biodiversity and fire regimes is an evolving area that requires ongoing commitment and resources to ensure more effective fire management across the state including within South Australia's protected areas. Examples of some of the fire related projects that are being/have been conducted in South Australia to increase knowledge and improve the way fire management activities are carried out is available on the DEW website: https://www.environment.sa.gov.au/topics/fire-management/fire-science/fire-research
It is critical that the outcomes from these research investigations are used to inform future hazard reduction burns and that we continue to increase and improve our knowledge of the ecological fire requirements for plants, animals and ecological communities across South Australia.

NCSSA supports the development of four key areas of scientifically based fire management.

a. The preparation of fire management guidelines for managing the habitats of plants and animal species and ecological communities of conservation significance.

b. On-ground implementation of scientific knowledge in fire ecology and conservation biology. This includes the employment of skilled technicians in the field of fire management to ensure that scientific guidelines are appropriately applied.

c. Monitoring and evaluation of the impacts of fire and fire management on fire patterns and biodiversity which is ongoing and adequately resourced. Such monitoring is particularly important given the uncertainties about future environmental change due to climate change.

d. An adaptive-management approach that ensures that the results of monitoring the effectiveness of fire management in asset protection and achieving ecological objectives are constantly fed into planning of future burns.

The effects and interactions of climate change with hazard reduction burning also need to be acknowledged as they may further reduce the adaptive capacity of our natural ecosystems and threaten their ability to provide services essential for human life, livelihood and wellbeing such as water, climate moderation (including carbon capture), biodiversity and tourism and recreation opportunity. Research undertaken by Luke and McArthur (1978) indicates that South Australia can expect serious fires somewhere in the State in six or seven years out of every ten. This finding needs to be factored into any hazard reduction burning program conducted on public and private land and also the time interval between burns in a particular area to ensure that the vegetation communities in those areas have time to regenerate sufficiently before being burnt again.

The review should acknowledge there is a limited window of opportunity for conducting hazard reduction burns that is controlled by climatic conditions prior to the burn. Spring burns will not be effective when the vegetation is too wet while autumn burns need to be undertaken ahead of forecast rains to ensure they do not escape into otherwise dry vegetation. Over the past 2 decades, lengthening Fire Danger Seasons are

reducing opportunities for hazard reduction burning (Matthews *et al*. 2012; Ximenes *et al*. 2017) and increasing the resource needs of firefighting services. The lengthening fire season means that opportunities for fuel reduction burning are decreasing.

NCSSA is aware that a revised Statewide Zoning Standard was approved by the State Bushfire Coordination Committee in February 2020 that has the potential to dramatically improve the targeting of bushfire risk mitigation for South Australia if fully implemented. Importantly, this new Zoning Standard will clarify where hazard reduction burning, and other fuel reduction and management activities can best be undertaken to reduce risks to life and property or environmental assets.

Preparation

3. State Bushfire Plan and State Bushfire Coordinating Committee

- *Developing a new state bushfire plan;*

NCSSA strongly support the proposal for a new State Bushfire Management Plan (SBMP) given the current draft plan was written in 2010 and was never finalised despite suggestions that the CFS Rural Fire Hazard Plan be adopted as the State Plan. Sections 73 of the *Fire and Emergency Services Act 2005* and the *Fire and Emergency Services (Review) Amendment Act 2009* (*FES Act*) require the State Bushfire Coordination Committee to prepare a State Bushfire Management Plan and, given that it is now ten years since the interim plan was written, we believe that this should be actioned as a matter of high priority. Section 73(5) of the *FES Act* also requires the SBMP to be reviewed at least once in every four years, another outstanding matter that has not occurred since the draft Interim SBMP was written. Although significant progress has been made during this time in developing Bushfire Management Area Plans across the state these plans do not negate the need for an overarching State Bushfire Plan, or its periodic review, given the increasing research and knowledge regarding fire behaviour and technological advances in this field.

- *The role of the state bushfire committee;*

The FES Act is the primary legislative document for Bushfire Management Area Planning in South Australia. Under the FES Act there is a two-tiered bushfire management framework, consisting of a State Bushfire Coordination Committee (SBCC) and nine Bushfire Management Committees (BMCs). The FES Act provides details on the composition and functions of the SBCC whose primary role is to prepare and maintain a SBMP that establishes a strategic risk-based framework for bushfire management in South Australia. As discussed above the SBMP has never been finalised and, with the aim of improving future bushfire management in South Australia and links to the state Emergency Plan, we believe this should be actioned as a matter of high priority.

The SBCC is also responsible for determining the composition and term of appointment of BMC members after consultation with the Minister. The Conservation Council of SA is entitled to have a representative on each BMC with NCSSA staff members currently fulfilling this role on the Adelaide Mount Lofty and Flinders, Mid North & Yorke BMCs. Each BMC is required by the FES Act to develop, implement and review a Bushfire Management Area Plan (BMAP) based on assessment of bushfire risk to assets, incorporating a broader perspective on bushfire management values and local knowledge. Each of the BMAPs are required to be monitored for amendments annually and formally reviewed every four years.

There are other roles and responsibilities that the SBCC and BMCs are required to undertake in order to develop, maintain and review the BMAPs. The SBCC and BMC have specific functions including governance over bushfire management in South Australia, quarterly meetings, reporting on bushfire management activities, consideration of amendments to BMAPs, public consultation, election of sub-committees and working groups to achieve BMAP outcomes such as the recent risk assessment for environmental assets.

From our perspective there appears to be considerable competition between the role of the SBCC and other Government groups such as the State Emergency Management Council, State Mitigation Advisory Group (SMAG) and the Heads of Agencies that is unhelpful. We are advised that decisions made by these groups have, at times, undermined the role of the SBCC in terms of agreements made and progress in accordance with the FES Act. Critically, the Heads of Agencies should be supporting the effective

implementation of the Act yet, we are advised when it comes to key codes of practice and the State Bushfire Management Plan this has not been the case.

- *Developing policies and standards to reduce bushfire risk.*

NCSSA supports the need to develop and review policies and standards to reduce bushfire risk and understand there is currently a considerable backlog of policy and planning work that needs to be addressed including the State Bushfire Management Plan, Bushfire Management Plan Handbook and various Codes of Practice including those for Fire Management on Public Land in South Australia, Fire Prevention and Preparedness on Private Land and Fire Prevention and Preparedness on Council Land. We are advised that the CFS Bushfire Management Planning Unit requires additional resources and expertise to undertake the development and review of the existing backlog of plans and policies and to support the SBCC. Of critical importance, as identified in the Interim SBMP, there is an urgent need for formal coordination of, and integration between, bushfire prevention plans at all levels, and between these plans and land management agency plans.

5. State Development and Control planning

- *Bush fire zoning;*

NCSSA believe there has been ongoing problems and inconsistencies with the terminology used by the CFS and DEW that should be addressed to provide a more cohesive approach to fire planning and policies. We contend that the Bushfire Risk Management Zones described in the recently revised Management Zone Standard provide an opportunity to resolve this issue and a more consistent approach to bushfire zoning across the state.

NCSSA consider the bushfire zoning framework that applies to building and infrastructure developments is inadequate and inherently flawed. The categories currently used include areas with General, Medium and High bushfire risk to identify areas where a proposed development requires referral to the SA CFS for review and recommendation regarding application of bushfire protection standards. However, under extreme and catastrophic conditions, there would be no difference in fire behaviour between these categories as seen in the devastating fires at Pinery, Wangary and Yorketown where difficult and fast-moving grass and crop fires were all or largely within general bushfire risk zones. It is of serious concern to NCSSA that land divisions and developments are still being approved without regard to the full impact assessment of what is required to protect buildings and infrastructure other than the removal of native vegetation for example the recent proposal for “eco-accommodation” in Flinders Chase National Park.

- *Local government planning, roles in emergency management.*

NCSSA believe that local government has a key role in planning and emergency management however their role in planning decisions is effectively being reduced as part of the new Planning Design Code. The Planning Framework in South Australia has continued to approve unsafe land divisions and developments including tourism facilities within, and adjoining, significant areas of native vegetation including sites within National Parks, conservation reserves and Wilderness Areas.

Response

7. Equipment and resources

- *Logistics arrangements such as Humanihuts and retardant.*

NCSSA is advised that there are many situations where excessive resources are deployed and effort wasted to control fires burning inside large standing tree hollows including significant and regulated trees and trees that provide habitat for rare and threatened species. At times, tank loads of water are wasted on attempting to extinguish burning trees if there is no adequate technique to direct the water onto the internal fire. Additional resources such as bulldozers and chain saw crews are then needed to fell trees whilst other crews waste considerable hours looking on, and waiting, to extinguish fires once trees are on the ground. In many cases, this approach is not necessary and results in avoidable environmental damage when experienced tree crews can extinguish such trees efficiently and reduce the risk of rekindles from tree trunks smouldering on the fire ground.

We are also aware that on Kangaroo Island where there were important marked and unmarked nesting trees for the Glossy Black Cockatoo, offers to extinguish trees were refused on safety grounds, despite

coming from a brigade where dozens of trees had been extinguished at the Cudlee Creek fire. We strongly recommend that CFS units include tree ready units and teams experienced with such techniques to be routinely deployed to assist with hollow tree fires.

NCSSA contend that the secondary risks to the environment associated with risk mitigation activities (e.g. the environmental impacts caused by fire retardants on wetlands and native vegetation needs to be considered in terms of logistic arrangements for all bushfires – particularly in and around wetlands of national and international significance. We also contend that the use of salt water must be a last resort option as it kills the vegetation and soil, taking decades to recover. We understand that salt water is regularly used for aerial fire control operations on Kangaroo Island and recommend that pre-season planning needs to establish multiple sources of water for firefighting and aerial firefighting to prevent the need to source salt water that is so harmful to the environment.

Recovery

11. Rapid Damage Assessment

NCSSA acknowledge the importance of and need for a rapid damage assessment of property and infrastructure following a bushfire in order to commence the process of recovery for communities and landholders affected by fire. We advocate that there is a critical need for damage to environmental assets to be included as part of this assessment of fireground damage if we are to better understand the impacts of bushfires on native plants, animals and ecosystems. The timing of these assessments may be some weeks after the fires have been declared safe however it is critical that they do occur so that recovery of the environment is also addressed as part of the broader recovery efforts. There has been a significant effort dedicated towards recovery of the natural environmental with the Kangaroo Island and Cudlee Creek bushfires in 2019/20 that has united people from a wide range of sectors and helped to rebuild communities following the fires. Unfortunately, the environmental devastation caused by the fires during the 2019/20 Bushfire Season could take many decades to recover, and possibly longer, and will require ongoing monitoring and resources to assess the response of native plants, animals and threatened ecological communities. The review needs to address such issues as a matter of high priority in conjunction with the recovery of built and social infrastructure.

There are also problems such as the indirect impacts of increased predation by feral cats and foxes following bushfires when habitat and food resources are limited, and invasion of introduced plants into areas of burnt native vegetation that need to be considered as part of the long-term recovery efforts for areas impacted by major fires as have occurred in the 2019/20 Bushfire Season.

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