

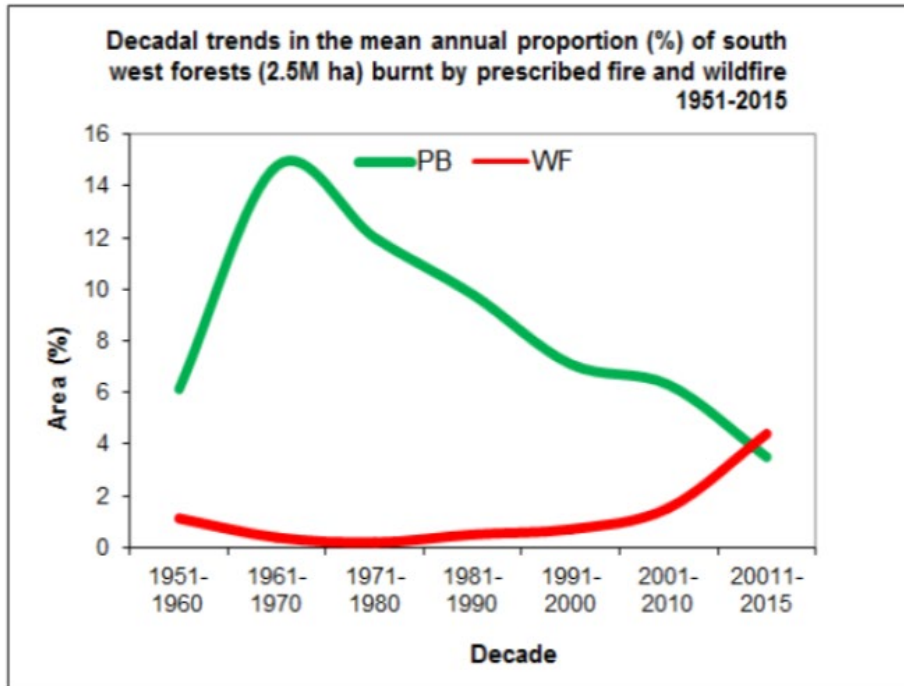
Ed Hatherley



Topics of discussion

- Bushfire risks in the south-west corner.
- Time since fire, fuel age and fire behaviour?
- Vulnerable communities – what do they look like?
- Aerial suppression – detection and response.
- Prescribed burn planning
- Seasonality and considerations
- Biodiversity requirements
- Prescribed burns in the local area – actual examples.
- Cultural fire management.
- Adaptive management.

So how did we get here?



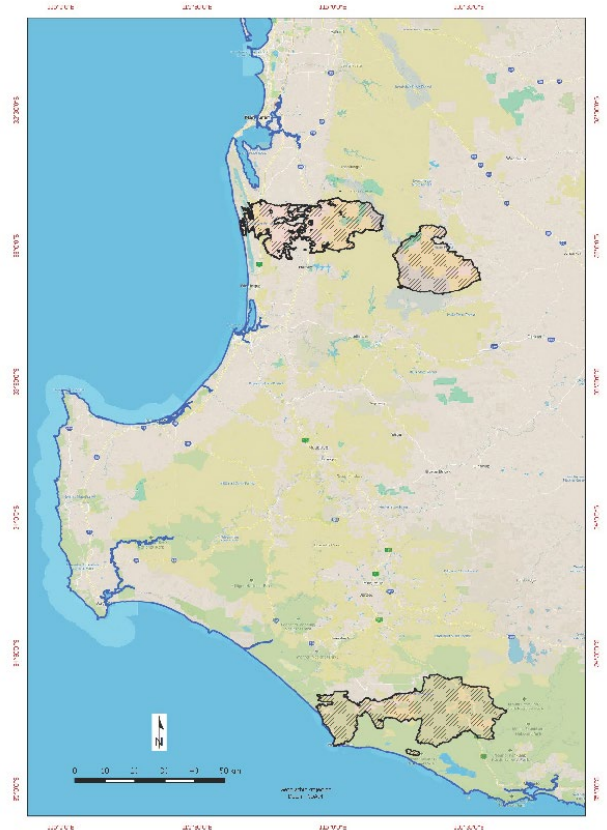
Bushfire risk - context



- O Sullivan fire in Northcliffe - 98,000 Ha
- Lower Hotham Boddington- 52,373 Ha
- Yarloop - Waroona -69,000 hectares

Summer bushfires 2015/2016 in the South West.

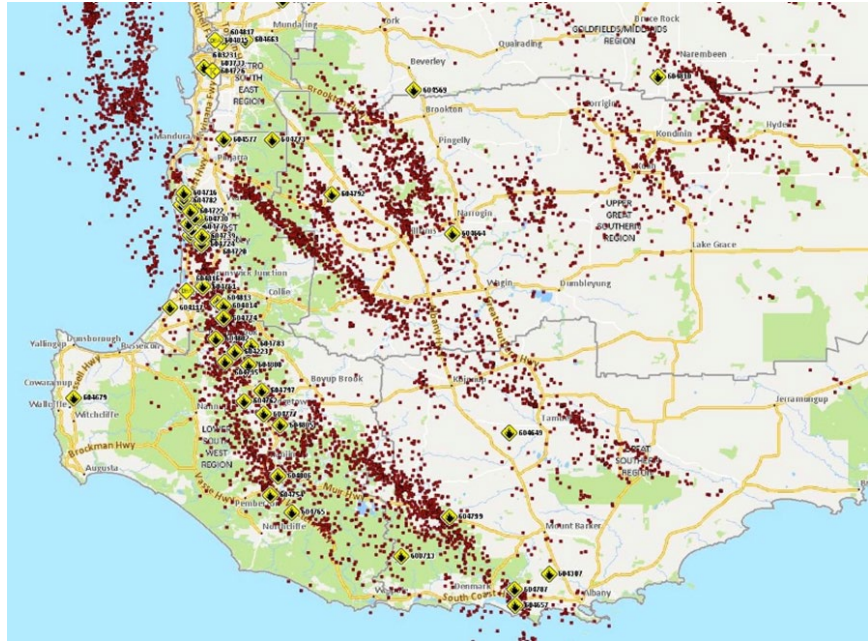
220,000 Ha



February 2021



10/01/2023 Preston Bushfire

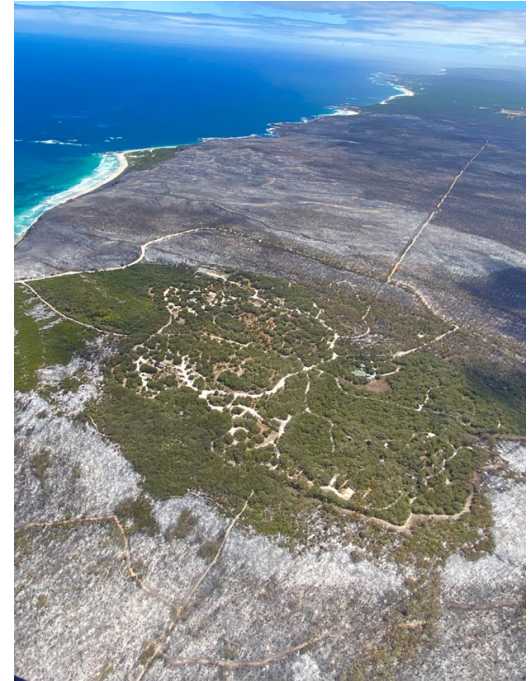


Arson Events - 08/12/2021





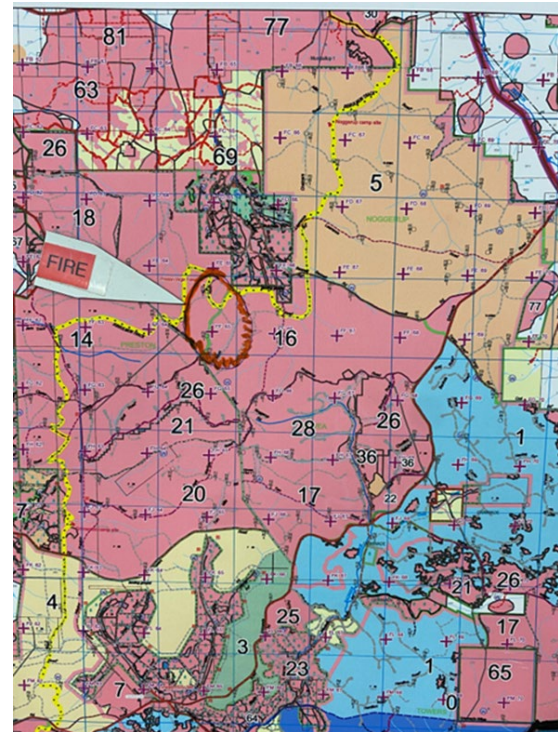
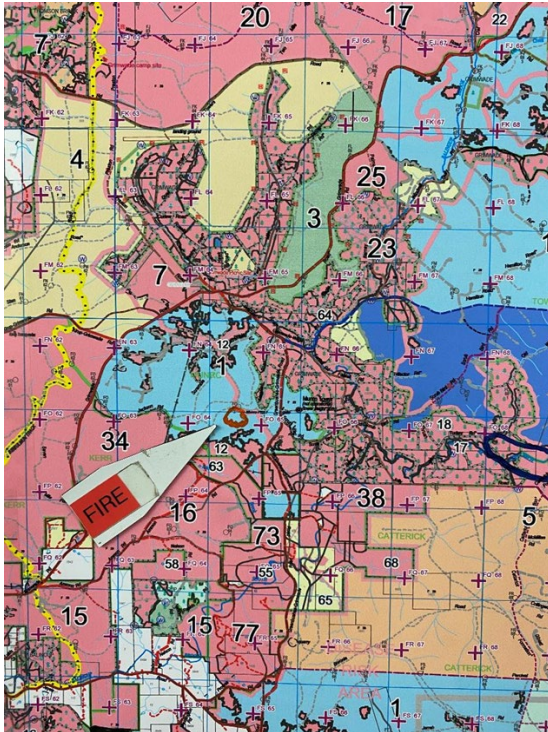
Proximity to community



Bushfire vs Prescribed burn



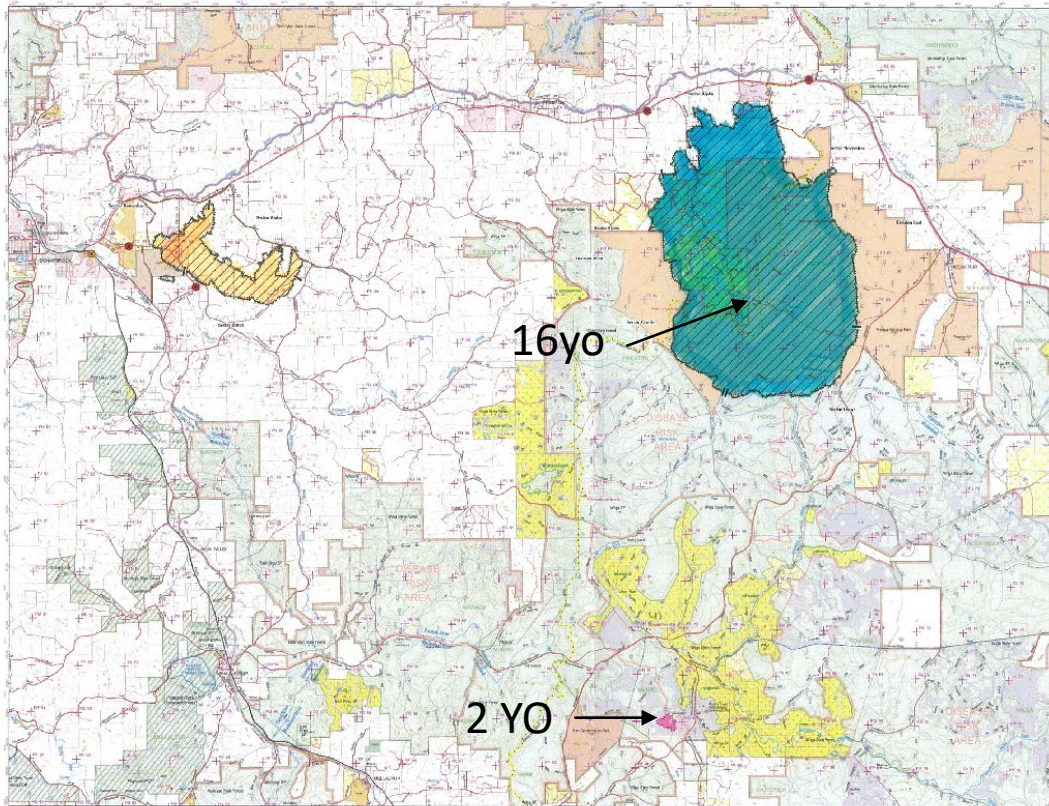
Role of prescribed burning in fire development





Fire at FF64

*Taken from FH62,
looking to NE*



**Donnybrook Complex
Overview + Munro**

SRP-00000000-00000000
SRP-00000000-00000000

Project ID:

- Air Boundary
- Crown
- Land Use
- Land Use
- Land Use
- Land Use
- Land Use
- Land Use
- Land Use
- Land Use



1:50,000



Prepared by: Department of Biodiversity, Conservation and Attractions

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Fuel age & fire behaviour







On the left, green forest that escaped the flames. On the right, the blackened destruction of a heavy-fuel inferno. And in the centre, a fuel-reduced strip where the fire simply ran out of puff.

Fire & Emergency Aviation Fleet 2020-21 (detailed)

Correct as at 1 November 2020

Department of Fire & Emergency Services (DFES)		Department of Biodiversity Conservation & Attractions (DBCA)	
"RAC RESCUE" State Emergency Rescue Helicopter Service <i>Critical Care Retrieval / Aeromedical Search & Rescue</i> Jandakot Bunbury Bell 412EP Twin Huey with FLIR, 3D Mapping, Winch, Medical Datalink Tasking by St John Ambulance (Un-crewed, shared Technical Backup Helicopter)		All-Hazards Response Tactical AISR Jandakot 1 Nov -> (306 days) FIREBIRD 661 ¹ AS365 Dauphin Type 2 FLIR & Fire/Flood Mapping / Video	
Seasonal Air Attack Supervision and Aerial Intelligence Remote Sensing (AISR) Strategic AISR Jandakot (330 days) FIRESKAN 125 ¹ King Air B200 Multi-Spectral / IR Linescanner Seasonal Air Attack Supervision / Utility Jandakot 1 Nov - 15 Apr (166 days) FIREBIRD 623 AS355 Twin Squirrel Type 3 Light Utility Helicopter* 1,000 litre bucket Fuel Tanker		Fire detection surveillance patrol program / Air Observation (Managed by DBCA Parks & Wildlife Service District Offices) Jandakot FIRE SPOTTER Perth Hills Spare Bunbury FIRE SPOTTER Wellington FIRE SPOTTER Manjimup FIRE SPOTTER Donnelly FIRE SPOTTER Manjimup FIRE SPOTTER Blackwood FIRE SPOTTER Albany FIRE SPOTTER Frankland FIRE SPOTTER American Champion Scout Light Fixed Wing Observation Aeroplane (Owned, Operated by DBCA P&WS)	
DFES-managed Aerial Fire Suppression* Jandakot 1 Nov - 15 Apr HELITAK 671 Fuel Tanker Jandakot 1 Dec - 15 Apr HELITAK 673 Fuel Tanker Busselton 15 Dec - 31 Mar HELITAK 676 Fuel Tanker Serpentine 20 Dec - 3 Apr HELITAK 733 "Georgio Peach" Erickson S6AE Airframe Type 1 HV Helitanker 7,560 litres Fuel Tanker		DBCA Air Attack Supervision Jandakot FIREBIRD TBC AS350 Squirrel Type 3 Bunbury BIRDDOG Manjimup BIRDDOG Albany BIRDDOG American Champion Scout Light Fixed Wing (Owned, Operated by DBCA P&WS)	
8x Bell 214 Big-Lifter Type 2 Helitankers, 2,650 litre belly tank or 3,000 litre bucket.		DBCA-managed Aerial Fire Suppression* Jandakot BOMBER 98 days+ Bunbury BOMBER 98 days+ Manjimup BOMBER 98 days+ Albany BOMBER 98 days+ Surge and Training Aircraft BOMBER AirTractor AT802F Single Engine Air Tankers (SEATs) 3,150 litres hopper 8x daily x 98 days + 2x additional SEATs as required + 1 x AT504 Trainer (1,500 litres)	
		Aerial Support Bunbury Seasonal Type 3 Light Utility Kimberley Seasonal Type 3 Light Utility GAS Airvan Fixed Wing GAS Airvan Fixed Wing Tasking by DBCA Districts	

¹ FIREBIRD 661: two service periods: (1) 1 Nov - 15 April 7 days/week; and (2) for the remainder of the year, business days (5 days/week).

² FIRESKAN 125: 330-day service period with extension options.

³ DFES AAS helicopters are fitted with an airborne public address system and crewed by government aircrew officers with handheld tablet computers for mission management and incident mapping.

⁴ With sufficient lead-time, and subject to availability joint Aviation Services can acquire additional resources from WA and the Eastern States.

⁵ Nominated operational bases (NOBs) are located Jandakot, Serpentine, Bunbury, Busselton, Manjimup and Albany.

⁶ DFES manages a further 70 HELITAK FOBs which are mostly community football ovals and public open spaces.

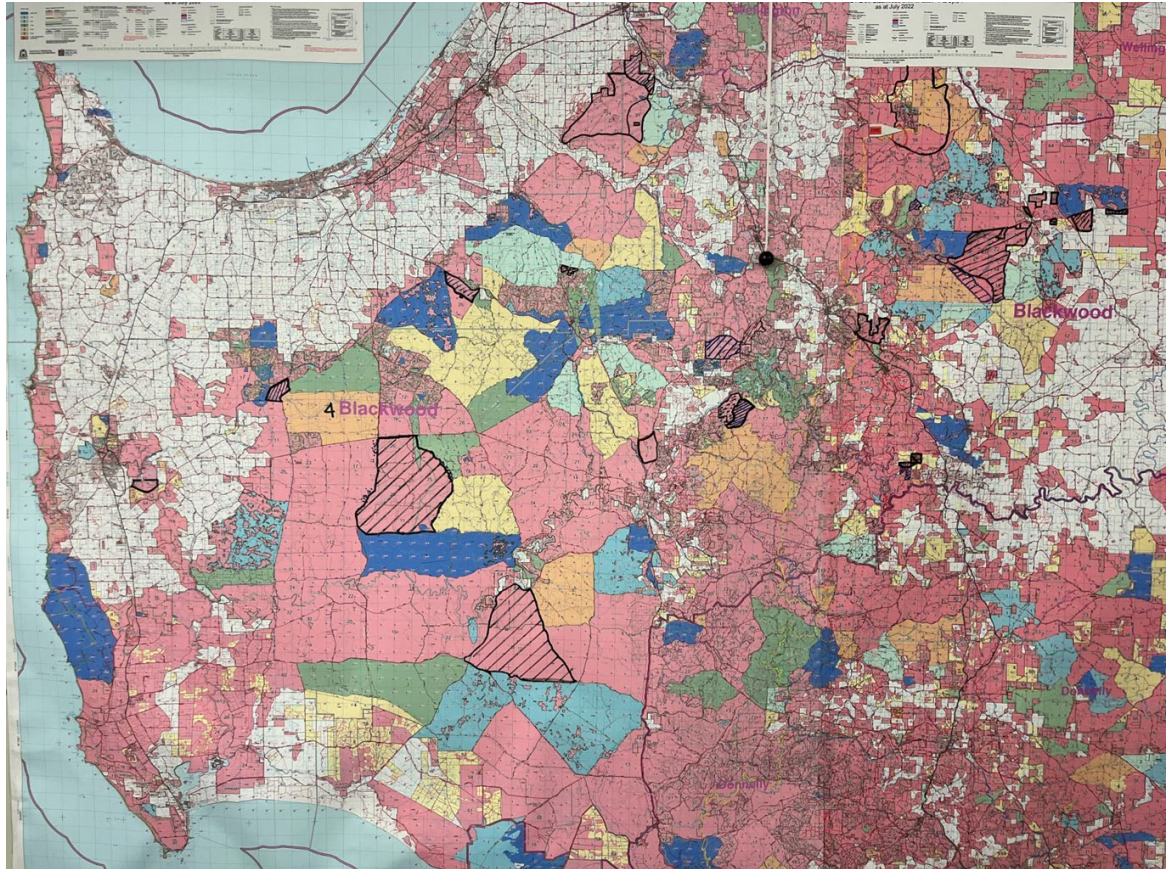
⁷ DFES and DBCA maintain more than 40 fixed wing remote regional forward operating bases (FOB) that can be mobilised at very short notice. FOBs have prepositioned water supply, reloading pumps and ground crews and other aerial firefighting support services.



Striking the balance







Margaret River 2011



Vulnerable Communities



Community protection







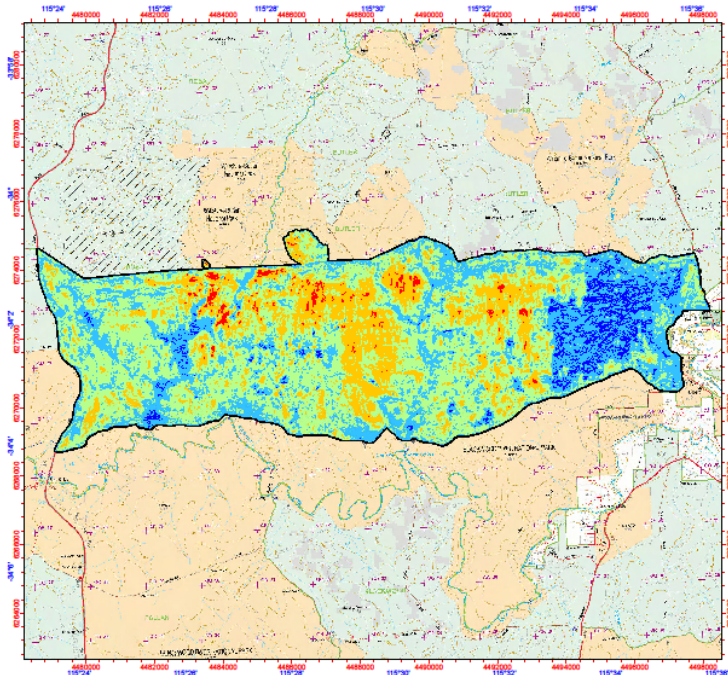
Spring Vs Autumn



Fire Frequency




Burn Severity Mapping



BWD_136 LAYMAN BURN SEVERITY

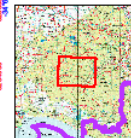
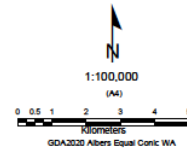
Legend

 Completed Burns Spring 2021

BWD_136 Layman 07/12/2021 dNBR				
Category	Value	Pixels	%	Area (ha)
Severe	<= 35	30986	1%	309.32
High	35 - 31	164110	19%	1,640.55
Moderate	30 - 26	391346	46%	3,912.14
Low	25 - 16	247918	29%	2,478.34
Unburnt	> 15	37301	4%	372.88
Total		851611	100%	8513.23

Notes:

Burn severity mapping based on the difference in normalised burn ratios (dNBR) images, sourced from Sentinel 2, between 20/11/21 and 07/12/21. Edging and core commenced and completed on 09/12/21. Field inspection undertaken on 09/12/21.



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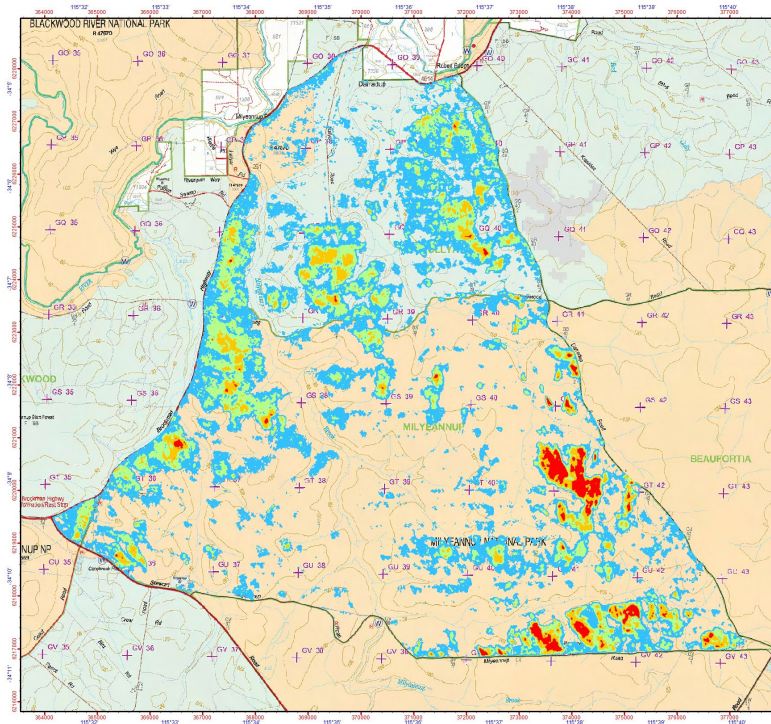
Produced Dec, 2021

Graticule shown at 2 minutes intervals
Grid shown at 2000 metre intervals

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Soft Edge Mosaics

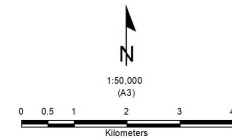


BWD135 DRAFT Severity
Image: 26th May

Legend

- Very High
- High
- Moderate
- Low
- Unburnt

Draft area burnt: 2,829ha
Approx 35%



GDA2020 MGA Zone 50



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Grid cells shown at 1 minute intervals
Grid shows at 1000 metre intervals

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Cultural Fire Management



114°54'0"E 115°0'0"E 115°6'0"E 115°12'0"E 115°18'0"E 115°24'0"E 115°30'0"E 115°36'0"E 115°42'0"E 115°48'0"E 115°54'0"E

32°28'0"S
32°34'0"S
32°40'0"S
32°46'0"S
32°52'0"S
33°0'0"S
33°6'0"S
33°12'0"S
33°18'0"S
33°24'0"S
33°30'0"S

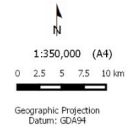


114°54'0"E 115°0'0"E 115°6'0"E 115°12'0"E 115°18'0"E 115°24'0"E 115°30'0"E 115°36'0"E 115°42'0"E 115°48'0"E 115°54'0"E

2015-16 Large bushfires superimposed with Whicher burn in Margaret River area

Legend

- Proposed Whicher Prescribed burn
- WIA Coast - Smoothed



Produced by FIM group,
Department of Biodiversity,
Conservation and Attractions



Job Ref: Ed Harberley presentation
Produced at 11:33 PM on Nov 13, 2021