

Ecological Fire Management Strategy

Department of Environment and Natural Resources

Yellow-footed Rock-wallaby (*Petrogale xanthopus xanthopus*)

Purpose

This strategy focuses on fire risk management for the Yellow-footed Rock-wallaby, identifying a number of issues that should be considered before, during and after fire.

Species Information

Rating	VULNERABLE - <i>NPW Act 1972</i> and <i>EPBC Act 1999</i> .
Identification	Grows up to 70cm tall (when sitting) and weighs around 6-8kg. Tail is banded dark and golden brown and has a white hip, flank and dorsal stripe and a thick grey coat.
Distribution	Fragmented across Flinders Ranges, Gawler Ranges and Olary Hills.
Parks	Occurs in Telowie Gorge Conservation Park, Mt. Remarkable National Park, Gawler Ranges National Park, Vulkathunha-Gammon Ranges National Park, Bimbowrie, The Dutchmans Stern Conservation Park, Flinders Ranges National Park, Bunkers Conservation Reserve, Buckaringa Sanctuary, Warraweena Conservation Reserve and Arkaroola Sanctuary. Also in Mutawintji National Park (NSW).
Private	Occurs in Hiltaba, Plumbago, Horseshoe Range, Elder Range, Ragless Range, Chace Range, Black Range, Chambers Gorge, Aroona, Heysen Range, Yourambulla Range, Yappala Range.
Habitat	Semi-arid areas. Shelter sites are based on rocky areas – cliffs, gullies, terraces and rock piles. Sandstone, limestone and conglomerates in the Flinders Ranges. Granites in the Gawler Ranges and Olary Hills.
Populations	Live in groups occupying their own rock-pile. A number of groups occupying adjacent rock-piles are labelled as a colony. Colonies are usually separated by unsuitable habitat. For the purpose of the strategy a colony, or tight clusters of adjacent colonies, will be termed a local population.
Home Range	Approximately 30ha with little seasonal variation. Usually an elongate shape incorporating a shelter site within the core area and in some areas a permanent water source.
Dispersal	Both males and females are quite sedentary, however dispersal can be undertaken between groups occupying adjacent rock piles and to a lesser extent with in the local population.
Reproduction	Continuous breeder, however in South Australia there is indication that births may be related to rainfall.
Predators	Foxes (<i>Vulpes vulpes</i>) are the major predators, others include the feral Cat (<i>Felis catus</i>), Wedge-tailed Eagle (<i>Aquila audax</i>) and Dingo (<i>Canis familiaris</i>).
Competitors	Goats (<i>Carpa hircus</i>) are the major competitors, others include the European Rabbit (<i>Oryctolagus cuniculus</i>), Sheep (<i>Ovis aries</i>) Euro/Wallaroo (<i>Macropus robustus</i>) and Western Grey Kangaroo (<i>Macropus fuliginosus</i>).



Photo: (left) T. Robinson; (right) T. Robinson

Resources Access to a permanent water source maybe important at some locations and also the availability of certain food plants.

Diet Opportunistic grazers and browsers. Diet varies with season/rainfall and can be classified into 5 groups.

Group	Season	Species List (not exhaustive)
Grasses	Major component especially during good seasons	<i>Austrostipa variabilis</i> <i>Triodia irritans</i> <i>Themeda triandra</i> <i>Aristida nitidula</i>
Forbs	Major component especially during good seasons	<i>Cheilanthes</i> spp. <i>Boerhavia</i> spp. <i>Calandrina</i> spp. <i>Echium platagineum</i> *
Chenopods	Minor to a degree	<i>Enchylaena tomentosa</i> <i>Atriplex eardleyae</i> <i>Rhagodia</i> spp. <i>Maireana radiata</i>
Browse	Major component especially during the dry season	<i>Callitris glaucophylla</i> <i>Cassinia laevis</i> <i>Goodenia albiflora</i> <i>Eremophila longifolia</i>
Plants with star shaped epidermal hairs	Major component especially in summer and early autumn	<i>Solanum petrophilum</i> <i>Solanum sturtianum</i> <i>Ptilotus obovatus</i> <i>Sida petrophila</i>

* Denotes an introduced species

Fire and Yellow-footed Rock-Wallaby

Risks to Yellow-footed Rock-wallaby

Fire is a natural component of the South Australian environment and it may advantage or disadvantage rock-wallabies, depending on its intensity, extent, season and frequency. Fire can directly kill rock-wallabies through radiant heat, smoke and flame or indirectly impact on the species by severely depleting food resources, increasing post-fire competition from herbivores. Fire may result in loss of vegetation cover, exposing any surviving rock-wallabies to predators and also may affect habitat quality due to changes in vegetation species composition.

The overall risk to colonies, populations and their habitats and home ranges from unplanned fires (i.e. bushfires) is considered **extreme**. This means that if there are no actions to mitigate the negative effects of bushfires, the impacts could be **major**. This is considered an unacceptable risk.

Fire Management Objectives for Rock-wallabies

- Minimise the risk of bushfires impacting on colonies, populations and habitats.
- Minimise the effects of a single bushfire on multiple colonies.



Government of South Australia

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Fire Management Strategies in Rock-wallaby Areas

- Treat each local population on park individually; separate (from a bushfire risk perspective) by:
 - Reducing fuel between local populations to minimise losses in one bushfire.
 - Maintaining strategic fire access in the vicinity of and between local populations if possible, keeping in mind changes may need to be made to threat abatement strategies.
- Restrict fires from burning the entire home range of a colony or population.
- Restrict fires from burning the area between shelter sites and known water/feeding sources.
- Bait for foxes immediately after fire (during mop up) and consider predator and competition control.

Actions for Risk Mitigation

Before Fire

Preliminary Planning

- Map home ranges, shelter sites, sites of suitable habitat and the known water source using aerial photography, sighting records, floristic vegetation mapping and refer to fire history. Radio tracking may be used to determine home range size of local population if required.
- Ensure regional staff and experts have access to rock-wallaby fire risk information.
- Known water sources should be monitored and protected from artificial depletion, especially during fire.

Identify strategic fire access tracks

- Identify strategic fire access tracks and if it is reasonable to use these for rock-wallaby protection.
- If possible, upgrade/reinforce these tracks, ideally to *Standard* or *Major*.
- Consider fuel-reduced buffers adjacent to these tracks (B zones).

Risk Assessment

- Determine which local populations are at the greatest risk of bushfire (i.e. due to landscape features, land use on and off park, fuel hazard and fire history).
- Prioritise fire management to those at greatest risk.

Fuel reduced buffers

Season of burn

- Do not burn during dry periods or drought.
- Burn when a greater likelihood of follow up rains.
- Do not burn during summer when preferred food sources are depleted.
- Avoid burning between April and August/September to reduce the impact to young at foot.
- Considering the above conditions, early autumn may be the best time to apply fire.

Size of burn

- Do not burn the core home range (i.e. the shelter sites).
- Do not burn the entire home range at once.
- Do not burn in between the shelter site and the permanent water source.
- Within the home range, limit burns to 10 hectares (or ¼ of the home range size determined in pre-fire monitoring).

Time of fire

- If applying burns later in the day be aware that Yellow-footed Rock-wallabies are active at this time, moving out to feed in their home range. In the middle of the day they are likely to be within their shelter sites where fire may be less likely to affect their behaviour.

Competitor and predator control

- Develop control strategies *ready for application* post-burn. Refer to *After Fire* guidelines.

Monitoring

- Monitor post-fire vegetation response, particularly the regeneration of preferred food species. Monitor the behavioural response of Yellow-footed Rock-wallabies during fire. Note any change in home range size and/or location after fire that may assist in the planning of future prescribed burns.

Using Prescribed Burning for Risk Management

Prescribed burns can be used to protect the shelter sites of rock-wallabies from a bushfire by providing a natural buffer between these areas and the greater landscape. Prescribed burning a portion of the species home range will change the structure of the vegetation community but can also aid in creating a habitat mosaic and additional food.

During Fire

Incident Management

- Technical advisors to be appointed to the Incident Management Team during a bushfire.
- The Incident Controller must be made aware of and take into account any relevant provisions of a management plan for a government reserve as specified in Part 4, Division 9(2) of the *Fire and Emergency Services Act 2005*.
- Use specialised maps for planning and to protect the local populations using principles mentioned in prescribed burning actions as a guide.

Plan to protect core local population sites

- Restrict fire from burning the entire home range.
- Restrict fire from burning home range between water source and shelter site.
- Use strategic track network to contain fire.
- Apply retardant lines to protect local populations if a fire is threatening.
- Consider aerial suppression to assist in control.
- Avoid backburning in the vicinity of local populations.
- Avoid the use of any known wallaby water sources during fire fighting activities.

After Fire

Assess remaining local population

Further actions listed may need to be applied if:

- A significant portion of the home range or travel routes are burnt.
- If adjacent lands are burnt there may also be a risk of increased predation or competition.

Translocations may need to be considered in a worst case scenario to re-establish healthy numbers, once suitable habitat exists.

Animal welfare

- Access to an authorised person to euthanase animals exposed to radiant heat, smoke and flame.

Increase fox control

Implement increased baiting regime immediately after fire and continue fortnightly.

- Laying bait during mop up is highly recommended.
- Increase baiting intensity along the edge of fire scar.
- Maintain current baiting intensity for the rest of the park.

Apply planned competitor control strategies

- Consider increasing goat and rabbit control post fire in areas with high densities.
- Consider undertaking kangaroo control post fire.

Assess known water sources

- Maintain water points, replenish supply if depleted or make another supply available.

Implement monitoring

- Monitor activity to determine how the Yellow-footed Rock wallabies use the burnt and unburnt areas and how vegetation responds to fire.



Further Information

