

Parks of Kangaroo Island Fire Management Plan 2024



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Scan to view the interactive, online version of this plan

Acknowledgement of Country

NPWS acknowledges the traditional custodians of Kangaroo Island and we pay our respects to their Elders past and present. We acknowledge and respect the deep spiritual connection and the relationship the First Nations people of Kangaroo Island have to Country.

If the following information causes distress, or triggers events from the past, please seek help early and contact your local GP or hospital. If you would like immediate help, please phone 000 or contact Lifeline on 13 11 14 or Beyond Blue on 1300 22 4636.





Plan purpose

This plan provides long-term strategic direction for the National Parks and Wildlife Service (NPWS) fire management program on Kangaroo Island. It guides fire management in NPWS parks and reserves, setting priorities about where, how and why we burn or undertake other risk reduction activities.

The objectives of this plan are to reduce bushfire risk, maintain and enhance biodiversity, and support bushfire suppression (firefighting). It sets fire management strategies to help achieve these objectives. The strategies will be implemented through annual work schedules.

Reducing bushfire risk is an ongoing and shared responsibility and the whole community has a role. NPWS works in partnership with SA Country Fire Service (CFS), Landscape SA, ForestrySA and SA Water as part of an integrated state-wide bushfire mitigation program to reduce the spread and impact of bushfires on communities and the environment.

Achieving balanced fire management outcomes for human life, property, environmental and cultural assets can be complex. National and state legislation and policies place priority on the protection of human life (i.e. safety for firefighters and the community). Prioritising these strategies can sometimes come at the expense of other values, however NPWS always strives to minimise impacts on environmental and cultural assets whenever possible. NPWS balances its environmental responsibilities with its obligations under the *Fire and Emergency Services Act 2005*, so that where these values conflict, human life is prioritised.

A fire management plan can't prevent bushfires, but it can focus NPWS fire management actions on strategies to reduce bushfire impacts and improve firefighter response. Likewise, prescribed burns won't stop bushfires, but they may limit their spread and impact, and make them easier and safer to suppress.

Planning area

The plan covers public land which makes up approximately 30 per cent of the island and includes:

- NPWS parks and reserves
- land under the care and control of the Minister for Climate, Environment and Water, commonly referred to as Crown land.

While the fire management strategies focus on public land, they help reduce bushfire risk to neighbouring properties and to ecosystems that continue beyond park boundaries.



New fire access tracks will align with control lines created during the 2019-20 bushfires where possible, along with older disused control lines or access tracks, to have the least long-term impact on the environment.

Bushfire history

Bushfires are a natural part of the Australian landscape and have shaped its ecosystems for thousands of years. Historical aerial and satellite imagery indicates that on Kangaroo Island, there has been a major bushfire roughly every 10 years since 1931. Under the influence of a changing climate, bushfire conditions are becoming more dangerous than in the past. The risks to people, property and environmental values have increased and bushfire seasons have lengthened. The 2019-20 Black Summer bushfires experienced across Australia were the largest in the nation's recorded history, with unprecedented fire weather and bushfire extent. The Duncan and Menzies fire complexes caused terrible damage with numerous fires ignited by a band of lightning tracking across the island, particularly across the north coast. The Ravine fire, influenced by dangerous winds and pyro-convective fire behaviour, burnt out nearly half of the island.

Cumulative number of fires recorded in a given area



Kangaroo Island recorded bushfire and prescribed burning history





Community values

People

Around 4,900 people live on Kangaroo Island (Australian Bureau of Statistics 2021), and many tourists visit each year, with 171,000 overnight visitors recorded in 2022 (South Australian Tourism Commission 2022).

Protecting people who live, work on, and visit Kangaroo Island is a key objective of this plan.

Community and economy

Bushfires have had significant impacts on this community and its economy. This plan aims to reduce bushfire impacts on homes, community facilities, tourism sites, farms and infrastructure, along with NPWS assets such as visitor centres and tourism infrastructure.

National parks are vital to the lifestyle of many, as places to interact with the unique landscapes and ecology of the island. Important communities and sites next to parks include Western Districts Community and Sports Club and Penneshaw township.

Tourism contributed \$187 million to the island economy in 2022 (South Australian Tourism Commission 2022). Iconic sites and geological monuments in parks such as Remarkable Rocks, Admirals Arch and Seal Bay are key destinations and valued by visitors and locals.

Primary production surrounds many parks and contributes to nearly a quarter of employment on the island. This industry is estimated to be worth almost \$100 million (Australian Bureau of Statistics 2021) to the island economy.



Cape du Couedic Lighthouse

Heritage

Many heritage sites in parks reflect the maritime history of the island including lighthouses at Cape du Couedic, Cape Willoughby, and Cape Borda, and the adjoining lighthouse keepers' cottages. Additional important places include Grassdale and Bates cottages and other homesteads and reminders of the island's agricultural history.

Kangaroo Island is an important part of Creation stories for Aboriginal people in South Australia. It is important that Aboriginal Cultural heritage in the island's parks is identified with First Nations people.

Fire management planning helps protect these important sites from bushfire.





Plants

Kangaroo Island provides a stronghold for many plants that have largely disappeared from the mainland and 45 species are unique to the island, more than any other region of South Australia. We consider how to manage the varying ecological requirements of species, particularly those that are at risk of extinction. For example the regionally vulnerable brown's lobelia (*Lobelia browniana*) which emerges after fire for one year then disappears into the soil seed bank until the next fire or the nationally vulnerable small-flower daisy bush (*Olearia microdisca*) which only germinates after detecting smoke. Ecological Fire Management Guidelines help to identify fire regimes (the interval, frequency, spatial, intensity and season of a fire) that are most appropriate for the suite of species in a major vegetation type.



Trigger plant (Stylidium tepperianum) is rated Rare on Kangaroo Island

Animals

The island is home to iconic and threatened wildlife including the KI echidna (*Tachyglossus aculeatus multiaculeatus*), glossy black-cockatoo (*Calyptorhynchus lathami halmaturinus*), southern brown bandicoot (*Isoodon obesulus obesulus*) and KI dunnart (*Sminthopsis aitkeni*).

Many species rely on disturbance from fires to regenerate their habitats. Since the 2019-20 bushfires a number of

additional bird species have been listed as threatened including the western whipbird (*Psophodes nigrogularis nigrogularis*), southern emu-wren (*Stipiturus malachurus*) and shy heathwren (*Hylacola cauta halmaturina*). Monitoring impacted areas will help us understand how to secure the future of these species.

Habitat requirements have been considered in this plan. In the next 10 years it will be important to try and reduce the risk of further bushfires affecting some habitats, particularly those that are regenerating. However, as many species rely on periodic disturbance from fires to regenerate their habitat, ecological burning has been identified as a strategy in specific areas where there isn't sufficient habitat in younger age classes.



Scan the QR code to find out how plants and animals are considered in planning for every prescribed burn, in an environmental assessment.

Vegetation communities

Drooping sheoak (*Allocasuarina verticillata*) woodland provides feeding habitat which is critical to the survival of glossy black-cockatoos. Approximately half was burnt in the 2019-20 bushfires. Fire management planning helps protect this important habitat by avoiding prescribed fire in current feeding areas and using ecological burns to help regenerate old habitat.

Kangaroo Island narrow-leaved mallee (*Eucalyptus cneorifolia*) woodland is nationally listed as critically endangered, and is home to more than 250 plant species and many native animals. Beyeria Conservation Park protects one of the largest remnants of this vegetation community with ecological burning an important tool to help regenerate and maintain the woodland.





Developing this plan

Who was involved

Key communities, individuals, stakeholders and experts were consulted in the development of this plan.

We held meetings and workshops with locals including CFS Group Officers and volunteers, KI Landscape Board and its staff, park rangers, community groups, farmers, ecologists and environmental groups, AgKI, and researchers to ensure local and expert knowledge and experience was included.

We also worked with key stakeholders including Bureau of Meteorology, CFS, DEW scientists and SA Water to exchange knowledge so we could use the best available local, state and national data in the plan.

What we did

Working with stakeholders, we:

- · identified key values for the community
- collated data and information about the planning area, including local knowledge and experience
- undertook risk assessments to determine bushfire risk to life, property, and the environment
- identified fire regimes required to maintain and enhance biodiversity, and to inform program planning
- developed strategies to address the risks identified.

How we did it

We used several datasets, models and tools to inform our assessments including:

- Phoenix RapidFire simulates thousands of fires across the landscape with current and future vegetation loads. Helps predict where a fire will spread using various scenarios that include such factors as terrain, fuel and weather conditions. These simulations identify ignitions that could cause the largest fires and/or impact the most values.
- Weather model uses historic Bureau of Meteorology data from KI weather stations to understand patterns and trends highlighting where the worst fire weather days occurred and where it was milder.
- CFS Bushfire Risk Information Management System – captures site information then displays the bushfire risk to assets (e.g. houses, buildings, towns, infrastructure, heritage sites).

- DEW Dynamic Fire and Biodiversity model uses fire history data with fire-dependent threatened animal species' habitat requirements, to identify where to focus prescribed burns to maintain suitable habitat.
- Ecological Fire Management Guidelines

 describe fire regimes to best maintain and enhance biodiversity for a native vegetation community. They consider the needs of plants in a vegetation community and the animals that rely on them for food and habitat.
- DEW's Fire Vulnerable Habitat dataset identifies environmental habitat values at risk from bushfire and bushfire suppression activities.

Bringing it together

We used an internal online tool called FLARE (Fire Landscape Assessment and Risk Evaluation) to display all the modelling and datasets in one place. FLARE helps NPWS and stakeholders work out the best fire management strategies based on bushfire risks and/or biodiversity needs identified in a particular location.

Strategy selection

Strategies are assigned to values identified most at risk, to reduce that risk. These strategies are based on several factors including:

- the assets or values at risk, e.g. lives, property or environmental assets
- how adjacent strategies can work together to reduce risk
- legislative requirements
- building approval requirements
- guidance or information in existing management plans
- our ability to implement the strategy
- natural fuel breaks, like dune systems or rivers.

For example, to prevent a bushfire from spreading through a park we may link a Strategic Fire Management Zone to a dune system, to create a fuel reduced break. Or, to reduce risk to lives at a particular site we use both an Asset Protection Zone and administrative controls.

Fire management strategies

A fire management strategy guides an activity (e.g. prescribed burn, slashing or thinning vegetation), piece of infrastructure (e.g. fire access track, water tank), or policy (e.g. temporary park closure) to help reduce bushfire risk, support firefighting efforts, or protect what we value. All fire management activities are conducted in accordance with the principles and regulations of the Fire and Emergency Services Act 2005, the Native Vegetation Act 1991, and the DEW Ecological Fire Management Guidelines.

An interactive map shows the type of strategy for a given location, what values the strategy is aiming to protect or manage, and its objective.



Scan the QR code to view the fire management strategies for the parks of Kangaroo Island on an interactive map.

Zones

Fire management zones identify where specific fire management activities will be undertaken. The type of activity depends on the zone and objectives. The State Bushfire Coordination Committee's Fire Management Zone Standard and Guidance for Use 2020 guides the identification and implementation of zones.

Asset Protection and Bushfire Buffer Zones primarily minimise bushfire risk to life, property and environmental assets by managing fuels adjacent to these assets. Asset protection zones aim to stop the spread of fire and prevent direct flame contact and reduce radiant heat, and short-distance ember attack. Bushfire buffer zones slow a fire's rate of spread, reduce its intensity, and minimise fire spotting.

Implementation can involve prescribed burns or mechanical fuel reduction. Asset Protection and Bushfire Buffer Zones are treated to keep the fuels in them below specified levels. Zones created to maintain fuel loads below a set amount are only treated after that fuel amount is reached.

Strategic Fuel Management Zones also aim to reduce bushfire risk to life, property and environmental assets by inhibiting the rate of spread and intensity of bushfires, and providing strategic suppression opportunities. The intent however isn't to treat the zone in its entirety but to work within the zone using existing landscape features like wet areas, dunes and fire scars to shape prescribed burns, or to allow room for a mosaic of different age

classes over time. The planning of these zones also considers opportunities to maintain and enhance environmental values.

Strategic Fuel Management Zones do not require the vegetation to be uniformly maintained below a specific amount. Not all areas within the zone require treatment to meet the individual zone's objective, allowing for pockets of habitat to be retained untreated.

Conservation Zones identify areas where native ecosystems would benefit from ecological burns within the life of the plan. These burns are intended to create a variety of habitat for species, particularly to conserve threatened flora and fauna, and to reduce populations of weeds. Ecological Fire Management Guidelines, DEW's Dynamic Fire and Biodiversity Model, and knowledge collated from the literature and local experts assist to determine the timing, fire intensity, size and season of the burn.

Exclusion Zones identify areas where planned burning should be avoided to protect environmental or cultural values for a specified period of time. The status of an exclusion zone is reconsidered when the fire management plan is reviewed.

Unzoned areas are not managed for a particular fuel reduction or fire management objective. Placement of fire management strategies is determined by the risk assessment and the result of the environmental assessment to maintain and enhance plants, animals and their habitats. If areas are not identified during these assessments, or adjacent strategies address the risk, then additional fire management strategies will not be developed.

Fire access tracks

Fire access tracks are critical to prevent, prepare for, and respond to bushfires. That is why we will maintain all our existing tracks, unless otherwise noted in the strategies map.

Improving track networks provides firefighters with quicker and safer response times to remote areas of a park. This increases the likelihood that fires will be controlled while they are a manageable size reducing the risk of entire parks being burnt. This is increasingly important as a changing climate is predicted to lead to more severe bushfire conditions and increasingly longer fire danger seasons.

All zones align to the State Bushfire Coordination Committee's *Fire Management Zone Standard and Guidance for Use*

Conservation Zone

Bushfire Buffer Zone

Asset Protection Zone

FIRE WATER

Weather is monitored during a prescribed burn to confirm conditions continue to be suitable throughout the day

Work on fire access tracks will use best practice to consider environmental assets and aim to reduce impacts. For example, where possible tracks will be developed in areas previously modified (abandoned fire access tracks, dozer lines from past bushfires) resulting in less environmental impact. They will also be gated to only allow access to staff, minimising weed incursions and the spread of pathogens.

Fuel breaks

Fuel breaks, also referred to as fire breaks, are areas where vegetation has been removed or modified to reduce fire intensity and provide firefighters the opportunity to contain the spread of bushfires that may occur. They are usually alongside a fire track and increase suppression success, lower the risk to firefighters and reduce short range spotting potential whilst providing an edge from which fire crews can undertake bushfire suppression or prescribed burning activities.

Water infrastructure

Water infrastructure (such as water tanks or hydrants) provide secure water sources to areas of high risk, reducing travel time for firefighters when refilling trucks and improving safety. That is why we will maintain all our existing water infrastructure, unless otherwise noted in the strategies map.

Engagement and administration

Community engagement strategies (e.g. awareness campaigns, education programs) increase staff, visitor and community knowledge of bushfire risk. NPWS provides information to visitors on fire danger seasons, fires and park closures. Many parks also have bushfire risk information on signage or in brochures.

Administrative strategies, including internal policies and site plans, are also in place to reduce the risk of bushfires in parks impacting on NPWS staff and visitors.





Strategies map

Scan the QR code to view the fire management strategies for the parks of Kangaroo Island on the interactive map.



Plants such as Banksia ornata regenerate from seeds normally released following fire Ecological fire management strategies, such as for southern brown bandicoots, identify risks from inappropriate fire regimes

Using this plan

This fire management plan provides the long-term strategic vision for Kangaroo Island to help guide staff to undertake 1 to 5-year program planning, annual operational planning and finally, on ground delivery.

Program planning

This plan includes guidance on the best timing (commencement phase) for each strategy. Some strategies extend beyond the timeframe of this plan reflecting the ongoing nature of bushfire risk mitigation works. The commencement phase is determined by the risk (the higher the risk, the sooner it requires mitigating), environmental requirements (such as the Ecological Fire Management Guidelines), resourcing and changing risk over time (as fuels accumulate or as bushfires occur).

Program planning undertaken by the region identifies proposed burns, track maintenance and vegetation management for the following 1 to 5 years. Program planning is guided by the commencement phases in the fire management plan. The region interrogates each zone more closely, considering where fuels are exceeding maximum thresholds, how a zone may be divided into a number of prescribed burns and when the burns should be undertaken. The bushfire risk and resourcing requirements are balanced with the Ecological Fire Management Guidelines to inform future planning.

Operational delivery

Operational planning for individual burns, fuel breaks, and track and water tank installation must include an environment assessment. This assessment identifies what species and communities are present and, for prescribed burns, influences the timing, desired intensity, weed management requirements and other considerations such as *Phytophthora cinnamomi* and feral animal management. The assessment may result in mitigating actions to reduce environmental impacts. Identification of exclusion areas within the prescribed burn to reduce water runoff or protect nesting sites, only burning in a specific season to reduce impacts to breeding or flowering, or burning at a low intensity to avoid canopy scorch for sensitive species, are examples of operational decisions made for individual prescribed burns.

Prescribed burns are scheduled for when conditions are suitable. Timing may change based on resourcing or changes in weather conditions. Maintenance of fuel breaks or asset protection zones, through annual slashing or rolling programs, aligns with annual grass curing.

Monitoring

We undertake monitoring to learn more about how plants and animals respond to fire, how fire 'behaves' under different conditions and how fuel loads (live and dead vegetation) vary over time and between habitat types. DEW staff and contractors undertake this monitoring to better understand priority issues identified during pre-burn assessments. We also work in collaboration with research institutes and agencies in other states and territories to address significant knowledge gaps. The understanding gained from this work enables us to continually review and improve our prescribed burning program to ensure it achieves the best possible outcomes for bushfire risk reduction, firefighter safety and our native biodiversity.





Reviews

The Parks of *Kangaroo Island Fire Management Plan* is a 10-year plan that will be formally reviewed at end of life.

Other drivers that may warrant reviewing and/or updating the plan include:

- when a new fire management zone is required (e.g. for new park infrastructure)
- after a significant bushfire
- to incorporate knowledge gained through our adaptive management approach
- when significant new information or data becomes available.

Useful links



NPWS fire management



Fire management planning in SA parks



Ecological Fire Management Guidelines



References

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