

**Kajuligah Nature Reserve
Fire Management Strategy 2014**

Mapsheet 1 of 1

This strategy should be used in conjunction with aerial photography and field reconnaissance during incidents and the development of incident action plans. These data are not guaranteed to be free from error or omission. The NSW National Parks and Wildlife Service disclaims liability for any act done on the information in this data and any consequences of such acts or omissions. This document is copyright. Apart from any fair dealing for the purpose of study, research, criticism or review, as permitted under the copyright Act, no part may be reproduced by any process without written permission. This strategy is a relevant Plan under Section 38 (4) and Section 44 (3) of Rural Fires Act 1997. The NSW National Parks and Wildlife Service is part of the Office of Environment and Heritage. Published by the Office of Environment and Heritage (NSW).

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ISBN: 978 1 74359 087 4 OEH 2013/0327 Date: July 2014 Version: 1

Map Details
 Datum: Geocentric Datum of Australia (GDA) 1994
 Projection: Map Grid of Australia (MGA) Zone 55
 Data: Spot Satellite Imagery, 2005.

Related Documents
 1:100k Topographic Map: Conoble 7832 (AGD-1966)
 OEH Fire Management Manual 2013 - 2014.
 Scale: Noted scales are true when printed on A1 size paper

Operational Guidelines	
Brief all personnel involved in suppression operations on the following issues using the SMEACS format:	
General	Guidelines
Aerial Water Bombing	<ul style="list-style-type: none"> The use of bombing aircraft should support containment operations by aggressively attacking hotspots and spot-overs. The use of bombing aircraft without the support of ground based suppression crews should be limited to very specific circumstances. Where practicable foam should be used to increase the effectiveness of the water. Ground crews must be alerted to water bombing operations.
Aerial Ignition	<ul style="list-style-type: none"> Aerial ignition may be used during back-burning or fuel reduction operations where practicable, but only with the prior consent of NPWS Senior Officer, Section 44 delegate or as prescribed in an operational burn plan. Aerial ignition will only be undertaken by accredited navigators & bombardiers. The pattern for aerial ignition will be specified in the IAP during fire suppression. Utilise Aerial ignition to rapidly burn out large areas where required.
Back-burning	<ul style="list-style-type: none"> Temperature and humidity trends must be monitored carefully to determine the safest times to implement back-burns. Generally, when the FDI is Very High or greater, back-burning should commence when the humidity begins to rise in the late afternoon or early evening, with a lower FDI back-burning may be safely undertaken during the day. Where practicable, clear a 1m radius around dead and hollow bearing trees adjacent to containment lines prior to back-burning, or wet down these trees as part of the back-burn ignition. Use parallel containment lines when applicable. All personnel must be fully briefed before back-burning operations begin.
Command & Control	<ul style="list-style-type: none"> Standard Incident Management Systems are to be applied. The first combatant agency on site may assume control of the fire, but then must ensure the relevant land management agency is notified promptly. On the arrival of other combatant agencies, the Incident Controller will consult with regard to the ongoing command, control and incident management team requirements as per the relevant BFM Plan of Operations.
Containment Lines	<ul style="list-style-type: none"> Construction of new containment lines should be avoided, where practicable, except where they can be constructed with minimal environmental impact. For new containment lines IMT to liaise with and receive consent from a Senior NPWS officer prior to construction. Use parallel containment lines when applicable. All containment lines not required for other purposes should be closed at the cessation of the incident. All personnel involved in containment line construction should be briefed on both natural and cultural heritage sites in the location. Containment line construction using earthmoving equipment must be in accordance with the earthmoving guidelines contained within the RFMS.
Earthmoving Equipment	<ul style="list-style-type: none"> Earthmoving equipment may only be used with the prior consent of a senior NPWS officer, and then only if the probability of its success is high. Earthmoving equipment must always be guided and supervised by an appropriately experienced person, and accompanied by a support vehicle. When engaged in direct or parallel attack this vehicle must be a fire fighting vehicle. Containment lines constructed by earthmoving equipment should consider the protection of drainage features, observe the Threatened Species and Cultural Heritage Operational Guidelines, and be surveyed, where possible, to identify unknown cultural heritage sites. Earthmoving equipment must not leave tracks or create new tracks in Machinery Exclusion areas as marked on the Incident Map of a RFMS. Earthmoving equipment must be washed down, where practicable, prior to it entering NPWS estate and again on exiting NPWS estate. Where multiple items of earthmoving equipment are being used, the IMT should consider the establishment of a Plant Operations Manager.
Fire Advantage Recording	<ul style="list-style-type: none"> All fire advantages used during wildfire suppression operations must be mapped and where relevant added to the database.
Fire Suppression Chemicals	<ul style="list-style-type: none"> Use of wetting and foaming agents (surfactants) is permitted on the reserve. The use of fire retardants are only permitted with the prior consent of the senior NPWS officer and should be avoided where reasonable alternatives are available. Exclude the use of surfactants and retardants within 50m of watercourses, dams and swamps. Areas where fire suppression chemicals are used must be mapped and the used product's name recorded. The Threatened Species Operational Guidelines are to be observed.
Rehabilitation	<ul style="list-style-type: none"> Where practicable, containment lines should be stabilised and rehabilitated as part of the wildfire suppression operation.
Smoke Management	<ul style="list-style-type: none"> The potential impacts of smoke and possible mitigation tactics must be considered when planning for wildfire suppression and prescribed burning operations. If smoke becomes a hazard on local roads or highways, the police and relevant media must be notified. Smoke management must be in accordance with relevant RTA traffic management guidelines.
WARNINGS	<ul style="list-style-type: none"> Beware of overhead powerlines Caution- Rollovers are present on the Southern Boundary Fire Trail
Water points	<ul style="list-style-type: none"> The Watering points WHV shown on the Incident map are not guaranteed to carry water as they are rainfall fed only. Conoble and Waterloo Lakes are ~25-40 km to the South, but may be dry depending on the season. Recommend water cart from Ivanhoe, 40km South-West.

Status of Biodiversity Thresholds

Evaluation of Biodiversity Thresholds

Vulnerable to Frequent Fire	The area will be too frequently burnt if it burns this year <ul style="list-style-type: none"> Protect from fire as far as possible.
Within Threshold	Within the threshold for vegetation in this area. Species have had sufficient time to mature and reproduce, and for habitats to develop. <ul style="list-style-type: none"> A fire event is neither required nor should one necessarily be avoided.

NB. Fire thresholds are defined for vegetation communities to conserve biodiversity

Vegetation Map Legend

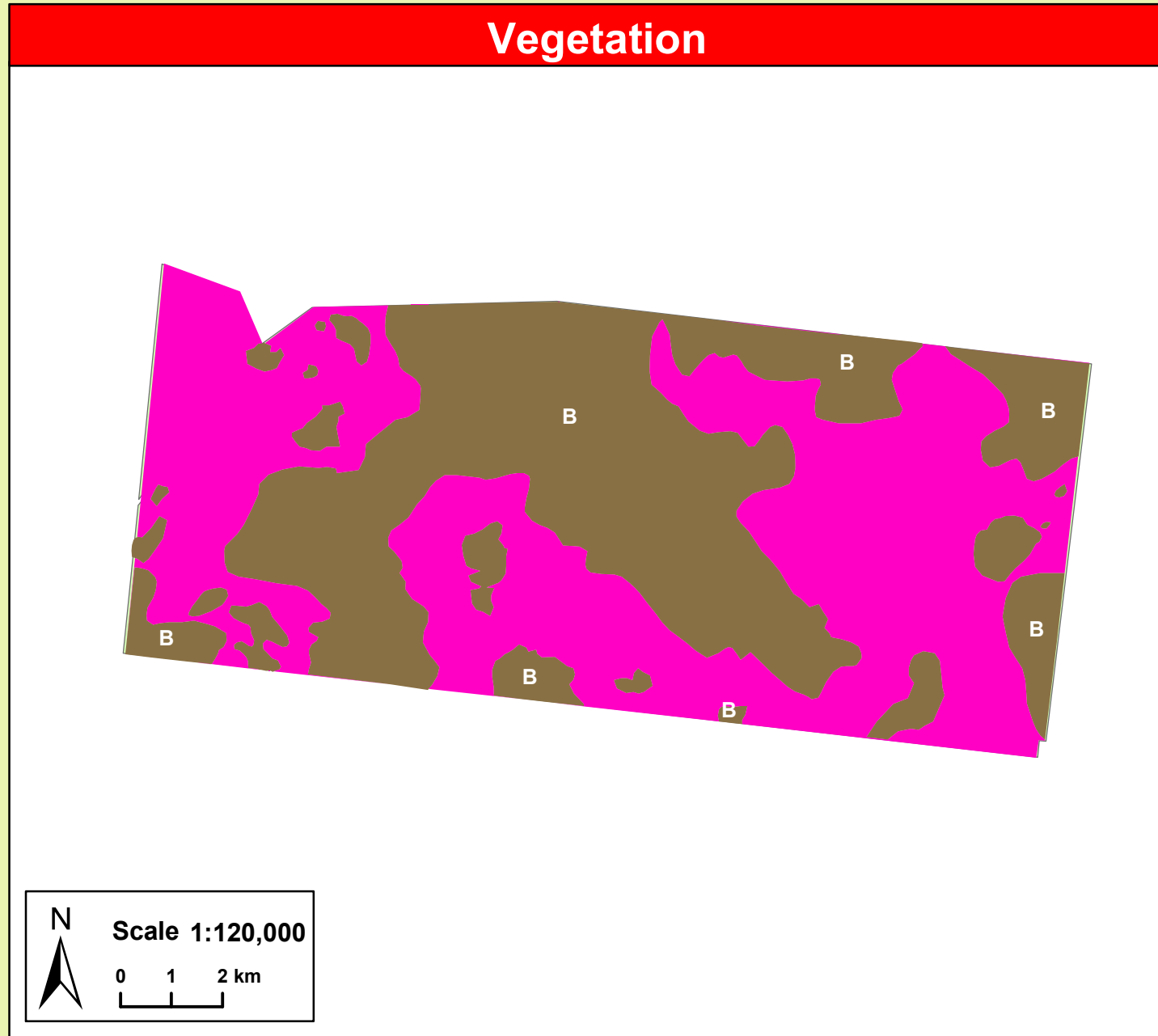
Broad Vegetation Class	Vegetation Type	Biodiversity Thresholds	Fire Behaviour
Semi-arid Woodlands (Shrubby sub-formation)	Bimble Box Woodland	An interval between fire events less than 15 years should be avoided. There is no maximum interval between fire events specified for this vegetation type as there was insufficient data to give definite intervals.	Moderate to high fire danger due to bark fuels and shrub layer. In open areas fire behaviour likely to be wind driven.
Semi-arid Woodlands (Shrubby sub-formation)	Belah, Rosewood & Wilga	An interval between fire events less than 15 years should be avoided. There is no maximum interval between fire events specified for this vegetation type as there was insufficient data to give definite intervals.	Fire runs can potentially slow when entering this type of vegetation depending on the amount of Belah present in the system.
Arid Shrublands (Acacia sub-formation)	Open Country, Low Open Woodland	An interval between fire events less than 15 years should be avoided. There is no maximum interval between fire events specified for this vegetation type as there was insufficient data to give definite intervals.	High intensity fast moving fire once grasses have cured. Fire behaviour is dominated by winds, both speed and direction. Even in very low fuel, grass fires can be erratic and fast moving. In ephemeral years fire intensity will be higher and in drought years minimal growth will result in moderate fire behaviour but potentially still fast moving depending on weather conditions at the time. Potential spotting from trees.

Fire History
 1 wildfire in December 2012 of 42Ha and no prescribed burn activity has been recorded for this reserve. The region surrounding this reserve is prone to summer lightning events and a large proportion of fires are historically related to dry lightning events with no associated rainfall.

Ephemeral Conditions
 Ephemeral fuel conditions occur after consecutive years of effective rainfall and significant flooding events. This in turn leads to the growth and build up of fine surface fuels such as grasses and herbs, which can create a continuous fuel load across all of the above vegetation communities. As a result expect higher fire intensity.

Drought Conditions
 During drought conditions and when vegetation communities are visibly stressed it will be very difficult to undertake prescribed burning across many communities as the surface fuels will be very low. Wildfires are likely to be difficult to control due to extreme conditions during the day and areas of low fuel that are difficult to back-burn in under night-conditions.

Mosaic Burning
 This reserve may not have experienced fire over an extended period of time, therefore a mosaic approach to fire management with post fire recovery and response assessments should be undertaken. Apply fire in a pattern across the reserve that allows gaps in both time and space, small versus large areas, scattered and variable times between fires in any location. If possible leave some areas of each vegetation community unburnt, as an end stage and reference site.



Bushfire Risk Management Strategies

Scale 1:120,000

Fire Management Zones
 The objective of LMZs is to conserve biodiversity and protect cultural and historic heritage. Manage fire consistent with fire thresholds.

Suppression Strategies

Typical Conditions	Indicative Suppression Strategies
<ul style="list-style-type: none"> Current Fire Danger Rating (FDR) of Very High or Greater. Short and medium range forecasts suggest conditions typical to a FDR of Very High or Greater. A risk to life and/or property exists in the short - medium term. A broad area risk to biodiversity exists. 	<p>Direct Initial attacks should be to try to extinguish or to contain to the smallest possible area.</p> <p>Indirect Develop a suppression plan using existing and/or potential containment lines. If possible take into account biodiversity requirements but never to the detriment of life and property.</p>
<ul style="list-style-type: none"> FDR of High or below. Short - medium term forecast indicate a continuing FDR of High or below No risk to life or property exists in the short-medium term. Only small area risk to biodiversity exists. 	<p>Direct Evaluate the biodiversity thresholds and use direct attack methods to extinguish if required.</p> <p>Indirect Develop a fire suppression plan to the maximum allowable perimeter based on Biodiversity thresholds.</p>

Fire Season Information

Wildfires	<ul style="list-style-type: none"> The critical wildfire season generally occurs from October/November to March/April. Dry lightning storms frequently occur and typical fire weather conditions are winds from the west to the north, high day time temperatures and low humidity Particular care is required following periods of Winter rain and after periods of negative Southern Oscillation Indices.
Prescribed Burning	<ul style="list-style-type: none"> Prescribed burning should generally be undertaken during winter or early Spring Care should be taken to ensure a low intensity burn over most of the area treated. An exception to these guidelines is burns targeting the thinning of artificially created dense stands of trees, which may require a higher intensity fire. Also the timing may occur in either Autumn or late Spring to achieve a higher intensity result. Prescribed burning should be undertaken before decreases in Autumn temperatures occur. Burning may also be undertaken during late Winter and early Spring and when ephemeral fuels pose a potential high fire threat. Care should be taken to ensure sufficient fuel is available to allow a low to moderate burn over most of the area identified.

Contact Information

Agency	Position / Location	Phone
National Parks & Wildlife Service	Duty Officer Mid West Area & Regional Office - 200 Yambill St Griffith	02 6332 6350 02 6966 8100
NSW Rural Fire Service Far West Team	Fire Control Centre (Cobar) Diverted After Hours	02 6836 1226
Fire & Rescue NSW	Hillston Fire Station	02 6967 2610
Emergency Services SES	Ivanhoe	000 13 2500
Police Station (not open 24 hrs)	Ivanhoe	02 6995 1144
Police - Local Area Command	Broken Hill	08 8087 0244
Hospital	Ivanhoe Hay	02 6995 1133 02 6990 8700
Council	Central Darling Shire Council	08 8083 8900
Ivanhoe Community Working Party	Faye Johnson	0427 283 570

Communications Information

Service	Channel	Location and Comments
NPWS	11 14	VHF FireGround 1 Cobar Area UHF
RFS UHF All Brigades	20	Initial Response
RFS Cobar	P038	"Ivendale Station" 15km N Ivanhoe

Do not rely on mobile phones, scattered coverage over reserve area.

