

# **AGENDA ATTACHMENTS**

# 15<sup>TH</sup> SEPTEMBER 2020

ORDINARY COUNCIL MEETING

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Dot Points on Deputation at the Central Highlands Council meeting, 15 Sep 20, 10.30am by Aly Bock & Vanessa Fletcher – Parasitic infestations causing death in native wildlife in the Central Highlands

## Toxoplasmosis in wildlife (Pademelons)

- From 7 May 2020 29 Aug 2020 we have had 3 Pademelons die in our yard as a result of Toxoplasmosis.
  - Toxoplasmosis: What it is and how it affects wildlife. Carried by cats.
    - Feral cats in our area are a problem.
  - Feral cats: The impact it has on wildlife on our property and overall.
- Due to the risk feral cats pose in the Central Highlands, please advise what action council currently takes? If no action by council, do you have any plans?

• Recommendation: Government to fund a council led program which requires community involvement involving cage traps. Government to pay for cage traps to give to Central Highlands Council. The council puts the call out to Central Highlands residents who have feral cats on their property to advise council, who will in turn distribute an effective amount of traps, residents set traps and alert council when cat is caught in trap – council collect or resident drops to council. Council checks cat for chip, locate owner if there is one. If feral and no owner, euthanise cat

## Sarcoptic mange in wombats

- Since December 2019 to August 2020 we have personally witnessed 9 wombats infected with sarcoptic mange within 5kms from our property. Breakdown of numbers and locations of these wombats. Vanessa's account of wombats with mange in the Central Highlands (i.e. neighbours, Marked Tree Rd, Ouse, and with Joy). The sheer concentration in a small area is an immediate concern!
- What sarcoptic mange is. The results untreated wombats with sarcoptic mange suffer a painful death approx. 2-7 months after infestation.
- Government, DPIPWE, not funding the volunteers on the ground (about 20 in the state including Vanessa from 'Wombat Mange in the Derwent Valley' and Joy from 'Wattle Group Inc'. in
  - Miena). They pay for their own fuel, treatment costs etc.
  - Joy: What she does, her experience with mange.
  - Infected wombats often found during the day road-side.
- Current treatment being trialed and verified by UTAS, Bravecto. Bravecto versus Cydection as treatment options. Trials of Bravecto will take months to finalise and for treatment to become approved for use 'off-label'.
- Recommendations/suggestions:
  - Requires more public awareness know what the signs are, who to contact with a sighting. Council to spread awareness (i.e. via newsletter, digest, emails etc).
  - o Create and run initiatives to encourage more volunteers on the ground
  - Push the government, DPIPWE, to provide financial support to volunteers to cover their basic costs – fuel & treatment costs

# TASMANIAN PLANNING COMMISSION

Our ref:DOC/20/80238Officer:Liza FallonPhone:03 6165 6832Email:tpc@planning.tas.gov.au

31 July 2020

Mr Damien Mackey Planning Consultant Central Highlands Council PO Box 20 Hamilton TAS 7140

By email: <u>dmackey@southernmidlands.tas.gov.au;</u> <u>council@centralhighlands.tas.gov.au</u>

Dear Mr Mackey

## Tasmanian Planning Scheme Central Highlands draft Local Provisions Schedule

I refer to the post lodgement conference for the Central Highlands draft LPS held on Friday, 3 July 2020.

See the attached table summarising the matters discussed and the outcomes and proposed actions (Attachment 1).

At the conference it was agreed that the planning authority would address the clarifications and issues raised at the conference and in further information provided in the attachments to this letter.

Please submit your responses to tpc@planning.tas.gov.au by the end of October 2020.

If you need clarification on any matters, please contact Liza Fallon, Planning Adviser on 03 6165 6828.

Yours sincerely

Claire Hynes Delegate

Encl:	Attachment 1:	Central Highlands draft LPS post lodgement conference, 3 July 2020 – list of actions and outcomes
	Attachment 2:	Central Highlands draft LPS post lodgement conference, 3 July 2020 – zone clarifications table
	Attachment 3:	Central Highlands draft LPS post lodgement conference, 3 July 2020 – overlay clarifications table
	Attachment 4:	Central Highlands draft LPS – written document – WORKING COPY
	Attachment 5:	Central Highlands draft LPS – suggested drafting modifications table

Level 3, 144 Macquarie Street Hobart Tasmania GPO Box 1691 Hobart TAS 7001 Ph: 03 6165 6828 Email: tpc@planning.tas.gov.au www.planning.tas.gov.au

## Attachment 1: Central Highlands draft LPS post lodgement conference - matters discussed

Matters discussed	Outcomes and proposed action	
1. Zone mapping		
<ul> <li>(a) Some instances of zoning change are not identified in the supporting report or appear to have been made in error.</li> <li>(b) Some instances of 'rezoning' may have not have been justified in the supporting report to the level required to demonstrate compliance with the LPS criteria (section 34(2) of the Act).</li> <li>(c) Some minor issues with the PDF maps, such as map legends and scale issues for interpretation.</li> </ul>	<ul> <li>(a) The Tasmanian Planning Commission (TPC) to provide the planning authority (PA) with a list of zoning issues (refer to Attachment 2). PA to confirm intended zoning of each identified zone change by providing comments in column 4 of the table in Attachment 2.</li> <li>(b) PA to provide justification for applying the zone changes, suitable for inclusion as an amendment, or as an addendum, to the Supporting Report. If the zoning comprises an error, the PA is to advise the appropriate zone.</li> <li>(c) PA to rectify and in due course provide amended zone maps in accordance with section 2.8 of Practice Note 7. Note, changes to the zone mapping will <u>not</u> be required until the section 35(5)(b) directions to modify notice has been issued.</li> </ul>	
2. Code mapping		
(a) Spatial application of:	(a) and (b) –	
<ul> <li>(i) the Waterway and Coastal Protection overlay;</li> <li>(ii) the Priority Vegetation Area overlay;</li> <li>(iii) the Local Heritage Place overlay; and</li> </ul>	PA to review the items in the overlay clarification table (refer to Attachment 3) and make a response in column 3. If the PA identifies any mapping changes are needed in response to the issues raised, include a brief description (to assist the TPC drafting a direction in the anticipated section 35(5) notice to modify).	
<ul> <li>(iv) the Electricity Transmission Infrastructure Protection overlay.</li> <li>(b) Some minor technical aspects of the overlay mapping:</li> <li>(i) clearly identifying the map legends and scale issues for interpretation</li> </ul>	Depending on the PA comments provided, any alterations to mapping will be specified in the directions to modify notice under s.35(5) of the Act and in accordance with section 3 of Practice Note 7 and LPS Requirement LP1.7. <u>PA to note:</u> Changes to the overlay mapping by the PA will <u>not</u> be required until the section	
3. New SAP and section 32(4) of the Act	35(5)(b) directions to modify notice has been issued.	
(a) Justification in accordance with section 32(4) of the Act for CHI-S1.0	(a) and (b) –	

Lake Meadowbank Specific Area Plan (SAP) as it is a new SAP.	PA to provide further explanation and clarification on:	
(b) Clarification of the intended planning policy outcome, and other drafting issues (refer to Attachment 5).	<ul> <li>(i) how the SAP meets section 32(4)(a) or section 32(4)(b) of the Act, explaining why it would provide for significant social; or economic; or environmental benefit to the State, the region or the municipality (s.32(4)(a)) or why it relates to an area of land that has particular environmental, economic, social or spatial qualities that require provisions, that are unique to the area of land, to apply to the land in substitution for, or in addition to, or modification of, the provisions of the SPPs (s.32(4)(b));</li> </ul>	
	<ul><li>(ii) the intended planning policy outcome of the SAP, and what the issues are with the existing SAP that warrant the approach in the new SAP;</li></ul>	
	(iii) whether it is intended that the allowable uses in the SAP may occur across the entire SAP area, including land zoned Environmental Management in the northern part of the SAP, and further consider whether this northern part of the SAP should be removed from the spatial extent of the SAP;	
	(iv) how the SAP is intended to work with the underlying zoning and the Natural Assets Code and the Bushfire-Prone Areas Code; and	
	<ul> <li>(v) how the local area objectives detailed in CHI-S1.3 are intended to work, and consider removing them and incorporating into the plan purpose statements (more detail in Attachment 5).</li> </ul>	
	The delegates are open to a second Post Lodgement Conference with the PA to review the specific drafting of the SAP, once the PA has considered the issues raised above, the items in the drafting modification table in Attachment 5, and prepared a revised draft SAP to address all issues raised.	
	Note: the delegates confirm that the SAP can address protection of Aboriginal heritage values, in accordance with Schedule 1, Part 2 Objective (g) of the Act.	
4. Applied, Adopted or Incorporated Documents		
(a) Inclusion of all Applied, Adopted or Incorporated Documents	(a) It was noted that are no Applied, Adopted or Incorporated Documents included in the draft LPS.	
5. Drafting		

(a)	a) Drafting review of written document, including operational issues, use	(a) a	and (b) —
	of purpose statements, local area objectives, and development standards in the SAP. Discussion of Table C6.1 Local Heritage Places.	TPC I	has reviewed the drafting of the LPS for consistency with SPP LPS requirements and
(b)	b) Discussion of other suggested drafting modifications.	Guidelines. A 'track changes' version showing minor editorials is provided in Attachment 4. PA to review and inform the TPC of any issues or concerns.	
		The S High	SAP and code-applying provisions drafting are discussed in the table titled Central lands draft LPS - suggested drafting clarifications table (see Attachment 5):
		(i)	PA to confirm if the SAP is transitioning or is a new SAP; and
		(ii)   	PA to review Table C6.1 Local Heritage Places to ensure is meets code-applying provision requirements as a transitioning provision, and ensure it is in accordance with Practice Note 8.
		Vario Cent to re	ous matters beyond structural and minor editorial are discussed in the table titled ral Highlands draft LPS - suggested drafting clarifications table (see Attachment 5). PA eview and complete response in column 6 of the table in Attachment 5.
6	Supporting justification report		
(a)	Further explanation of several matters, and format for providing revised and additional information. There are numerous instances where further justification is required to be inserted in the supporting	PA to issue attac	o make modifications to supporting report to reflect any necessary changes from the es raised above and below or to provide further explanation as outlined in the chments.
report or made as an adde above and below).	report or made as an addendum (will have been identified from issues above and below).	PA to inser made	o consider the best way to make such modifications to supporting report – either by rting changes into the report (and providing to the Commission as track changes) or e as an addendum.
		Spec	ifically, the following issues are noted:
		(i) 1 1	further explanation of how land has been zoned Rural and Agriculture in the context of the <i>Decision Tree and Guidelines for Mapping the Agriculture and Rural Zones,</i> and the specific application guidelines in Guideline No 1;
		(ii) (ii)	explanation on the intended outcomes of applying the Utilities Zone to infrastructure assets of the Clyde Water Trust, including an explanation on the implications of the Trust to land use decision-making and the application of this zone to weirs on the Clyde River;
		(iii) (	explanation on how the Environmental Management Zone has been spatially applied

	as another section in 5.4 of the supporting report, including the specific application guidelines in Guideline No 1 that have been applied and the application of this zone to lakes, rivers, water bodies and riparian reserves;
	<ul> <li>(iv) explanation on how private reserves/conservation covenants have been considered in the Central Highlands municipality;</li> </ul>
	<ul> <li>(v) clarification on whether the SAP is transitioning or a new SAP – and if new, justification on how the new SAP meets section 32(4)(a) or section 32(4)(b) of the Act, including the intended purpose of the proposed standards and the rationale for the inclusion and operation of each local area objective; and</li> </ul>
	<ul> <li>(vi) justification to support any changes made to the listings of Local Historic Heritage Places, including an explanation of changes made to correct errors and anomalies to addresses and title references.</li> </ul>
	At the post lodgement conference, the PA advised that it is likely more substantial modifications to the Supporting Report will need to go back to Council for endorsement.
7. Amendments to IPS since draft LPS prepared	
(a) All recent amendments have been incorporated in the draft LPS.	(a) It is noted that all recent amendments have been incorporated in the draft LPS.
(b) What happens if other amendments are proposed?	(b) PA to monitor certification of new amendments to the IPS, and accordingly advise the TPC if they request such changes to be reflected and included in the draft LPS.
8. Process for further clarifications	
(a) Confirmation of draft LPS endorsement by Council.	(a) PA to submit the Planning Authority's confirmed Minutes.
(b) Overview of process from here including how notices will be issued by the delegates.	(b) PA identified that once the TPC has issued a section 35(5) notice to modify the draft LPS, the modified draft LPS may need to go back to the PA for Resolution.
(c) Publishing post lodgement conference agenda on iplan and the Council website.	(c) PA agreed to the publishing of the agenda on iplan and the Council's website.



# Central Highlands Council

## DRAFT MINUTES – ORDINARY MEETING – 18<sup>TH</sup> AUGUST 2020

Draft Minutes of an Ordinary Meeting of Central Highlands Council at Bothwell Town Hall, on Tuesday 18<sup>th</sup> August 2020, commencing at 9am.

## 1.0 OPENING

The Mayor advises the meeting and members of the public that Council Meetings, not including Closed Sessions, are audio recorded and published on Council's Website.

Mayor L Triffitt opened the meeting at 9.00am.

## 2.0 ACKNOWLEDGEMENT OF COUNTRY

## 3.0 PRESENT

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer (attended at 9.05 a.m.), Clr A Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner, Clr J Poore, Mrs Lyn Eyles (General Manger), Mr Adam Wilson (Deputy General Manager) and Mrs Katrina Brazendale (Minutes Secretary).

## 4.0 APOLOGIES

Nil

## 5.0 PECUNIARY INTEREST DECLARATIONS

Nil

## 6.0 CLOSED SESSION OF THE MEETING

Moved: Clr J Honner

Seconded: Clr R Cassidy

**THAT** pursuant to *Regulation 15 (1)* of the Local Government (Meeting Procedures) Regulations 2015, Council, by absolute majority, close the meeting to the public to consider the following matters in Closed Session

CARRIED

#### FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

ltem Number	Matter	Local Government (Meeting Procedures) Regulations 2015
1	Confirmation of the Minutes of the Closed Session of the Ordinary Meeting of Council held on 21 July 2020	Regulation 15 (2)(g) – information of a personal and confidential nature or information provided to Council on the condition it is kept confidential

2	Tenders Road Stabilisation and Seal	Regulation 15 (2)(d) – contracts, and tenders, for the supply of goods and services and their terms, conditions, approval and renewal
3	Legal Advice	Regulation 15 (2)(g) – information of a personal and confidential nature or information provided to Council on the condition it is kept confidential
4	Consideration of Matters for Disclosure to the Public	Regulation 15 (8) - While in a closed meeting, the Council, or Council Committee, is to consider whether any discussions, decisions, reports or documents relating to that closed meeting are to be kept confidential or released to the public, taking into account privacy and confidentiality issues

Mrs Katrina Brazendale left the meeting at 9.05 a.m. and Clr A Archer attended the meeting at 9.05 a.m.

## 6.1 MOTION OUT OF CLOSED SESSION

Moved: Clr J Honner

Seconded: Clr R Cassidy

**THAT** the Council:

- (1) Having met and dealt with its business formally move out of the closed session; and
- (2) Resolved to report that it has determined the following:

ltem Number	Matter	Outcome
1	Confirmation of the Minutes of the Closed Session of the Ordinary Meeting of Council held on 21 July 2020	Minutes of the Closed Session of the Ordinary Meeting of Council held on 21 July 2020 were confirmed
2	Tenders Road Stabilisation and Seal	(a) Council accepted the tender from Andrew Walter Constructions Pty Ltd for Ellendale Road stabilisation and seal; and
		(b) Council accepted the tender from Andrew Walter Constructions Pty Ltd for Flintstone Drive, Arthurs Lake stabilisation and seal north of Dolerite Crescent
3	Legal Advice	The advice provided was noted
4	Consideration of Matters for Disclosure to the Public	Matters were considered

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore.

## **OPEN MEETING TO PUBLIC**

Due to COVID-19 a limit on the number of public members in the gallery, at any one time will be applied.

Toni Glowacki, Linda Smith-McKinnell, David Meacheam and Wayne Turale attended the meeting with regard to the Great Lake Community Centre report.

## 7.0 **DEPUTATIONS**

## 7.1 PUBLIC QUESTION TIME

## 8.0 MAYORAL COMMITMENTS

14 July 2020	Meeting - Brian Mitchell MP
14 July 2020	Telstra Telemeeting
15 July 2020	Business of Council
16 July 2020	ABC Interview
16 July 2020	Hydro Tas Telemeeting
16 July 2020	Meeting with Deputy General Manager
16 July 2020	Meeting with Councillor Telemeeting
17 July 2020	Business of Council
18 July 2020	Business of Council
20 July 2020	Business of Council
21 July 2020	Ordinary Meeting Council
21 July 2020	Performance Review General Manager
22 July 2020	LGAT AGM & General Meeting
22 July 2020	Business of Council
22 July 2020	Rate Payer Meeting
23 July 2020	Business of Council
24 July 2020	Business of Council
25 July 2020	Ratho Farm Charity Opening
26 July 2020	Business of Council
27 July 2020	Meeting with Councillor Telephone
31 July 2020	Meeting with Ratepayer
3 August 2020	Meeting with General Manager
5 August 2020	Meeting - Minister Jaensch
6 August 2020	Business of Council
7 August 2020	Business of Council
8 August 2020	Business of Council
10 August 2020	Opening Tenders at the Hamilton Office
10 August 2020	ABC Mayors Monday Interview
10 August 2020	STCA Meeting via Teams
11 August 2020	Planning Workshop
12 August 2020	Meeting with a Councillor

## 8.1 COUNCILLOR COMMITMENTS

### Clr A Campbell

21 July 2020	Ordinary Meeting Council
29 July 2020	Highlands Healthy Connect Working Group Meeting
11 August 2020	Planning Workshop
Cir J Honner	
21 July 2020	Ordinary Meeting Council
7 August 2020	Ratepayer inquiry
11 August 2020	Planning Workshop
Clr A W Bailey	
21 July 2020	Ordinary Meeting Council
27 July 2020	Discussions with Mayor
31 July 2020	Discussions with Acting Works manager
11 August 2020	Planning Workshop
12 August 2020	Discussions with Mayor
12 August 2020	Discussions with Acting Works Manager

## STATUS REPORT COUNCILLORS

Item No.	Meeting Date	Agenda Item	Task	Councillor Responsible	Current Status	Completed Date
			Derwent Catchment Project - Strategic Plan for the		On going to provide Council with updates each Council	
1	18-Feb-20	12.1	development of Agriculture and Tourism	Deputy Mayor Allwright	meeting	
					On going to provide Council with updates each Council	
2	18-Feb-20	16.3	AFLT Statewide Facilities Plan	Deputy Mayor Allwright	meeting	
				Mayor Triffitt, Clr Campbell &	On going to provide Council with updates each Council	
3	18-Feb-20	16.5	Cattle Hill Wind Farm Community Fund Committee	Clr Honner	meeting	

## 8.2 GENERAL MANAGER'S COMMITMENTS

21 July 2020	Ordinary Council Meeting
22 July 2020	LGAT AGM & General Meeting
23 July 2020	Meeting Izaak de Winter
3 August 2020	Zoom Meeting Dixie Emmerton
3 August 2020	Meeting Mayor and Damian Bester
10 August 2020	STCA Meeting via Teams
11 August 2020	Planning Workshop

## 8.2 DEPUTY GENERAL MANAGER'S COMMITMENTS

21 July 2020	Ordinary Council Meeting
22 July 2020	Meeting with Mr Winter Chartered Accountant
23 July 2020	MAV Insurance Online Contractor Risk Management Workshop
23 July 2020	LGAT Health & Wellbeing Project Advisory Group
23 July 2020	Meeting with Mr Winter Chartered Accountant
28 July 2020	Southern Region Social Recovery Committee Meeting
30 July 2020	Farewell - Ron Sanderson, Brighton Council General Manager
31 July 2020	Meeting with Telstra
11 August 2020	Southern Region Social Recovery Committee Meeting
12 August 2020	Northern Local Government Safety Group Meeting

Mr Graham Rogers (Manager Development Services) attended the meeting at 10.02 a.m.

CARRIED

## 9.0 NOTIFICATION OF COUNCIL WORKSHOPS HELD

Planning Workshop held on 11<sup>th</sup> August 2020

## 9.1 FUTURE WORKSHOPS

Workshop re proposed By Law - 8<sup>th</sup> September 2020 (Tuesday) 10.30 a.m. being held at the Bothwell Hall

## 10.0 MAYORAL ANNOUNCEMENTS

## 11.0 MINUTES

### 11.1 RECEIVAL DRAFT MINUTES ORDINARY MEETING

<u>Moved</u>: Clr J Honner

Seconded: Clr A W Bailey

THAT the Draft Minutes of the Open Council Meeting of Council held on Tuesday 21<sup>st</sup> July 2020 be received.

#### FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 11.2 CONFIRMATION OF MINUTES ORDINARY MEETING

Moved: Clr R Cassidy

Seconded: Clr J Honner

**THAT** the Minutes of the Open Council Meeting of Council held on Tuesday 21<sup>st</sup> July 2020 be confirmed.

#### FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 12.0 BUSINESS ARISING

- 15.1 Correspondence sent by Development & Environmental Services Manager
- 15.2 Correspondence sent by Development & Environmental Services Manager
- 16.1 Correspondence sent by Acting Works and Service Manager
- 16.2 Correspondence sent by Acting Works and Service Manager
- 16.3 Correspondence sent by Acting Works and Service Manager
- 16.4 Correspondence sent by General Manager
- 17.2 Correspondence sent by General Manager
- 17.3 Correspondence sent by Deputy General Manager
- 17.4 Correspondence sent by Deputy General Manager
- 17.5 Council policy on council website
- 17.6 Council policy on council website
- 17.7 Council policy on council website
- 17.8 Council policy on council website
- 17.9 Council policy on council website
- 17.10 Correspondence sent by Deputy General Manager
- 17.11 Correspondence sent by Deputy General Manager
- 17.12 Correspondence sent by Deputy General Manager
- 17.13 Correspondence sent by General Manager

17.14 Correspondence sent by Deputy General Manager

17.15 Correspondence sent by General Manager

17.16 Correspondence sent by General Manager

17.17 Correspondence sent by General Manager

17.18 Correspondence sent by General Manager

## 13.0 DERWENT CATCHMENT PROJECT REPORT

Moved: Clr A Campbell

Seconded: Clr J Poore

**THAT** the Derwent Catchment Project report be received.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 14.0 FINANCE REPORT

Moved: Clr J Poore

Seconded: Clr J Honner

**THAT** the Finance Reports be received.

### FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 15.0 DEVELOPMENT & ENVIRONMENTAL SERVICES

Moved: Clr J Honner

Seconded: Deputy Mayor J Allwright

THAT the Development & Environmental Services Report be received.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

# 15.1 DA2020/21 SUBDIVISION – REORGANISATION OF BOUNDARIES 652 ELLENDALE ROAD, ELLENDALE

**THAT** Council In accordance with section 57 of the Land Use Planning and Approvals Act 1993 the Planning Authority Approve the Development Application DA2020/21 for subdivision (reorganisation of boundaries) at 652 Ellendale Road, Ellendale, subject to conditions in accordance with the Recommendation.

Moved: Deputy Mayor J Allwright

Seconded: Clr J Poore

The proposal is assessed to substantially comply with the requirements of the Central Highlands Interim Planning Scheme 2015 and so in accordance with section 57 of the Land Use Planning and Approvals Act 1993, the Planning Authority is recommended to approve the application for DA2020/21 for subdivision (reorganisation of boundaries) at 652 Ellendale Road, Ellendale, subject to the conditions below.

## **Recommended Conditions**

General

### CARRIED

## CARRIED

- The subdivision layout or development must be carried out substantially in accordance with the application for planning approval, the endorsed drawings and with the conditions of this permit and must not be altered or extended without the further written approval of Council.
- 2) This permit shall not take effect and must not be acted on until 15 days after the date of receipt of this permit unless, as the applicant and the only person with a right of appeal, you notify Council in writing that you propose to commence the use or development before this date, in accordance with Section 53 of the Land Use Planning and Approvals Act 1993.

#### Easements

 Easements must be created over all drains, pipelines, wayleaves and services in accordance with the requirements of the Council's Municipal Engineer. The cost of locating and creating the easements shall be at the subdivider's full cost.

### Covenants

4) Covenants or other similar restrictive controls that conflict with any provisions or seek to prohibit any use provided within the planning scheme must not be included or otherwise imposed on the titles to the lots created by this permit, either by transfer, inclusion of such covenants in a Schedule of Easements or registration of any instrument creating such covenants with the Recorder of Titles, unless such covenants or controls are expressly authorised by the terms of this permit or the consent in writing of the Council's General Manager.

### Services

5) The Subdivider must pay the cost of any alterations and/or reinstatement to existing services, Council infrastructure or private property incurred as a result of the proposed subdivision works. Any work required is to be specified or undertaken by the authority concerned.

### Access

6) A vehicle access must be provided from the road carriageway to each lot. Accesses must be located and constructed in accordance with the IPWE Aust. (Tasmania Division) standard drawings, the approved Bushfire Hazard management Report and to the satisfaction of Council's General Manager.

#### Final plan

- 7) A final approved plan of survey and schedule of easements as necessary, together with one copy, must be submitted to Council for sealing. The final approved plan of survey must be substantially the same as the endorsed plan of subdivision and must be prepared in accordance with the requirements of the Recorder of Titles.
- 8) A fee of \$245.00, or as otherwise determined in accordance with Council's adopted fee schedule, must be paid to Council for the sealing of the final approved plan of survey.
- 9) All conditions of this permit, including either the completion of all works and maintenance or payment of security in accordance with this permit, must be satisfied before the Council seals the final plan of survey for each stage.
- 10) It is the subdivider's responsibility to notify Council in writing that the conditions of the permit have been satisfied and to arrange any required inspections.

#### The following advice applies to this permit:

- a) This permit does not imply that any other approval required under any other legislation has been granted.
- b) This planning approval shall lapse at the expiration of two (2) years from the date of the commencement of planning approval if the development for which the approval was given has not been substantially commenced. Where a planning approval for a development has lapsed, an application for renewal of a planning approval for that development shall be treated as a new application.

#### CARRIED

#### FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 15.2 GREAT LAKE COMMUNITY CENTRE PROPOSAL

Moved: Clr A Archer

THAT Council provide a letter of support to the Great Lake Community Centre for the grant application.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

Seconded: Clr R Cassidy

Toni Glowacki, Linda Smith-McKinnell, David Meacheam and Wayne Turale left the meeting at 10.34 a.m.

# 15.3 DA 2010/19 – CATTLE HILL WIND FARM PROGRESS UPATE COMMENCEMENT OF OPERATIONS

Noted

## **15.4 GENERAL BY LAW**

Moved: Clr J Poore

Seconded: Clr J Honner

**THAT** Council proceed with General By-Law workshop to be held on the 8<sup>th</sup> September 2020.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

Mr Barry Harback (Acting Works & Services Manager) attended the meeting at 10.43 a.m.

## **15.5 REVIEW OF DOG MANAGEMENT POLICY**

Moved: Clr A Campbell

Seconded: Clr R Cassidy

**THAT** all comments on the Dog Management Policy be forwarded to the Manager Development and Environmental Services by Friday 4<sup>th</sup> September 2020.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## **15.6 DES BRIEFING REPORT**

## PLANNING PERMITS ISSUED UNDER DELEGATION

The following planning permits have been issued under delegation during the past month.

## NO PERMIT REQUIRED

DA NO.	APPLICANT	LOCATION	PROPOSAL
2020 / 00047	Design To Live Pty Ltd	53 Dolerite Crescent,	Dwelling, Carport & Boat Shed
		Flintstone	

CARRIED

2020 / 00048	Katree Designs	11 Ruby Road, Miena	Dwelling
2020 / 00049	D E & S J Marshall	81 Wilburville Road, Wilburville	Outbuilding

## PERMITTED

DA NO.	APPLICANT	LOCATION	PROPOSAL
2020 / 00035	J A Branch	5 Michael Street, Bothwell	Outbuilding

### DISCRETIONARY

DA NO.	APPLICANT	LOCATION	PROPOSAL
2020 / 00034	S Greenwood	34 Johnsons Road, Miena	Dwelling and Outbuilding
2020 / 00033	Smeekes Drafting Pty	644 Lower Marshes Road,	Resource Processing (Change of
	Ltd	Apsley	Use - Farm Shed to Distillery)

Mr Graham Rogers (Manager Development Services) left the meeting at 10.47 a.m.

## 16.0 WORKS & SERVICES

Moved: Clr J Honner

Seconded: Clr A W Bailey

THAT the Works & Services Report be received.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

Moved: Clr J Poore

Seconded: Clr R Cassidy

THAT Council review the snow grading policy.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, CIr J Honner and CIr J Poore

#### 16.1 **REYNOLDS NECK ROAD AND CRAMPS BAY ROAD**

Moved: Clr A W Bailey

THAT Council write a letter to the concerned rate payers and advise that Council will be re-sheeting the roads during the summer period.

Seconded: Clr R Cassidy

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, CIr J Honner and CIr J Poore

CARRIED

#### CARRIED

## 16.2 FRANKLIN PLACE FOOTPATH HAMILTON

Moved: Clr A Archer

Seconded: Clr A W Bailey

THAT Council write to Mr Zantuck and advise the following

- make immediate repairs to the section of the footpath
- formal wheelchair access is unavailable due to legislative requirements
- Council will consider footpaths in all areas, in the next budget discussions for 2021/2022.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, CIr J Honner and CIr J Poore

#### MCGUIRES MARSH ROAD 16.3

Moved: Clr J Poore

Seconded: Clr A Archer

THAT Council write to Mr Madersack to advise him, that this item was discussed at the council meeting, once he has completed his logging and done what he deems is suitable repairs to the road, he contacts council so that the road can be inspected. CARRIED

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, CIr J Honner and CIr J Poore

Moved: Clr Archer

Seconded: Deputy Mayor J Allwright

THAT Council write to Mr Rainnie thanking him very much for making Council aware, of the issue and advise that's it has been duly noted. CARRIED

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, CIr J Honner and CIr J Poore

#### 16.4 WADDAMANA ROAD

Moved: Clr A Archer

Seconded: Clr R Cassidy

**THAT** Council write to Goldwind advising that council intends to undertake the repairs due to the safety of the road, Council expect Goldwind to make payment for those works undertaken to rectify the road and Goldwind should abide by the restitution that they have with Council.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, CIr J Honner and CIr J Poore

#### RUBBISH ON SIDES OF ROADS 16.5

## Noted

CARRIED

CARRIED

## 16.6 COAL TRUCK CARTAGE – HAMILTON TO FINGAL

## Noted

## 17.0 ADMINISTRATION

Mr Barry Harback (Acting Works & Services Manager) left the meeting at 11.45 a.m.

## 17.1 REGIONAL CONNECTIVITY PROGRAM

Moved: Clr J Honner

Seconded: Clr A Campbell

THAT Council:

a) Write a Letter of support for the upgrading of the Derwent Bridge and Overland Track areas; and a further letter requesting details on the next mobile black spot funding round and what would be required from Council

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

The meeting was suspended for lunch at 11.57 a.m. and resumed at 12.40 p.m.

## 17.2 REQUEST FOR RATES REMISSION

Moved: Clr A W Bailey

Seconded: Clr R Cassidy

THAT Council remit the Solid Waste Garbage Fee on property 10-0400-03595, 137 Little Den Road Millers Bluff. CARRIED

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 17.3 POLICY NO 2013- 12 TREE & VEGETATION VANDALISM POLICY

Moved: Clr J Honner

Seconded: Clr A Campbell

**THAT** Council approve Policy 2013 - 12 Tree & Vegetation Vandalism Policy.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 17.4 POLICY NO 2014- 28 ANNUAL LEAVE POLICY

Moved: Clr A Archer

Seconded: Clr J Honner

THAT Council approve Policy 2014 - 28 Annual Leave Policy.

## CARRIED

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 17.5 POLICY NO 2015- 40 GIFTS & BENEFITS POLICY

Moved: Clr J Poore

THAT Council approve Policy 2015 - 40 Gifts & Benefits Policy.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

Seconded: Clr A W Bailey

## 17.6 POLICY NO 2017- 51 STAFF CODE OF CONDUCT POLICY

Moved: Clr A Archer

Seconded: Clr R Cassidy

THAT Council approve Policy 2017- 51 Staff Code of Conduct Policy; subject to the amendment.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 17.7 COMMUNITY DONATION

Moved: Clr A Campbell

Seconded: Clr A W Bailey

THAT Council donate \$250.00 to the 'Common Ground' Charity fundraiser.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 17.8 CATTLE HILL WIND FARM COMMUNITY FUND

## Noted

## 17.9 TASMANIAN GOVERNMENT'S BUY LOCAL POLICY

## Noted

## 18.0 SUPPLEMENTARY AGENDA ITEMS

Moved: Clr J Honner

Seconded: Clr A W Bailey

THAT Council consider the matters on the Supplementary Agenda.

## FOR the Motion:

CARRIED

CARRIED

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 18.1 REQUEST FOR RATES REMISSION

Moved: Clr A Campbell

Seconded: Clr S Bowden

THAT Council remit the General Rate of \$423.05 on property 03-0201-03706 (PID 9990561).

#### FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 18.2 2020 AUSSIE BACKYARD BIRD COUNT

Moved: Deputy Mayor J Allwright Seconded: Clr A W Bailey

THAT Council enrol in the Aussie Backyard Bird Count for 2020 at the Robin Level.

### FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## **18.3 ECONOMIC IMPACT REPORT CLYDE RIVER TRUST**

Moved: Clr R Cassidy

Seconded: Clr J Poore

**THAT** Council write a letters to Guy Barnett, Shane Broad and Mike Brewster to guarantee for secure 100% of up to 300meg of water for the Bothwell Township as an absolute priority.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

Moved: Clr R Cassidy

Seconded: Clr A W Bailey

**THAT** Council write a letter to Guy Barnett requesting resources and state funds to address the flooding regarding the clean-up of the Clyde River at the entrance of Andrews Bridge.

## FOR the Motion:

Mayor L Triffitt, Deputy Mayor J Allwright, Clr A Archer, Clr A W Bailey, Clr S Bowden, Clr A Campbell, Clr R Cassidy, Clr J Honner and Clr J Poore

## 19.0 CLOSURE

Mayor L Triffitt closed the meeting at 1.45 pm

CARRIED

## CARRIED



## MINUTES OF THE BOTHWELL FOOTBALL CLUB & COMMUNITY CENTRE MANAGEMENT COMMITTEE MEETING HELD AT THE BOTHWELL COUNCIL CHAMBERS AT 10.50AM ON TUESDAY 1<sup>st</sup> SEPTEMBER 2020

## 1.0 PRESENT

Clr Honner (Chairperson), J Eyles (Bothwell Cricket Club), T Brazendale (Bothwell Football Club), J Miller (Community Representative) & R Jones (Community Representative)

## IN ATTENDANCE

A Wilson (Deputy General Manager) & K Bradburn (Minutes Secretary)

## 2.0 APOLOGIES

Clr Bailey & B White (Exercise Wellness Group)

## 3.0 CONFIRMATION OF MINUTES

Moved J Miller

Seconded R Jones

**THAT** the Draft Minutes of the Bothwell Football Club & Community Centre Management Committee Meeting of Council held on Tuesday 1<sup>st</sup> October 2019 be confirmed

Carried

#### FOR the Motion:

Clr Honner, J Eyles, R Jones, T Brazendale & J Miller

## 4.0 COVID-19 REQUIREMENTS (COVID SAFE PLANS)

Committee Members were provided with a copy of Council's Covid Safe Plan which covers the Bothwell Football Club and Community Centre.

General covid requirements were discussed and members were advised that Covid Safe Plans will be required from each respective club for approval by Council's Environmental Health Officer prior to the use of the recreation ground and facilities.

## 5.0 OTHER BUSINESS

## Crockery

Mrs K Bradburn advised that a 100 piece setting of crockery and cutlery had been purchased and is locked in a cupboard in the store room.

## Locks on Cupboards in Storeroom

It was noted that all three cupboards in the store room are keyed alike. The intention was to allocate a cupboard each to the Cricket Club, Football Club and Council.

Mrs K Bradburn to look into options to have the locks changed or some other form of lock placed on the cupboards.

## Heat Pumps

Mrs K Bradburn advised that Council has budgeted for the installation of heat pumps at the Community Centre. Two quotes have been received and will be presented to Council for consideration.

## Security Cameras

Mrs K Bradburn advised that two quotes had been received to install security cameras at the Community Centre. One of the quotes included a wireless link to the Council Chambers to allow remote access and viewing of footage and would give the recreation ground a permanent access to the internet for future use.

It was suggested that a guest password could be set up for some limited internet access at the ground for use by the hirer of the facility.

Quotes will be presented to Council for consideration.

## Gravel at Front of Community Centre

It was agreed that the gravel at the front of the Community Centre continues to be a problem as small rocks are walked into the Community Centre. Various options were discussed.

It was agreed to invite the Manager Works & Services to the next meeting to discuss options.

## **Grant Funding**

Clr J Honner suggested that the Bothwell Football and Cricket Clubs apply for funding through the Cattle Hill Wind Farm Community Fund. Funding for a scoreboard was discussed.

## **Committee Members**

It was agreed that Mrs K Bradburn contact Janene Glover from Freedom Health and Wellbeing to see if they would like to nominate a member to join the Committee.

## 6.0 NEXT MEETING

Tuesday 27<sup>th</sup> October commencing at 6.00pm

## 7.0 CLOSURE

There being no further business CIr Honner thanked everyone for attending and closed the meeting at 11.30am.



# Policy No. 2017-49

# **Public Comment on Planning Agenda Items**

# at Committee Meetings

Document:	Start Date: 15 September	Page Reference:
	2020	
Public Comment on Planning Agenda	Review Date: 31 December	Page <b>1</b> of <b>4</b>
Items at Committee Meetings	2024	

## 1.0 Purpose:

The purpose of this policy is establish clear guidelines for public comments and/or questions on agenda items when Council is acting as Planning Authority.

## 2.0 Objectives:

The Land Use Planning and Approvals Act 1993 ("LUPA Act") provides a process for people affected by planning decisions to submit statutory written representations to the Council in its capacity as the planning authority within the statutory notice period.

The LUPA Act requires the planning authority to consider the written representations it receives in the statutory notice period.

The LUPA Act does not provide for how a Council may consider representations made to it other than in accordance with the statutory process. The purpose of this policy is to provide a fair and transparent process that will apply to requests to speak at a Council meeting made by a member of the public in its capacity as planning authority.

The objectives of this policy are:

- (a) To provide a fair and transparent process to apply to all requests to speak at Council meetings on issues relating to the Council's role as the Planning Authority;
- (b) To inform applicants and the public of Council meeting procedures and expectations; and
- (c) To maintain order and process during Council meetings.

## 3.0 Policy:

## 3.1 Planning Committee Meetings

A person may speak about an item on the agenda to be considered by the Planning Committee during Public question time or at the beginning of the item, as determined by the Chairperson.

Speakers should follow the procedure detailed in section 4 below.

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	2020	
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## 4.0 Planning Committee Meeting Procedure :

- 4.1 Only those people that have:
  - (a) Initiated the planning decision under the Land Use Planning and Approvals Act 1993 (Act) ("Applicant"); or
  - (b) The owner of the land subject to the planning decision ("Owner"); or
  - (c) made a representation within the statutory notice period in relation to a planning decision ("Representor")

will be entitled to speak at a Planning Committee Meeting ("Meeting").

- 4.2 Prior to the commencement of the Meeting a person who wishes to address the Meeting must:
  - 4.2.1 Notify the Council in writing by close of business on the Friday prior to the Planning Committee meeting of the person's intention to address the Meeting, including with the following detail:
    - (a) Identify whether the person is the Applicant or a Representor;
    - (b) If a Representor, the date the person made a representation in respect to the planning decision; and
    - (c) the relevant planning decision by the Council allocated number, or by reference to the land to which it relates (eg, by certificate of title, PID or address);
    - (d) the question or topic on which the person wishes to speak.
  - 4.2.2 Notify the Chairperson of his or her arrival prior to the commencement of the PCM and complete a register.
- 4.3 If a person has complied with the procedure in 4.2, the person will be entitled speak at the meeting.
- 4.4 The Chairperson will determine the order of speakers.
- 4.5 All people entitled to speak will be given equal opportunity to speak.
- 4.6 Each person will be limited to 5 minutes unless otherwise allowed by the Chairperson.
- 4.7 A person may make a statement only or ask questions that are directed through the Chairperson.

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- 4.8 A person may not direct questions to staff members unless directed through the Chairperson. The Chairperson may ask staff members to answer any question.
- 4.9 The Council is under no obligation to answer questions. Questions may be taken on notice by the Planning Committee. The Planning Committee may answer such questions at its discretion.
- 4.10 (a) Planning Committee members may ask questions of the person speaking.
  - (b) Councillors present who are not members of the Planning Committee may ask questions or seek clarification only at the discretion of the Chairperson.
- 4.11 The Applicant may be given notice of a person's intention to speak. The Applicant will be given an opportunity to speak in reply, limited to 5 minutes unless otherwise allowed by the Chairperson. If the Applicant is not present at the Meeting, the Planning Committee may provide the Applicant with an opportunity to respond.
- 4.12 No debate or argument is permitted at any time.
- 4.13 Members of the gallery must not interject while another party is speaking.

# 5.0 Weight to be given to verbal representations made at Planning Committee Meetings in planning decisions

- 5.1 The Planning Committee is under no obligation to consider or to give any weight to any oral submission or questions made at its Meeting.
- 5.2 The Planning Committee is under no obligation to give reasons if it chooses not to rely upon or give weight to a verbal representation made pursuant to this Policy.
- 5.3 The hearing of an oral submission at a Meeting by the Planning Committee does not take any special weight or precedence over the written application and representations made.

## <u>Note</u>

This Policy will also apply to Planning Items that are being considered by the Planning Authority at an Ordinary Meeting of Council, without firstly being considered by the Planning Committee.

Document:	Start Date: 15 September 2020	Page Reference:
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# Climate Change Information for Decision Making

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Southern Tasmanian COUNCILS AUTHORITY

## THE PURPOSE OF THIS DOCUMENT

This document summarises key climate indices useful to operational council staff. The climate indices were selected the operational, tactical and strategic climate information needs for decision makers within all of the local councils of southern Tasmania.

This document expands upon previously produced *local* profiles and has been developed to support decision making across Central Highlands's strategic, operational, service, adaptation and emergency management planning functions.

## BACKGROUND

The Climate Change Information for Decision Making Central Highlands has been developed using outputs from the Climate Futures for Tasmania Project and the Climate Futures Australasian Projections 2019 data archive, developed by the University of Tasmania's Climate Futures Programme.

All values are based on the projections generated by the Climate Futures Programme, using previously published results. Descriptive documentation and supporting reports can be found here: http://climatefutures.org.au. This document is to be reviewed and updated when more up-to-date information becomes available, or at 5-yearly intervals. It should be considered in conjunction with Central Highlands's policies and strategies, alongside technical and industry standards.

Values given are the multi-model mean from an ensemble of six downscaled global climate models based on the business as usual high emissions scenario RCP8.5 (the scenario human society is currenty most closely following). Averaging across the ensemble smooths out the interannual variability, revealing the forced climate response.

For most variables, the range between climate models is **EXTREME EVENTS** not large relative to the percent change projected into the future.

grid cells, based on average temperature during the base- scenario RCP8.5): line period, 1961–1990. These three groups of values were then analysed and presented separately. This provides councils with greater utility when mangaing a diverse landscape (NB: municialities with small spatial extents have limited differences captured across the municipality at  $10 \text{km}^2$  resolution). It is the responsibility of the user to determine which values may be most appropriate for a given application. For example, if building a road over Vinces Saddle, it would be more useful to apply values from the cooler table, whereas for estimating future highintensity rainfall within Kingston CBD, values from the warmer table would be more appropriate.

## CURRENT CLIMATE AND RECENT TRENDS

All Tasmanian municipalities have a temperate, maritime climate with relatively mild winters at low elevations, transitioning towards warm alpine winters at higher elevations. Long-term average temperatures have risen in the decades since the 1950s at a rate of up to 0.1 °C per decade, with this rate expected to increase from 2020 onwards.

Despite covering small geographic areas all municipalities experience marked rainfall gradients, with average annual rainfall from about 600 mm per year at lower elevations and about 1500 mm per year at higher elevations. There has been a decline in average annual rainfall since the mid 1970s, and this decline has been strongest in autumn and enhanced over higher elevation regions.

The changes in climate that are most likely to impact upon the each municipality's infrastructure, roads, the loin direct consultation with council personnel and reflect. In order to capture the regional variability, the data were cal community and the environment are an increase in inseparated into cool ( $< 25^{th}$  percentile), average (between tensity of extreme events. Potential impacts by 2100 are the  $25^{th}$  and  $75^{th}$  percentile) or warm (>  $75^{th}$  percentile) as follows (following the business as usual high emissions

- (warmer days and nights).
- to erosion or flooding.
- 5-year event by 2090.

• Increased evaporation and longer dry periods coupled with more extreme temperatures are likely to enhance the occurrence and intensity of bushfires.

• The frequency of extremely hot days (>  $40^{\circ}$ C) is projected to increase. Heat wave frequency is projected to remain stable, but will increase in intensity

• The Annual Exceedance Probability (AEP) is a measure of the rarity of an event. Rainfall AEPs are expressed as the probability that a given rainfall total accumulated over a given duration will be exceeded in any one year. Heavier rainfall events are expected within a warmer climate. High daily runoff events are likely to increase, including those that may lead

• Inundation along all coastal frontage will increase due to sea level rise. This means the coastal indunation AEP values for all probability events will increase in intensity. The current 100-year coastal inundation event may become a 50-year event by 2030, and a

## Table 1: Central Highlands local government area: Cool subregions

Projected changes in selected climate variables for each 20-year time period from 2001 to 2100 relative to the baseline period 1961–1990. All values are reported following the RCP8.5 emissions scenario. Changes reported relative to the 1961-1990 baseline period.

Climata Variable	1961 - 1990		2001-20	20		2021-20	40		2041-20	60		2061-20	80		2081-21	00
Chinate variable	value	value	change	% change												
Average annual daily mean (°C)	6.2	6.8	0.6	9.4	7.4	1.2	19.2	8.1	1.9	30.9	9	2.7	44.2	9.6	3.4	55.2
Average daily maximum temperature (°C)	10.7	11.3	0.7	6.3	12	1.4	12.9	12.9	2.2	20.6	13.8	3.1	29.4	14.5	3.9	36.4
Average daily minimum temperature (°C)	1.8	2.3	0.5	28.2	2.8	1	57.4	3.4	1.6	93.2	4.1	2.4	133.6	4.7	3	168.9
Hottest daily temperature of the year (°C)	29.5	30.4	0.9	3.2	31.2	1.7	5.7	32.3	2.8	9.4	33.2	3.6	12.4	33.9	4.4	14.8
Temperature of warmest days $[99^{th} \text{ percentile}]$ (°C)	25.2	26.2	1	3.9	27	1.8	7.2	28	2.8	11.3	29.1	3.9	15.4	29.7	4.5	18
Temperature of warmest nights $[99^{th} \text{ percentile}]$ (°C)	11.7	12.4	0.7	6.1	13.2	1.4	12.4	14	2.3	19.8	15.1	3.4	28.8	15.5	3.8	32.4
Temperature of coldest nights $[1^{st} \text{ percentile}]$ (°C)	-5.9	-5.3	0.6	10.1	-4.9	1	16.6	-4.3	1.6	27.6	-3.5	2.4	40.3	-2.8	3.1	52.4
Average annual frost risk days $(<2^{\circ}C)$	198	178	-20	-10.1	160	-38	-19.4	137	-61	-30.6	113	-85	-42.8	94	-104	-52.7
Average annual freeze risk days $(<0^{\circ}C)$	123	107	-17	-13.5	92	-31	-25.5	74	-50	-40.3	56	-68	-54.9	43	-81	-65.5
Average annual summer days $(>25^{\circ}C)$	4	6	2	40.6	9	4	99.5	13	8	190.1	18	13	306.2	23	19	427.5
Average annual hot days $(>30^{\circ}C)$	0	1	0	103.4	1	1	204.6	2	1	515.5	3	2	986.9	4	4	1521.6
Average annual extreme heat days $(>40^{\circ}C)$	<1	<1	<1	NA												
Mean Minimum Asphalt Critical Viscosity	16900	20600	3700	21.9	25200	8300	49.1	31900	15000	88.8	42400	25500	150.9	53400	36500	216
Average annual evaporation (mm)	660	684	25	3.7	725	65	9.9	780	120	18.2	835	175	26.6	914	254	38.6
Average annual rainfall (mm)	1399	1321	-78	-5.6	1249	-150	-10.7	1216	-183	-13.1	1184	-215	-15.4	1214	-185	-13.2
Seasonal rainfall - Winter (mm)	563	538	-25	-4.4	514	-49	-8.6	505	-58	-10.3	502	-61	-10.9	514	-48	-8.6
Seasonal rainfall - Spring (mm)	339	317	-22	-6.5	283	-56	-16.4	277	-62	-18.2	280	-58	-17.3	255	-83	-24.6
Seasonal rainfall - Summer (mm)	203	191	-12	-6.1	196	-8	-3.8	186	-17	-8.3	169	-34	-16.8	183	-21	-10.2
Seasonal rainfall - Autumn (mm)	316	304	-12	-3.8	284	-32	-10.2	274	-42	-13.2	259	-56	-17.9	276	-39	-12.4
Annual maximum daily rainfall (mm)	102	105	2	2.2	114	12	11.4	111	8	8.3	111	9	8.3	127	25	24.1
Rainfall Extreme - 24hr 10% AEP $(mm)^a$	125	129	4	3	133	8	6.1	137	12	9.9	143	18	14.1	147	22	17.7
Rainfall Extreme - 24hr 5% AEP $(mm)^a$	145	149	4	3	153	9	6.1	159	14	9.9	165	20	14.1	170	26	17.7
Rainfall Extreme - 24hr 1% AEP $(mm)^a$	189	194	6	3	200	12	6.1	207	19	9.9	215	27	14.1	222	33	17.7
Rainfall Extreme - 24hr $0.5\%$ AEP (mm) <sup>a</sup>	210	217	6	3	223	13	6.1	231	21	9.9	240	30	14.1	248	37	17.7
Rainfall Extreme - 48hr 10% AEP $(mm)^a$	167	172	5	3	177	10	6.1	184	17	9.9	191	24	14.1	197	30	17.7
Rainfall Extreme - 48hr 5% AEP $(mm)^a$	191	197	6	3	203	12	6.1	210	19	9.9	218	27	14.1	225	34	17.7
Rainfall Extreme - 48hr 1% AEP $(mm)^a$	251	258	8	3	266	15	6.1	276	25	9.9	286	35	14.1	295	44	17.7
Rainfall Extreme - 48hr 0.5% AEP $(mm)^a$	280	288	8	3	297	17	6.1	308	28	9.9	320	40	14.1	329	49	17.7
Average annual cummulative Forest Fire Danger Index	491	541	50	10.2	613	122	24.9	690	200	40.7	801	310	63.3	906	416	84.7
Sea level - 1% AEP with Freeboard $(m)^b$	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

<sup>a</sup>Based on recommendations from Australian Rainfall and Runoff, Book 1 Scope And Philosophy, Chapter 6 Climate Change Considerations, version last updated 14<sup>th</sup> May 2019.

<sup>b</sup>Based on recommendations from Tasmanian Government Department of Premier and Cabinet, Coast Hazards Report, December 2015. For exact details reference (from theList): Sea Level Rise Planning Allowances; or Coastal Risk Hazard Bands.

## Table 2: Central Highlands local government area: Average subregions

Projected changes in selected climate variables for each 20-year time period from 2001 to 2100 relative to the baseline period 1961–1990. All values are reported following the RCP8.5 emissions scenario. Changes reported relative to the 1961-1990 baseline period.

Climata Variable	1961 - 1990		2001-20	20	2021-2040			2041-2060			2061-2080			2081-2100		
Chinate variable	value	value	change	% change	value	change	% change	value	change	% change	value	change	% change	value	change	% change
Average annual daily mean (°C)	8	8.5	0.5	6.7	9.1	1.1	13.9	9.8	1.8	22.4	10.6	2.6	32.2	11.2	3.2	40.3
Average daily maximum temperature (°C)	12.9	13.5	0.6	4.6	14.2	1.3	9.7	14.9	2	15.6	15.8	2.9	22.3	16.5	3.6	27.7
Average daily minimum temperature (°C)	3.1	3.6	0.5	15.2	4.1	1	31.1	4.7	1.6	50.8	5.4	2.3	73	6	2.9	92.7
Hottest daily temperature of the year (°C)	33	33.8	0.8	2.5	34.8	1.8	5.3	35.7	2.7	8.1	36.3	3.3	10	36.9	3.9	11.9
Temperature of warmest days $[99^{th} \text{ percentile}]$ (°C)	27.8	28.7	0.9	3.1	29.5	1.6	5.9	30.4	2.6	9.3	31.4	3.6	12.8	31.8	4	14.4
Temperature of warmest nights $[99^{th} \text{ percentile}]$ (°C)	12.8	13.3	0.5	4.2	13.9	1.1	8.3	14.5	1.7	13.2	15.3	2.5	19.7	15.6	2.8	21.8
Temperature of coldest nights $[1^{st} \text{ percentile}]$ (°C)	-4.9	-4.4	0.4	9.2	-4	0.8	17.3	-3.5	1.4	28.5	-2.8	2.1	43	-2.1	2.8	57.4
Average annual frost risk days $(<2^{\circ}C)$	145	127	-18	-12.4	111	-34	-23.3	92	-53	-36.5	72	-73	-50.3	57	-88	-60.7
Average annual freeze risk days $(<0^{\circ}C)$	78	66	-13	-16.1	55	-23	-29.7	42	-36	-46.2	30	-48	-61.6	21	-57	-73
Average annual summer days $(>25^{\circ}C)$	10	13	2	23.8	16	6	54.4	20	10	94.9	25	14	142.8	29	19	184.6
Average annual hot days $(>30^{\circ}C)$	1	2	1	46.3	3	2	119	5	3	240.9	7	6	407.5	10	8	576
Average annual extreme heat days $(>40^{\circ}C)$	<1	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1	NA	<1	<1	NA
Mean Minimum Asphalt Critical Viscosity	28200	34000	5800	20.6	41400	13200	46.8	52100	23900	84.8	68600	40400	143.3	86300	58100	206
Average annual evaporation (mm)	775	793	17	2.2	831	56	7.2	874	99	12.8	921	146	18.8	991	216	27.8
Average annual rainfall (mm)	1239	1175	-63	-5.1	1129	-110	-8.9	1111	-127	-10.3	1092	-147	-11.9	1136	-102	-8.3
Seasonal rainfall - Winter (mm)	458	442	-16	-3.5	428	-30	-6.6	431	-27	-5.9	430	-28	-6	452	-6	-1.3
Seasonal rainfall - Spring (mm)	308	292	-15	-4.9	267	-41	-13.3	261	-47	-15.2	265	-42	-13.8	247	-61	-19.8
Seasonal rainfall - Summer (mm)	204	190	-14	-7	197	-7	-3.5	187	-17	-8.3	172	-32	-15.5	187	-17	-8.3
Seasonal rainfall - Autumn (mm)	288	277	-11	-3.9	263	-26	-8.9	257	-31	-10.7	248	-40	-13.8	265	-24	-8.2
Annual maximum daily rainfall (mm)	102	105	2	2.2	114	12	11.4	111	8	8.3	111	9	8.3	127	25	24.1
Rainfall Extreme - 24 hr 10% AEP $(mm)^a$	125	129	3	2.8	132	7	5.7	137	12	9.2	142	17	13.2	146	21	16.6
Rainfall Extreme - 24hr 5% AEP $(mm)^a$	145	149	4	2.8	153	8	5.7	158	13	9.2	164	19	13.2	169	24	16.6
Rainfall Extreme - 24 hr 1% AEP (mm)^a	189	194	5	2.8	200	11	5.7	207	17	9.2	214	25	13.2	221	31	16.6
Rainfall Extreme - 24hr 0.5% AEP $(mm)^a$	211	217	6	2.8	223	12	5.7	230	19	9.2	239	28	13.2	246	35	16.6
Rainfall Extreme - 48hr 10% AEP $(mm)^a$	167	172	5	2.8	177	10	5.7	183	15	9.2	190	22	13.2	195	28	16.6
Rainfall Extreme - 48hr 5% AEP $(mm)^a$	192	197	5	2.8	202	11	5.7	209	18	9.2	217	25	13.2	223	32	16.6
Rainfall Extreme - 48hr 1% AEP $(mm)^a$	251	258	7	2.8	266	14	5.7	275	23	9.2	285	33	13.2	293	42	16.6
Rainfall Extreme - 48hr 0.5% AEP $(mm)^a$	281	288	8	2.8	297	16	5.7	307	26	9.2	318	37	13.2	327	47	16.6
Average annual cummulative Forest Fire Danger Index	746	799	53	7.2	887	142	19	971	226	30.3	1083	338	45.3	1188	443	59.4
Sea level - 1% AEP with Freeboard $(m)^b$	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

<sup>a</sup>Based on recommendations from Australian Rainfall and Runoff, Book 1 Scope And Philosophy, Chapter 6 Climate Change Considerations, version last updated 14<sup>th</sup> May 2019.

<sup>b</sup>Based on recommendations from Tasmanian Government Department of Premier and Cabinet, Coast Hazards Report, December 2015. For exact details reference (from theList): Sea Level Rise Planning Allowances; or Coastal Risk Hazard Bands.

## Table 3: Central Highlands local government area: Warm subregions

Projected changes in selected climate variables for each 20-year time period from 2001 to 2100 relative to the baseline period 1961–1990. All values are reported following the RCP8.5 emissions scenario. Changes reported relative to the 1961-1990 baseline period.

Climata Variable	1961-1990	2001-2020			2021-2040			2041-2060			2061-2080			2081-2100		
	value	value	change	% change												
Average annual daily mean (°C)	10.1	10.7	0.5	5.1	11.2	1.1	10.6	11.9	1.8	17.4	12.7	2.5	24.9	13.3	3.2	31.2
Average daily maximum temperature (°C)	15.6	16.2	0.5	3.5	16.8	1.2	7.5	17.5	1.9	12.1	18.4	2.7	17.4	19	3.4	21.6
Average daily minimum temperature (°C)	4.6	5.1	0.5	10.6	5.6	1	21.1	6.2	1.6	35	6.9	2.3	50.1	7.6	3	64
Hottest daily temperature of the year (°C)	35.6	36.3	0.7	1.8	37.3	1.7	4.7	38.2	2.6	7.4	38.7	3.1	8.7	39.4	3.8	10.7
Temperature of warmest days $[99^{th} \text{ percentile}]$ (°C)	30.7	31.4	0.7	2.2	32.1	1.4	4.4	33	2.3	7.3	33.9	3.2	10.4	34.2	3.5	11.4
Temperature of warmest nights $[99^{th} \text{ percentile}]$ (°C)	14.3	14.7	0.5	3.2	15.1	0.9	6	15.6	1.4	9.6	16.3	2.1	14.4	16.7	2.4	16.8
Temperature of coldest nights $[1^{st} \text{ percentile}]$ (°C)	-4	-3.6	0.4	9.3	-3.2	0.8	19	-2.7	1.3	32.9	-2	2	50.2	-1.3	2.7	68.3
Average annual frost risk days $(<2^{\circ}C)$	99	84	-14	-14.5	73	-26	-25.9	58	-41	-41.3	43	-55	-55.9	32	-66	-67.4
Average annual freeze risk days $(<0^{\circ}C)$	49	39	-9	-19.2	33	-16	-33	24	-25	-51.4	16	-33	-67.1	10	-38	-78.5
Average annual summer days $(>25^{\circ}C)$	20	23	3	13.1	26	6	29.3	30	10	50.8	36	15	76.3	40	19	95.5
Average annual hot days $(>30^{\circ}C)$	5	7	1	25.7	8	3	57.7	11	6	112.7	14	9	167.6	17	12	225
Average annual extreme heat days $(>40^{\circ}C)$	<1	<1	<1	NA												
Mean Minimum Asphalt Critical Viscosity	49900	60500	10600	21.2	73200	23300	46.7	93300	43400	87	123100	73200	146.7	156700	106800	214
Average annual evaporation (mm)	934	948	14	1.5	985	51	5.4	1031	97	10.4	1082	148	15.8	1159	225	24.1
Average annual rainfall (mm)	597	577	-20	-3.3	563	-34	-5.7	560	-37	-6.2	549	-48	-8	580	-17	-2.9
Seasonal rainfall - Winter (mm)	187	180	-7	-3.9	172	-15	-8	176	-11	-5.9	177	-10	-5.2	191	4	2.3
Seasonal rainfall - Spring (mm)	144	141	-3	-2.1	132	-13	-8.9	128	-17	-11.6	130	-14	-9.9	118	-26	-18.3
Seasonal rainfall - Summer (mm)	129	123	-6	-4.6	136	8	5.8	130	1	1	122	-7	-5.3	133	4	3.4
Seasonal rainfall - Autumn (mm)	147	147	0	0	136	-10	-7	140	-7	-4.7	133	-14	-9.5	146	-1	-0.7
Annual maximum daily rainfall (mm)	102	105	2	2.2	114	12	11.4	111	8	8.3	111	9	8.3	127	25	24.1
Rainfall Extreme - 24hr 10% AEP $(mm)^a$	125	129	3	2.7	132	7	5.5	137	11	9	142	16	12.9	146	20	16.3
Rainfall Extreme - 24hr 5% AEP $(mm)^a$	145	149	4	2.7	153	8	5.5	158	13	9	164	19	12.9	169	24	16.3
Rainfall Extreme - 24hr 1% AEP $(mm)^a$	189	194	5	2.7	200	10	5.5	206	17	9	214	25	12.9	220	31	16.3
Rainfall Extreme - 24hr $0.5\%$ AEP (mm) <sup>a</sup>	211	217	6	2.7	223	12	5.5	230	19	9	238	27	12.9	245	34	16.3
Rainfall Extreme - 48hr 10% AEP $(mm)^a$	168	172	4	2.7	177	9	5.5	183	15	9	189	22	12.9	195	27	16.3
Rainfall Extreme - 48hr 5% AEP $(mm)^a$	192	197	5	2.7	202	11	5.5	209	17	9	216	25	12.9	223	31	16.3
Rainfall Extreme - 48hr 1% AEP $(mm)^a$	252	258	7	2.7	265	14	5.5	274	23	9	284	33	12.9	292	41	16.3
Rainfall Extreme - 48hr 0.5% AEP $(mm)^a$	281	288	7	2.7	296	15	5.5	306	25	9	317	36	12.9	327	46	16.3
Average annual cummulative Forest Fire Danger Index	1655	1722	67	4.1	1869	214	12.9	1995	340	20.5	2166	511	30.9	2300	645	39
Sea level - 1% AEP with Freeboard $(m)^b$	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

<sup>a</sup>Based on recommendations from Australian Rainfall and Runoff, Book 1 Scope And Philosophy, Chapter 6 Climate Change Considerations, version last updated 14<sup>th</sup> May 2019.

<sup>b</sup>Based on recommendations from Tasmanian Government Department of Premier and Cabinet, Coast Hazards Report, December 2015. For exact details reference (from theList): Sea Level Rise Planning Allowances; or Coastal Risk Hazard Bands.

## Climate Change Information for Decision Making - Central Highlands

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Title:	Climate Change Policy
Subject:	Climate Change Adaptation
Policy Number:	
Adopted By Council:	
Next Review:	
Responsible Officer:	

Objectives:	That the [Insert council name]:
	1. Takes all reasonable and practical measures to increase climate change resilience and reduce greenhouse gas emissions across the [ <i>Insert council name</i> ] assets, functions, services and programs.
	2. Increases the resilience of [ <i>Insert council name</i> ] communities, enabling better preparedness, response and recovery from inevitable climate change impacts and increased frequency and intensity of natural hazards, through targeted programs, services and appropriate management of the [ <i>Insert council name</i> ] assets and other relevant resources
	3. Achieves a better understanding of future climate impacts across the [ <i>Insert council name</i> ], municipal area, community and the region and share this information as appropriate
	<ol> <li>Seeks opportunities to collaborate on climate change action (adaptation and mitigation) with key stakeholders and the Tasmanian and Australian governments</li> </ol>
	5. Prioritises actions with co-benefits of mitigation and adaptation
	6. Is flexible and timely in its response to climate impacts, risks and hazards
	7. Takes advantage of new economic opportunities and avoid loss and unsustainable investment through climate planning
	8. Minimises the exposure of the [ <i>Insert council name</i> ] to potential liability for decisions made, or not made, now or in the future through better information and policies, guidelines and state-wide codes
Background:	This Policy supports the [ <i>Insert council name</i> ] preparation and delivery of climate change actions and programs.

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Insert Council Logo		REGIONAL CLIMATE CHANGE INITIATIVE							
Policy:	That t	That the [Insert council name]:							
	1.	Recognises that climate change is a complex issue that affects all aspects of the [ <i>Insert council name</i> ] function, processes and roles and to this end will ensure climate impacts and hazards are considered through its decision making and strategic planning processes.							
	2.	Will provide effective and strong leadership to its communities, the region and inter-regionally on climate change to increase sustainability and resilience.							
	3.	Will continue to develop and implement actions and strategies that assist communities to reduce carbon footprints, adapt to climate change impacts and increase their awareness and understanding of climate change.							
	4.	Ensures that it complements, collaborates and establishes strong partnerships with key stakeholders and other tiers of government that strengthen the [ <i>Insert council name</i> ] responses to climate change.							
	5.	Ensures that the [ <i>Insert council name</i> ] plans for and manages Hobart's adaptation to the impacts of climate change, particularly where these impacts represent a threat to people and property.							
	6.	Recognises the legitimacy and validity of the Intergovernmental Panel on Climate Change's (IPCC) review and assessment of scientific, technical and social climate change information. The [ <i>Insert council</i> <i>name</i> ] will review relevant actions, technical climate change guidelines and policies within six months of the publication of new IPCC reports using the two highest global greenhouse gas emissions trajectories Representative Concentration Pathways.							
	7.	Ensures that the most up to date and recent climate change science and information is used in the [ <i>Insert council name</i> ] strategic planning, administrative, technical climate change guidelines, operational and decision making processes, and where this information differs from the official sources shall use this information.							
	8.	Will develop clear and certain criteria for decision making relating to climate change and natural hazards, ensuring that all relevant law is identified and the relevant information and facts are known and understood to increase public confidence that decisions are made on the basis of the best available scientific evidence.							
	9.	Makes available information to the community on climate change risks and hazards to enable residents, businesses and community groups to manage the impacts on private property, business and community assets and services.							
Insert Council Logo	REGIONAL CLIMATE CHANGE INITIATIVE								
---	--	--	--						
Legislation, Terminology and References:	Climate Change (State Action Act) 2008								
	Local Government Act (Tas) 1993								
	Local Government Order (Content of Plans and Strategies) 2014								
	Climate Action 21:Tasmania's Climate Change Action Plan 2017 - 2021								
	Southern Tasmanian Regional Climate Change Strategy 2013 - 2019								
	[Insert council name] Strategic Plan								
	[ <i>Insert council name</i> ] Climate Change Information For Decision Making 2020								
	[Insert council name] Strategic Risk Register								

#### History

Council Policies are reviewed XXXX with amendments to a Policy listed below

#### Date Policy first adopted:

#### Amendments

e.g. Annual Policy Review/Legislative Amendment



## SAFETY PLANS CLEANING SCHEDULES

Version 1.5 – updated2nd September 2020



	1.0 COVID-19 Safety Plan				
	Council and Public Access Areas.				
Unit / Manager					
Relevant Scope / Activities	Access to Playgrounds Reserves and Parks Public Buildings				
	Council owned public buildings, parks etc.				
	<ul> <li>Hamilton Council Office;</li> <li>Bothwell Council Office;</li> <li>Hamilton Camping Ground;</li> <li>Hamilton Hall;</li> <li>Hamilton Street Library;</li> <li>Bothwell Caravan /camping Ground;</li> <li>Bothwell Caravan /camping Ground;</li> <li>Bothwell Hall;</li> <li>Bothwell Recreation Ground;</li> <li>Bothwell Football Club and Community Centre;</li> <li>Ellendale Hall;</li> <li>Ellendale Recreation Ground;</li> <li>Great Lake Community Centre;</li> <li>Ouse Hall;</li> <li>Central Highlands Visitor Centre;</li> <li>Bothwell Swimming Pool and</li> <li>Other Camping Facility and Playgrounds across the municipality</li> <li>Hamilton Landfill</li> </ul>				
Location	Central Highlands Council playgounds, reserves and parks and Public Buildings				

Background	Covid-19 restrictions banned entry into playgrounds, reserves and parks		
<ul> <li>Triggers for: <ul> <li>Re-opening or modifying services</li> </ul> </li> <li>Returning workers to site; or modifying onsite presence</li> </ul>	<ul> <li>Risk of virus transmission changed (low number of active cases = reduced risk, increase in active cases or outbreak = increased risk)</li> <li>Testing criteria expanded and capacity for testing increased</li> <li>Government has relaxed restrictions (where the function has been subject to a mandated restriction)</li> <li>Government restrictions able to be adhered to</li> <li>Additional control measures able to be implemented (as required) to minimise the risk of transmission to a tolerable level</li> <li>Service/function either requires an on-site presence or would benefit from on-site presence</li> </ul>		
COVID-19 Risks	<ul> <li>Gatherings in numbers greater than that prescribed by the Tasmania Government under the provisions of a declaration under the Health Act.</li> <li>Recreational users not observing prescribed social distancing protocols.</li> <li>Group activities in facilities provided by the Central Highlands Council exceeding the groups sizes prescribed and not observing social distancing and hygiene requirements.</li> <li>Contamination of surfaces between bookings or visits by groups</li> </ul>		

Proposed Controls Required to Address COVID-19 Risks

#### Controls to address risks to the public

- Limits on the size of groups for bookable spaces in accordance with the prescriptions declared under the order of the Tasmanian Government
- Incorporation of social distancing and hygiene requirements for any bookings through an additional set of conditions and requiring safety and hygiene plans for any group bookings.
- Awareness posters for social distancing and hygiene protocols in bookable spaces to be maintained
- Social distancing and hygiene awareness posters to be maintained at sites where gathering is likely to occur. This includes playgrounds, Reserves, parks shelters and BBQ facilities.
- Cleaning regime as per cleaning schedules
- Monitoring of compliance with breaches reports to Tasmania Police
- Users of Hall to supply safety plan for maintaining social distancing and hygiene requirements, to agree to Hirer agreement.
- Running water in taps for a period of two minutes prior to use in areas to be used
- A safety checklist may be required to be filled out, copy attached for reference.

#### **Bothwell Recreation Ground**

The use of the club rooms will require a Covid 19 Safety Plan for each group who utilises the venue, , and numbers must be limited to the Governments social distancing requirements.

Sharing of exercise equipment or communal facilities is now allowed under the Tasmanian Governments Restrictions for Sport and Recreation

- Apply personal hygiene measures hand sanitiser before and after
- Do not share water bottles or towels
- Do not attend training if unwell
- Only one spectator (i.e. One parent/carer per child)

Get in train and get out, no mingling

- Not more than 1-person p/2sqm
- Non-contact skills training
- Kicking, handballing, running, fitness, hand/ball skills and game education
- Can use skipping ropes, mats, other equipment as required
- Stagger training groups
- Arrive dressed to train
- Log attendance
- Briefings in advance
- Maintain social distance between activities
- No unnecessary social gatherings.

Gathering limits and the requirement to maintain physical distancing where practical applies to all sports, exercise and recreation.

#### Controls to address risks to the staff

	Ison Ase gov.eu		
	Local Government Association of Tasmania Council Meeting and COVID-19 Safety Plan Guide		
Co	ouncil meeting to be held in accordance with the LGAT Guidelines		
<ul> <li>Re</li> <li>Ac</li> <li>O</li> </ul>	eading, signing and following the Safe Work Method Statements for offices and works depots dhere to Safe Work Method Statements. bserving social distancing and hygiene protocols		
• Su • Co	uitable PPE and training to be provided for staff cleaning facilities including Hamilton Landfill and Waste Transfer Stations ontinuation of existing controls, such as vehicle cleansing per cleaning schedule		
<ul> <li>Fa</li> <li>Ac</li> </ul>	acilities cleaning schedule in place. dvice on what to do if unwell and not to attend work.		
<ul> <li>Ke</li> <li>We</li> </ul>	<ul> <li>Keeping records of visitors attending sites worksites and offices</li> <li>Workers must take reasonable care of their own safety and make sure they don't affect the health and safety of anyone else (such as a coworker). Workers must also comply with any reasonable work health and safety requirements.</li> </ul>		
● sa ● Ad	offety instructions given by their employer dvise to download Covid 19 app for phones.		
Other Cor	ntrols		

- Self-regulation
- Forward complaints of non-compliance to the Tasmanian Police

#### Consultation

In preparing this recommendation I have consulted with staff of the Works and Services

#### Recommendations

Expected Re-Opening Date		2-4 days after advice from the State Government	
Prepared	Bev Armstrong		Date: 13-5-20

## 2.0 CLEANING and SAFETY REQUIREMENTS

## PARKS AND PUBLIC BUILDINGS

### Waste Transfer Stations (manned) Hamilton Landfill

**Camping Areas and Caravan Parks** 

Covid 19 2020

#### **Cleaning and disinfection**

Cleaning and disinfecting are two different processes:

Cleaning means physically removing germs, dirt and organic matter from surfaces.

**Disinfecting** means using chemicals to kill germs on surfaces. It's important to clean before disinfecting because organic matter and dirt can reduce the ability of disinfectants to kill germs.

A combination of cleaning and disinfection will be most effective in removing the COVID-19 virus. Cleaning reduces the soil load on the surface, allowing the disinfectant to work and kill the COVID-19 virus. Disinfectant may not kill the virus if the surface has not been cleaned with a detergent first.

### **Routine cleaning and Safety**

#### Parks Play equipment and Public Toilets

Signage installed on social distancing requirements and notice that the play equipment in the parks is not sanitised.

Public toilets should be washed down to removes any dirt and sprayed with disinfectant thoroughly, this should be done on a daily basis.

Public toilets should have antiseptic hand washing detergent or sanitising stations at each location.

Social distancing signage and hand washing information should be erected at each .

Please note that a combined cleaner can be used such as a disinfectant detergent, this would mean only one cleaning would be required by a pressure back park

#### **Bothwell Recreations Ground**

The recreations ground is now open for training and sport, social distancing must be observed, as per Government requirements and posters should be displayed for this purpose.

### Gathering limits and the requirement to maintain physical distancing where practical applies to all sports, exercise and recreation.

#### Training

Get in train and get out, no mingling

- Not more than 1-person p/2sqm
- Non-contact skills training
- Kicking, handballing, running, fitness, hand/ball skills and game education
- Can use skipping ropes, mats, other equipment as required

- Stagger training groups
- Arrive dressed to train
- Log attendance
- Briefings in advance
- Maintain social distance between activities
- No unnecessary social gatherings.

The change rooms can now be used but a Covid 19 Safety Plan for use will be required and social distancing must be observed..

Toilets can be opened and should be cleaned daily, using disinfectant.

# Gathering limits and the requirement to maintain physical distancing where practical applies to all sports, exercise and recreation.

#### **Public Buildings Halls**

All public Buildings Halls open for bookings and community usage.

Bookings can be taken for special events providing that the number do not exceed the Government set gathering numbers.

If the building is required than thorough cleaning should occur to ensure safety prior to use. This would entail cleaning and wiping down of all surfaces. Floors mopped with disinfectant, all kitchen utensils plates cups etc washed in disinfectant detergent, toilets disinfected.

Posters for social distancing must be displayed.

Hand sanitiser to be used for each person entering the public building and temperature taken for each person entering the building, with signage erected relating to social distancing requirements. Signage available at Council.

A Covid 19 Safety Plan should be obtained from the organiser as to how they will manage the event or ongoing usage

20<sup>th</sup> May 2020

## Camping areas at Hamilton and Dunrobbin are to open Friday 3<sup>rd</sup> June 3pm. Social distancing must be observed, public toilets at these locations have hand sanitiser installed and will be cleaned as per the cleaning schedule and signage has been erected for social distancing.

If handling waste for any reason gloves and face mask should be worn and hands sanitised after work.

Waste Transfer Stations (manned) and Hamilton Landfill

Manned offices should be wiped down with disinfectant wipes first thing every day.

No public access to office area.

those outside Council area. Social distancing must be observed. Breach of requirement should be reported to the Police.

Operators of Waste Transfer Stations should have hand sanitiser and masks available for use. No helping the public with unloading and no access for

number of people for these buildings has been determined and is part of the Plans. Campdrafting Plan received for Hamilton Rec Ground. The Miena Community Centre, Freedom Health and Wellness and the Collegiate School Excursion.

Covid 19 Safety Plans have been received for the Mens Shed Hamilton, Ouse and Ellendale Libraries. Ouse Online Access Centres. Maximum

#### **PUBLIC Buildings**

A charge may be required to cover these costs.

Water in taps should be run for two minutes prior to use.

**Camping Areas and Caravan Parks** 

A safety checklist may be required to be filled out prior to use. This is available at Counci



Caravan Parks at Hamilton and Bothwell are now open cleaning regime for public amenities has already been implemented, no limit of numbers but social distancing must be adhered to.

## How do I clean?

Use the following steps to clean an environment:

- 1. Wear gloves when cleaning. Gloves should be discarded after each clean. If it is necessary to use reusable gloves, gloves should only be used for COVID-19 related cleaning and should not be used for other purposes or shared between workers.
- 2. Thoroughly clean surfaces using detergent and water. Always clean from the cleanest surfaces to the dirtiest surfaces. This stops the transfer of germs to cleaner surfaces and allows you to physically remove and dispose of the largest possible amount of germs.
- 3. If you need to use a disinfectant, clean the surface first using detergent then apply a disinfectant or use a combined detergent and disinfectant (see next section). A disinfectant will not kill germs if the surface has not been cleaned first. Apply disinfectant to surfaces using disposable paper towel or a disposable cloth. If non-disposable cloths are used, ensure they are laundered and dried before reusing.
- 4. Allow the disinfectant to remain on the surface for the period of time required to kill the virus (contact time) as specified by the manufacturer. If no time is specified, leave for 10 minutes.
- 5. All Waste must be double bagged for disposal.

How should I clean if someone at my workplace is suspected or confirmed to have COVID-19?

If a person who has been at your workplace is suspected or confirmed to have COVID-19, you must thoroughly clean and disinfect all areas of suspected contamination.

Clean and disinfect all areas (for example, offices, bathrooms and common areas) that were used by the suspected or confirmed case of COVID-19. Close off the affected area before cleaning and disinfection. Open outside doors and windows if possible to increase air circulation and then commence cleaning and disinfection.

- clean and disinfect hard surfaces using either: a physical clean using detergent and water followed by a clean with 1,000 ppm bleach solution (2-step clean), for example, household bleach or hospital-grade bleach solutions that are readily available from retail stores. Bleach solutions should be made fresh daily.
- a physical clean using a combined detergent and 1,000 ppm bleach solution (2-in-1 clean) made up daily from a concentrated solution (refer to the Department of Health website for more information on achieving the correct bleach solution).

Once cleaning and disinfection is complete, place disposable cloths, PPE and covers in a plastic rubbish bag, place it inside another rubbish bag (double-bagging) and dispose of the bag in the general waste.

There is no need to close down an entire workplace, while cleaning and disinfection takes place, particularly if the person infected, or suspected to be infected, has only visited parts of the workplace. However the cleaning and disinfection must occur before any workers return to affected areas.

Whether you need to suspend operations in your workplace will depend on factors such as the size of the workplace, nature of work, number of people, and suspected areas of contamination in your workplace.

Those cleaning an area of suspected contamination need to be equipped with appropriate Personal protective equipment (PPE). This includes disposable gloves and safety eyewear to protect against chemical splashes. If there is visible contamination with respiratory secretions or other body fluids in the area, the cleaning staff should also wear a disposable apron. If the person with suspected or confirmed COVID-19 is in the area to be cleaned (e.g. a hotel room), put on a surgical mask and ask the person to step outside if possible.

Clean your hands using soap and water for at least 20 seconds, or where this is not possible, hand sanitiser of with at least 60% ethanol or 70% isopropanol as the active ingredient] before putting on and after removing PPE.

Cleaning equipment including mop heads and cloths should be laundered using hot water and completely dried before re-use. Cleaning equipment such as buckets should be emptied and cleaned with a new batch of disinfectant and allowed to dry completely before re-use.

## What should I use for routine cleaning?

#### Hard surfaces

In most circumstances, cleaning with detergent and water is sufficient.

#### Soft or porous surfaces

For soft or porous surfaces like fabric or leather, seek advice from the manufacturer of the item to be cleaned about which products can be safely used.

Detergent can generally be used to clean fabric surfaces. If more thorough cleaning is needed, fabric surfaces may be steam cleaned. Leather will have special cleaning requirements.

If soft or porous surfaces require regular cleaning, such as seats in offices, or in vehicles, it may be more effective to use a removable washable cover or a disposable cover and replace these as regularly as you would clean the surfaces.

## What should I use to disinfect?

#### Hard surfaces

Disinfectants containing  $\geq$  70% alcohol, quaternary ammonium compounds, chlorine bleach or oxygen bleach are suitable for use on hard surfaces (that is, surfaces where any spilt liquid pools, and does not soak in). These will be labelled as 'disinfectant' on the packaging.

### Soft or porous surfaces

Disinfectant is not suitable on fabric surfaces as it only works with extended contact time with the surface.

## Using disinfectants safely

Follow all manufacturer's instructions and read the label and the Safety Data Sheet (SDS). For information on how to read labels and SDS, see the Safe Work Australia SDS page.

Do not use different types of disinfectants together.

Store your disinfectants safely and securely, out of direct sunlight and away from heat sources.

Mix your disinfectants in a well-ventilated area. Some concentrated products recommend the use of a local exhaust ventilation system.

For spraying or misting products, spray directly into the cleaning cloth to dampen the cloth for use. Take care not to generate a mist.

PPE to use when diluting and using disinfectants includes:

- gloves, elbow-length if available, and
- eye protection (safety glasses, not prescription glasses).

## Disposal or cleaning of materials and PPE

Reusable, washable cloths, PPE and covers should be washed in a regular cycle wash using the warmest possible setting with normal washing detergent. Avoid shaking out the items before placing in the washing machine.

Wear disposable gloves to handle used cloths, PPE and covers. Wash your hands thoroughly with soap and water for at least 20 seconds after removing the gloves.

#### 20<sup>th</sup> May 2020

Regularly wash the hamper in which used PPE is stored while it is waiting to be laundered. If the hamper is not washable, use a disposable lining, and replace regularly.

Reusable, non-washable PPE such as eye protection, should be wiped clean with a detergent solution first, then wiped over with a disinfectant, and left to air dry. Smearing or residues might result, and this can be cleaned off by using more detergent solution and rinsing clean only after the disinfectant has dried.

## **3.0 CLEANING REGIME OFFICES AND WORKDEPOT**

Covid 19

## Cleaning and disinfection

Cleaning and disinfecting are two different processes:

Cleaning means physically removing germs, dirt and organic matter from surfaces.

**Disinfecting** means using chemicals to kill germs on surfaces. It's important to clean before disinfecting because organic matter and dirt can reduce the ability of disinfectants to kill germs.

A combination of cleaning and disinfection will be most effective in removing the COVID-19 virus. Cleaning reduces the soil load on the surface, allowing the disinfectant to work and kill the COVID-19 virus. Disinfectant may not kill the virus if the surface has not been cleaned with a detergent first.

Routine cleaning Offices – Hamilton and Bothwell

Offices should have their surfaces cleaned at least daily. Special attention should be given to frequently touched surfaces (e.g. tabletops, door handles, light switches, desks, toilets, taps, TV remotes, kitchen surfaces and cupboard handles). Ideally, once clean, surfaces should also be disinfected regularly. Alternatively, you may be able to do a 2-in-1 clean and disinfection by using a combined detergent and disinfectant.

Surfaces and fittings should be cleaned more frequently when:

- visibly soiled
- used repeatedly by a number of people, and
- after any spillage.

Dishes and Cultery should be washed in hot water with preferably a disinfectant dishwashing liquid and dried thoroughly.

Areas where the public have access example front entry area should be disinfected daily with spray or wipes. There should be hand sanitiser for each person entering the office area anyone entering the building should have their temperature taken as a precaution.

Social distancing area should be marked on the floor with a visable X

Office workers should wear disposable gloves if accepting cash money.

Eftpos machines wiped with disinfectant wipe after each use.

For routine cleaning, disinfectants are usually only necessary if a surface has been contaminated with potentially infectious material. For this reason, when and how often a workplace should undertake disinfection as part of routine cleaning will depend on the likelihood of contaminated material being present at the workplace.

#### Routine cleaning Works Depot

**Office areas** should be cleaned the same as the Hamilton and Bothwell Office. Frequently used areas such as toilets, washrooms, should be disinfected daily. No public access should be allowed to the works depot area.

Hand tools should be wiped down with disinfectant wipes before each use.

#### 20<sup>th</sup> May 2020

Vehicles should be wiped down inside before each use and before change of drivers or occupants.

This includes steering wheels, gear/automatic shift, any controls for equipment in the cabin, seats,

door handles, radios controls, air conditioning controls, seat adjustments and centre console. Any area that is touched. Antibacterial Hand Wipes (this includes gear shifts, two-way radios, steering wheel, seat belts, any item that could potentially harbor the virus.

## How do I clean?

Use the following steps to clean an environment:

- 6. Wear gloves when cleaning. Gloves should be discarded after each clean. If it is necessary to use reusable gloves, gloves should only be used for COVID-19 related cleaning and should not be used for other purposes or shared between workers. Wash reusable gloves with detergent and water after use and leave to dry. Clean hands immediately after removing gloves using soap and water or hand sanitiser.
- 7. Thoroughly clean surfaces using detergent and water. Always clean from the cleanest surfaces to the dirtiest surfaces. This stops the transfer of germs to cleaner surfaces and allows you to physically remove and dispose of the largest possible amount of germs.
- 8. If you need to use a disinfectant, clean the surface first using detergent then apply a disinfectant or use a combined detergent and disinfectant (see next section). A disinfectant will not kill germs if the surface has not been cleaned first. Apply disinfectant to surfaces using disposable paper towel or a disposable cloth. If non-disposable cloths are used, ensure they are laundered and dried before reusing.
- 9. Allow the disinfectant to remain on the surface for the period of time required to kill the virus (contact time) as specified by the manufacturer. If no time is specified, leave for 10 minutes.
- 10. All waste must be double bagged for disposal

# How should I clean if someone at my workplace is suspected or confirmed to have COVID-19?

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Clean and disinfect all areas (for example, offices, bathrooms and common areas) that were used by the suspected or confirmed case of COVID-19. Close off the affected area before cleaning and disinfection. Open outside doors and windows if possible to increase air circulation and then commence cleaning and disinfection.

- clean and disinfect hard surfaces using either: a physical clean using detergent and water followed by a clean with 1,000 ppm bleach solution (2-step clean), for example, household bleach or hospital-grade bleach solutions that are readily available from retail stores. Bleach solutions should be made fresh daily.
- a physical clean using a combined detergent and 1,000 ppm bleach solution (2-in-1 clean) made up daily from a concentrated solution (refer to the Department of Health website for more information on achieving the correct bleach solution).

Once cleaning and disinfection is complete, place disposable cloths, PPE and covers in a plastic rubbish bag, place it inside another rubbish bag (double-bagging) and dispose of the bag in the general waste.

There is no need to close down an entire workplace, while cleaning and disinfection takes place, particularly if the person infected, or suspected to be infected, has only visited parts of the workplace. However the cleaning and disinfection must occur before any workers return to affected areas.

Whether you need to suspend operations in your workplace will depend on factors such as the size of the workplace, nature of work, number of people, and suspected areas of contamination in your workplace.

Those cleaning an area of suspected contamination need to be equipped with appropriate Personal protective equipment (PPE). This includes disposable gloves and safety eyewear to protect against chemical splashes. If there is visible contamination with respiratory secretions or other body

fluids in the area, the cleaning staff should also wear a disposable apron. If the person with suspected or confirmed COVID-19 is in the area to be cleaned (e.g. a hotel room), put on a surgical mask and ask the person to step outside if possible.

Clean your hands using soap and water for at least 20 seconds, or where this is not possible, hand sanitiser of with at least 60% ethanol or 70% isopropanol as the active ingredient] before putting on and after removing PPE.

Cleaning equipment including mop heads and cloths should be laundered using hot water and completely dried before re-use. Cleaning equipment such as buckets should be emptied and cleaned with a new batch of disinfectant and allowed to dry completely before re-use.

## What should I use for routine cleaning?

#### Hard surfaces

In most circumstances, cleaning with detergent and water is sufficient.

#### Soft or porous surfaces

For soft or porous surfaces like fabric or leather, seek advice from the manufacturer of the item to be cleaned about which products can be safely used.

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If soft or porous surfaces require regular cleaning, such as seats in offices, or in vehicles, it may be more effective to use a removable washable cover or a disposable cover and replace these as regularly as you would clean the surfaces.

## What should I use to disinfect?

Hard surfaces

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#### Soft or porous surfaces

Disinfectant is not suitable on fabric surfaces as it only works with extended contact time with the surface.

## Using disinfectants safely

Follow all manufacturer's instructions and read the label and the Safety Data Sheet (SDS). For information on how to read labels and SDS, see the Safe Work Australia SDS page.

Do not use different types of disinfectants together.

Store your disinfectants safely and securely, out of direct sunlight and away from heat sources.

Mix your disinfectants in a well-ventilated area. Some concentrated products recommend the use of a local exhaust ventilation system.

For spraying or misting products, spray directly into the cleaning cloth to dampen the cloth for use. Take care not to generate a mist.

PPE to use when diluting and using disinfectants includes:

- gloves, elbow-length if available, and
- eye protection (safety glasses, not prescription glasses).

## Disposal or cleaning of materials and PPE

Reusable, washable cloths, PPE and covers should be washed in a regular cycle wash using the warmest possible setting with normal washing detergent. Avoid shaking out the items before placing in the washing machine.

20<sup>th</sup> May 2020

Wear disposable gloves to handle used cloths, PPE and covers. Wash your hands thoroughly with soap and water for at least 20 seconds after removing the gloves.

Regularly wash the hamper in which used PPE is stored while it is waiting to be laundered. If the hamper is not washable, use a disposable lining, and replace regularly.

Reusable, non-washable PPE such as eye protection, should be wiped clean with a detergent solution first, then wiped over with a disinfectant, and left to air dry. Smearing or residues might result, and this can be cleaned off by using more detergent solution and rinsing clean only after the disinfectant has dried.



### Southern Tasmania Recycling Services Scope

#### 1. Objective

• Establish a preferred option for improved southern Tasmanian commingled recycling outcomes

#### 2. Key activities

- Characterise current services and assets available or planned to manage commingled recyclable material in southern Tasmania and Tasmania as a whole;
- Clarify problems and benefits to be addressed, framed against council / regional objectives where applicable;
- Assess opportunities for increased material utilisation within Tasmania;
- Specify a preliminary set of performance outcomes and comparison criteria for commingled recycling services informed by council interests in southern Tasmania, and accounting for the influence of end market conditions on service risks;
- Conduct a preliminary option analysis of up to five potential service scenarios against business as usual (either within or outside of southern Tasmania);
- Consider the future impacts on options in terms of the waste levy, container refund scheme, and trends in recycling;
- Engage with Councils, Waste Authorities, EPA, State Growth, Waste Groups and relevant commercial providers;
- Identify opportunities to leverage third party interest to support outcomes and benefits; and
- Present delivery options and recommendations for consideration by southern councils.

#### 3. Focus areas to consider

Depending on time, budget and where councils currently sit around collective need to investigate options to deliver better outcomes the study could focus on some or all of the following components:

1) Develop a 'discussion paper' to inform a core set of performance outcomes

- Provide a situational analysis around recycling services for the southern region and Tasmania as whole, including an outline of existing and potential 'on-island' recycling opportunities for recovered materials, where feasible;
- Develop a short list of potential service scenarios for southern Tasmanian recycling services, including indicate costs, benefits and risks of each option;
- Assess and advise on the best procurement methodology for the southern councils, i.e. individually, collective, via a joint authority, or other method. The analysis should include an assessment of the most effective and efficient means to procure and manage the contract<sup>1</sup>.
- Present situational analysis to southern Tasmanian councils and confirm buy in to explore collective approach to a preferred solution.

2) Conduct market sounding to inform potential service scenarios

• Conduct Request for Information exercise with existing operators and potential entrants

4 September 2020

<sup>&</sup>lt;sup>1</sup> Australian Competition and Consumer Commission implications of the methodology chosen is not within scope.



- Analyse information to inform scenarios and any internal pre-procurement analysis (i.e. business case etc)
- Report on finding and present to a workshop.

3) Prepare preliminary business case or similar for improved recycling outcomes in southern Tasmania:

- Developed through a series of workshops with council representatives
- To incorporate problems/benefits, options analysis, preferred option characterisation and delivery
- Finalise strategic business case

**Comment [DL1]:** Note: Not proposed to be part of the first stage scope. This would require additional investment.

4 September 2020

The Sothern Tasmanian Waste Management Group (STWMG) was formed, via MOU, in early 2020 and has the following goals <u>relevant to this item</u>:

- Manage regional waste streams in a co-ordinated professional manner including, but not limited to, landfill, recycling and green waste/FOGO;
- Support efficient, sustainable and suitably scaled end of collection facilities for processing of waste streams;
- Work towards greater commonality of service standards for ratepayers and customers;
- Advocate to or partner with other regions, governments and industry to promote resource recovery futures;
- To appropriately resource this arrangement.

Work is nearly completion on securing an agreement with Cleanaway to deliver recycling services to the southern region via their Lutana Materials Recycling Facility (MRF) until December 2021.

Given the typical timeframes involved in a tender process and potential major facility construction it is necessary to commence the background work to inform the development of a tender for recycling services for the period post December 2021 as soon as possible.

The secretariat of the STWMG will manage this work, with input and oversight from membership of the STWMG and other relevant staff from within their respective councils (i.e. legal and procurement specialists) and if necessary external consultants<sup>1</sup>. Noting that major decisions will need to be made at an individual council level.

The following high-level scope and timing is proposed:

Task	Timing	Notes
STWMG Workshop to develop scope of works	12 <sup>th</sup> August	Workshop to include a presentation from Shane Eberhardt from Launceston on their recent process, if he is available.
Sth Tas MRF Options Analysis Study - market and options analysis for recycling in Sth Tas	September - December	Consultancy to determine what the best options are for recycling in Sth Tas, based on an assessment of the current market conditions and infrastructure (at a statewide level).

<sup>&</sup>lt;sup>1</sup> Current funding for the STWMG covers staff resourcing only. Any external consultancies would require a call on councils of the region.

#### STWMG STH MRF CONTRACT PROPOSAL – AUGUST 2020

Research on other jurisdictions		Research on contract options could be undertaken
contemporary contracts	September	as part of the consultancy work, but would add
		complexity and costs to the tenders and may be
		better handled in house.
Research of procurement	October	Determination on if ACCC authorization is
process		required <sup>2</sup> , or whether an alternative option is
		available.
	1	
Development of options paper	January 2021	I ne following tasks do not include ACCC approval.
on contract and procurement		in required, this would run in parallel with the
approach		contract dranting and review process.
STWMG Workshop to confirm	February	This is scheduled to avoid the school holidays.
approach	,	
Drafting of tender docs	March - April	This will likely require specialist council staff or
		external legal support
Councils review tender docs	Мау	
Einalise tender docs	lune	This will likely require specialist council staff or
	June	external legal support
Advertise	July 2021	

<sup>&</sup>lt;sup>2</sup> Page Seager has recently provided advice to Hobart that ACCC authorisation is required, however this advice was based on individual contracts being entered into by each council. There are other options available that may mean ACCC authorisation is not required.

# Background

The Tasmanian Wilderness World Heritage Area (TWWHA) is home to globally significant natural and cultural values and was listed as a World Heritage Area by UNESCO in order to protect, conserve, present and pass on to future generations one of the world's outstanding natural areas. The ecosystems of the TWWHA are a product of millennia of active fire management, with records of people using fire as a management tool in the region extending back at least 40,000 years. Active fire management is still required in order to preserve the world heritage values of the TWWHA.

Following the 2016 bushfires, which impacted approximately 1.27 per cent of the TWWHA, the Tasmanian Wilderness World Heritage Area Bushfire and Climate Change Research Project<sup>1</sup> recommended the preparation of a fire management plan covering the TWWHA.

The TWWHA Fire Management Plan will aim to provide a strategic direction for fire management that is underpinned by a contemporary adaptive management framework in order to protect human life, the Outstanding Universal Value of the TWWHA, and other fire-sensitive assets from fire.



There are a range of fire management issues that are interrelated and present a range of management options all with associated advantages and disadvantages. Issues papers have been prepared on the following topics in order to increase public awareness and promote discussion and feedback.

- 1. Tasmanian Wilderness World Heritage Area fire management objectives
- 2. Fuel-reduction burning
- 3. Planned burning: landscape fuel-reduction burns for asset and ecosystem protection
- 4. Planned burning: use of fuel-reduction burns for ecosystem maintenance
- 5. Cultural burning
- 6. Backburning
- 7. Use of aircraft
- 8. Fire suppressants and retardants
- 9. Use of machinery
- 10. Use of military personnel and volunteers
- 11. Organic (peat soil) fires
- 12. Fuel stove only areas

These issues papers can be found on the Have Your Say section of the Parks and Wildlife Service website.

Please note that there are many technical literature reports and papers available that document various research outcomes relating to fire in the TWWHA. These papers do not duplicate that work but rather present key issues to inform further discussion.



#### Fire management in the TWWHA

Contemporary fire management refers to both using prescribed fire and suppressing unplanned bushfires. Prescribed fires (also referred to as planned burns) are used for both asset protection – by reducing the fuel load of fire-adapted vegetation – as well as for ecological maintenance. Many of the natural ecosystems within the TWWHA are fire-dependent, meaning that they require fire at certain intervals in order to stay healthy and maintain their biodiversity. Without fire, they will transition to different vegetation communities and the current landscape as we know it now will change. For this reason, complete fire suppression within the TWWHA is not only impractical but also undesirable.

The absence of planned burning results in higher fuel loads in flammable vegetation, increasing the chance of unplanned ignitions and resultant bushfires.

A bushfire can only occur when there is an ignition source present. The management and education of people who use the TWWHA has reduced the number of human-ignited bushfires (e.g. escaped campfires), but this has coincided with an increase in the number of lightning-ignited bushfires, which has risen substantially since around 2000.

It is important to reduce the hazard from high fuel loads, because bushfires will burn at higher rates of spread and greater intensities when the fuel load is high. Thus, a lower fuel load makes a bushfire less destructive and more likely to be brought under control.

Like planned burns, bushfires will also reduce the fuel hazard, however there are a number of reasons why reducing the fuel load in a controlled manner, such as planned burning, is preferable. As bushfires are uncontrolled, they often cause injury or damage to people, infrastructure and ecosystems. The conditions under which some bushfires occur mean that fire-sensitive vegetation that is usually too wet to burn (e.g. rainforest) may in fact burn. A high-intensity fire also results in uniform impact over a large area – a condition that is undesirable for ecosystem health. Management through the use of targeted planned burning eliminates these consequences and reduces the bushfire risk.



#### Objective

The objective of the Tasmanian Wilderness World Heritage Area Fire Management Plan will be to provide strategic direction underpinned by a contemporary adaptive management framework in order to protect human life, the Outstanding Universal Value of the TWWHA, and other fire-sensitive assets.



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#### History of the area

The Tasmanian Wilderness World Heritage Area (TWWHA) covers 1.58 million hectares, which equates to roughly 20 per cent of the land area of Tasmania. It was first inscribed onto the World Heritage List in 1982, with major extensions occurring in 1989 and 2013. The TWWHA is recognised as being a place of Outstanding Universal Value (OUV), meeting seven out of a possible 10 criteria for listing. This includes all four natural criteria and three cultural heritage criteria.

The TWWHA plays an important role in the culture and identity of Tasmania. During the last ice age, the TWWHA was home to the southernmost humans on earth. Aboriginal Tasmanians have lived in, and used fire to manage and modify, the landscape of the TWWHA for at least 40,000 years: the evidence for this is present in many of the vegetation patterns of the landscape that we see today. The TWWHA remains a diverse and living Aboriginal cultural landscape.

Early European settlers often ventured into the TWWHA, with some making their home there. Trappers, piners, miners and grazers all used the area. Evidence of this occupation ranges from the rudimentary timber huts they built for shelter to the dead stags of burnt pencil pines that can be still be seen in many places across the landscape – a sign of past attempts to clear the landscape with fire.

The TWWHA is a popular location for tourism and recreation, providing a range of experiences, from one-hour guided adventures, to multi-day, off-track bushwalking and many types of recreational activities in between. The TWWHA provides a challenging and remote environment and is also a drawcard for interstate and international tourism, with Cradle Mountain being amongst the top 10 attractions within Australia.

All these issues stir deep passions within the Tasmanian community. As such, decisions regarding management are often accompanied by a wide range of thoughts and opinions, which will vary, and sometimes conflict, depending on the objectives of the stakeholders. Decisions around fire management are contentious. Ensuring adequate engagement with the community is necessary in order to achieve a broad level of acceptance of the fire management plan.



#### Outstanding Universal Value

The TWWHA is recognised as being an area of Outstanding Universal Value. There are a plethora of values that contribute to the Outstanding Universal Value (OUV) of the TWWHA. Many of these values, such as particular plants or ecosystems, are fire-sensitive. Protecting these values from the adverse effects of fire is of paramount importance.

A full list of recognised values can be found here: <u>http://www.environment.gov.au/heritage/places/world/tasmanian-wilderness</u>

When the TWWHA was first listed in 1982, a Statement of Outstanding Universal Value was not required. Currently, a retrospective Statement of Outstanding Universal Value is being developed. This includes values that are both fire-sensitive (do not require fire at regular intervals) and fire-adapted (do require fire at regular intervals to maintain ecological and cultural integrity). This statement will be the key reference for the future effective protection and management of the property.

The following list contains high conservation significance values that are known, or likely to be, fire-sensitive:

- > Conifer communities
- > Deciduous beech communities
- > Alpine ecosystems
- > Fire refugia
- > Organic soils
- Karst features
- Shell middens
- > Hut depression sites

Some of the above values are more at risk from the fire response than the fire itself. For example, shell middens and hut depression sites may be not be severely impacted by a bushfire but are easily destroyed by earth-moving machinery or water bombardment.

The TWWHA also contains a number of fire-dependent values that contribute to its listing of Outstanding Universal Value.





### Cultural landscape

The 2016 TWWHA Management Plan<sup>2</sup> recognises the TWWHA as a cultural landscape, and recommends assessment as an outstanding Aboriginal Cultural Landscape under the World Heritage Convention. Aboriginal fire management practices were one of the key drivers in shaping the landscape of the TWWHA that exists today. For example, the buttongrass plains that form large tracts of the TWWHA represent this past Aboriginal burning history, where fire was used in order to create favourable hunting grounds and maintain trade routes.

The 2016 TWWHA Management Plan places increased emphasis on the TWWHA as a cultural landscape and recommends the inclusion of Aboriginal people in management decisions and actions.

In addition, the National Bushfire Management Policy Statement<sup>3</sup> addresses the importance of bushfire management in building employment opportunities for indigenous Australians:

"Build employment opportunities and the skill base of people working in land and bushfire management (including Indigenous communities) to ensure that Australian agencies continue to have access to graduates, technical and field personnel with appropriate specialised education and training"



#### Economic impacts of fire in the TWWHA

In addition to being a globally unique landscape of Outstanding Universal Value, the TWWHA provides substantial economic value to the local Tasmanian community. This includes: ecosystem services such as the provision of clean drinking water; recreation; tourism experiences; power generation; communications infrastructure; and bee-foraging habitat for the multi-million dollar honey industry. The tourism industry in Tasmania alone contributes over \$3 billion to Gross State Product, directly and indirectly employs around 42,000 people<sup>4</sup> and relies heavily on the TWWHA and other Parks and Wildlife Service reserves for both direct nature-based tourism experiences and branding.

The hydro-electric industry also has a major presence in the TWWHA, with critical power infrastructure located on and adjacent to TWWHA land. Hydro Tasmania manages 13,500 ha of land within the TWWHA and has approximately 680 km of shared boundary with the TWWHA. In addition, Hydro Tasmania is reliant on healthy water catchments, which are required in order to replenish water-storage impoundments. The connection with mainland Australia via the Basslink interconnector means that the role of the TWWHA for electricity services extends beyond Tasmania.

Bushfires can negatively effect on all these services, adding a far greater economic impact to the state than simply the direct cost of fighting the fire. A bushfire may necessitate the closure of parks and reserves, whilst damage to infrastructure, such as walking tracks, can lead to reduced visitation of fire affected areas.

#### Climate change

#### **FIRE RISK**

The impacts of climate change on the TWWHA are uncertain, although modelling has projected an increasing fire-danger environment as the century progresses. This will manifest in increased soil dryness and number of adverse fire-danger days. These changes will not be uniform across the TWWHA, with the worst conditions projected to occur on the Central Plateau<sup>5</sup>.

Climate change projections will result in more frequent and larger fires. This will increase the risk to World Heritage values as more vegetation types and environments become dry enough to burn more frequently. Changes to the lightning regime are projected to occur, with modelling suggesting a slight decrease in the amount of dry lightning. However, any decrease in dry lightning will be offset by an increase in dryness, resulting in a likely rise in potential fires<sup>5</sup>. This will undoubtedly impact the OUV of the TWWHA and has the potential to cause incremental loss of some values, which require different climatic conditions to ensure their continual replacement and regeneration.

Climate change will have important implications for planned-burning programs. A recent report into the future viability of planned burning under climate change conditions forecasts less frequent periods suitable for planned burning, as required by current operational guidelines<sup>6</sup>. This reduction in opportunities for planned burning will be augmented by a substantial increase in fuel availability and a decrease in fuel moisture (allowing fires to burn more intensely). Periods of higher flammability will be brought forward earlier in the season and extend later, resulting in conditions conducive to safe, low-intensity burning occurring less frequently in spring and autumn.

#### TRANSITION IN VEGETATION COMMUNITIES

Changes in fire regimes due to climate change are going to impact the way vegetation communities change over time. Under modelled scenarios two likely outcomes for vegetation communities are that a) communities considered unlikely to burn due to high moisture levels (e.g. rainforest) will become increasingly flammable; and b) the intervals between fires will become shorter.

The TWWHA consists of a mosaic of fire-sensitive vegetation communities sharing boundaries with highly flammable communities, buttongrass moorland being the most common. This patchwork mosaic exists in part through the presence of different fire regimes, with fire excluded from certain environments due to variations in soil and fuel moisture levels.

The theoretical framework for this process in western Tasmania is that moorland can transition to scrub to eucalypt forest to rainforest if the interval between fires is sufficient enough. Similarly, rainforest can become moorland if it suffers extensive, repeated fire damage<sup>7</sup>.

The fire-regime changes resulting from climate change will alter the transitions in vegetation communities, as the more an area is burnt, the more flammable it becomes. This is because more fire-tolerant and fire-adapted species take the place of the lower fire-tolerant and less flammable species.



## Current situation

Although good progress has been made in reducing unintended human-caused ignitions through education and a fuel-stove only policy, there has been a large rise in lightning-caused ignitions over the last decade and a half. Lightning ignitions can be more difficult to control as they are more likely to occur in remote areas and may remain undetected for some time. In addition, a lightning storm may result in multiple ignitions occurring simultaneously across the landscape, placing enormous pressure on firefighting authorities. The inevitability of bushfire in Australia is recognised in the National Bushfire Management Policy Statement<sup>3</sup>:

"Like other natural hazards, bushfires cannot be prevented. Australia cannot be 'fire-proofed' any more than it can be made flood-proof or drought-proof. Bushfires are inevitable, and in some instances can be managed to assist in achieving land management objectives."

In this context, it is important to acknowledge that there is no silver bullet for bushfire control. Fire response strategies in the TWWHA have evolved with climate change, but will need to be developed further as the frequency and scale of fires increase. Issues such as capability, lightning and fuel-moisture detection, the development of decision-support tools, on-ground firefighting tools, equipment, and the use of products such as fire-suppression chemicals will need to continue to be addressed. Strategies will need to evolve and adapt as climate change impacts their usefulness.

Although best efforts will always be made, the loss of fire-sensitive and irreplaceable assets is inevitable. An aim of the Fire Management Plan will be to minimise these losses. The effects of climate change will make this situation worse as bushfires become larger and more frequent and the opportunities for planned burning decrease.

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#### PHOTOS

Stu Gibson: pages 1-3 Aaron Jones: page 4 Craig Vertigan: page 6 fagus Fiona Rice: page 6 midden Pierre Destribats: page 7 Jethro Bangay: page 9




## Tasmanian Wilderness World Heritage Area fire management objectives

#### Background

A fundamental question regarding any management decision is to ask: *what are we managing for*? For example, are we managing for landscape diversity, and if so, how do we determine the appropriate mix of eucalypt forest, buttongrass moorland, or rainforest? Answering the question '*what are we managing for*?' is hard, as there are no overall objectives, or statements, which define the goal for fire management in the Tasmanian Wilderness World Heritage Area (TWWHA) with regards to either natural values management or cultural management.

The 2016 TWWHA Management Plan identifies the broad vision and objectives for management of the area's natural and cultural values, and recognises that fire can have both positive and negative impacts. Planned burning and bushfire prevention and suppression are key management interventions in order to achieve this vision. The Management Plan suggests there are two factors to consider:

- 1. the impacts of bushfire on fire-sensitive natural values; and
- 2. the effectiveness of using appropriate fire regimes for maintaining biodiversity in fire-adapted ecosystems.



However, the Management Plan does not identify overall objectives or goals for fire management of natural values.

From a cultural values perspective, the Management Plan lists three management objectives covering: recognition and understanding that the TWWHA is a cultural landscape; joint land management; and the protection, conservation and restoration of cultural values. The reintroduction of cultural burning can help achieve most of these management objectives, including the opportunities for Aboriginal people to connect with Country.

The Management Plan provides a set of fire management actions and the Parks and Wildlife Service has a set of fire-management operational policies and objectives. These assist in measuring success of fire management in terms of **inputs** (e.g. resources), **processes**, (e.g. planned burning, bushfire suppression) and **outputs** (e.g. fuel reduction, ecosystem maintenance) but there are no overall objectives in terms of what are we seeking to '*manage for*' (**outcomes**) relevant to fire management in the long term.

Following the 2015/16 bushfire season, when bushfires caused substantial damage to some of the irreplaceable natural values of the TWWHA, the Tasmanian Government commissioned a review into how Tasmanian fire agencies should respond to future bushfires in the TWWHA. One of the key recommendations of the final report states that:

"Clear, well-defined objectives for fire management should be incorporated into a Fire Management Plan for the TWWHA. These objectives should identify how fire management (fire suppression, 'let go' and management fires) will be used to protect and conserve the natural and cultural heritage values in the TWWHA."

And that:

"The Fire Management Plan for the TWWHA should clearly set out the circumstances in which priority will be given to protecting the outstanding universal value of the TWWHA over built assets within its boundaries."

The review and subsequent report recommendations highlight the importance of fire in maintaining natural and cultural values, whilst also protecting those values that are fire-sensitive. Consequently, the Parks and Wildlife Service will continue to proactively use fire as a management tool in the TWWHA.

#### Challenges

Determining fire management objectives for the TWWHA is made more difficult by the different evolutionary responses of vegetation communities to fire. The application of fire, whether planned or unplanned, will promote the fire-adapted and more flammable species at the expense of the less fire-tolerant and less flammable species. This then leads to an environment that is more flammable, and therefore more likely to carry a bushfire risk. One way to reduce that risk is to apply frequent fuel-reduction burns, but this in turn promotes flammable species.

So, perhaps the management objective should be to eliminate the amount of flammable vegetation through no fuel-reduction burning, combined with fire-suppression efforts? However, in the context of the TWWHA, this becomes impractical due to the size and remoteness of the area being managed and, before the desired objective of a

low-flammability environment can be realised, there will be a long period of heightened fire risk as fuel loads build up. This situation creates extreme risk to fire-intolerant species such as the pencil pines, King Billy pines and fagus. Climate change will only exacerbate this risk. This scenario would also reduce the landscape diversity and cultural landscapes of the TWWHA. Furthermore, not all vegetation patterns are determined by fire, with soil, drainage and exposure to wind and sunlight also being important factors. Therefore, there will always be areas that contain highly flammable vegetation.

So, the overall question of '*what are we managing for*?' has to recognise that complete fire suppression in the TWWHA is not only impractical, but also undesirable.

The 2016 TWWHA Management Plan, which also recognises the need to develop a fire management plan, recommends including objectives that would guide the use of fire in the protection and conservation of TWWHA values. So how would we know if we are managing fire within the TWWHA in a way that achieves protection and conservation of both natural and cultural TWWHA values – **the outcome**?

The overall outcome of fire management needs to be expressed in a way that can be used by managers and others to determine whether the result of Parks and Wildlife Service fire management activities are accomplishing what they set out to achieve. However, in doing so it is important to be mindful that although outcomes can be aspirational, bushfires are often a force that is beyond the ability of humans to control and climate change is only making this more so.

#### The way forward

It is suggested that the following fire management outcomes for natural values be adopted:

- 1. No loss of fire-sensitive vegetation or other high conservation values in the TWWHA as a result of fire.
- 2. Fire-dependent natural values are maintained through appropriate fire regimes.

#### OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

- 02 Fuel-reduction burning
- 03 Planned burning: landscape fuel-reduction burns for asset and ecosystem protection
- 04 Planned burning: use of fuel-reduction burns for ecosystem maintenance
- 05 Aboriginal burning







## Fuel-reduction burning

### Background

A key question for fire management is whether or not to conduct planned burns or to leave nature to itself. Fuel-reduction burning is a type of planned burn, where the sole objective is to reduce the fuel load. The Parks and Wildlife Service use the term 'planned burn' because it takes into account other burn objectives, such as ecological requirements.

The Tasmanian Wilderness World Heritage Area (TWWHA) is a mosaic landscape where some of the world's most flammable plants sit right next to fire-sensitive relicts that have survived since the age of dinosaurs. The complexity and diversity of the landscape is due to the practices of the Aboriginal Tasmanians, who occupied the area for over 40,000 years, until their dispossession in the 1830s.

Changes in burning regimes since the dispossession of Aboriginal Tasmanians of their land has generally resulted in less frequent fire, particularly in the remote parts of western Tasmania. This absence of fire has led to an increase in shrubby and woody vegetation, as buttongrass moorlands and highland grasslands become overgrown. The increase in heavier vegetation, such as shrubs and eucalypts, also increases the fuel load. Fuel refers to the vegetation available to be burnt in a bushfire – larger fuel loads result in more intense and difficult to control bushfires. Very large bushfires have become common in the TWWHA in recent times, due in part to this increase in the fuel load. Uncontrolled bushfires put at risk the ancient fire-sensitive species, such as King Billy pines, pencil pines, deciduous beech and Huon pines.



Three different objectives for planned burning are currently recognised:

- Asset protection burns aim to protect human life, property and natural and cultural assets. The intent of this type of burning is to undertake it frequently in order to keep fuel levels low. Frequent fuel-reduction burning may exceed the ability of an ecosystem to recover to its prior state, and consequently result in vegetation change.
- Strategic fuel-reduction burning (landscape) aims to provide areas of reduced fuel in strategic locations in order to reduce the forward spread and intensity of bushfires. This limits the adverse impact of a bushfire and increases the chance of controlling it. These planned burns are always undertaken at a frequency and intensity that the ecology of the area is known to cope with.
- 3. Ecological burns are aimed at maintaining a fire-dependent community or habitat.
- 4. It is likely that in the near future another category of burn will be acknowledged to recognise Aboriginal burning.

A planned burn can achieve more than one outcome. A strategic fuel-reduction burn is always planned at intervals and intensities that will benefit fire-dependent communities, yet also assists in keeping fuel levels as low as possible.

Planned burns have proven effective at slowing and stopping the spread of bushfires. This was demonstrated in a number of locations in southwest Tasmania during the 2018/19 bushfire season.

Current fire management objectives for the TWWHA, which will be captured in the TWWHA fire management plan, are to return the landscape to a low-intensity, small-size, fire regime.



#### Challenges

Climate change is increasing the risk of bushfires in the TWWHA. This is occurring through an increase in the number of lightning-caused bushfires, which has risen substantially since 2000. Recent fire seasons in 2015/2016 and 2018/19 illustrate our limitations in extinguishing fires that arise from mass ignition events.

Reducing fuel loads in fire-dependent vegetation communities reduces the intensity of bushfires and increases the chance of controlling the fire. Manipulation of the fuel is the only feasible way of minimising the broadscale negative impacts of bushfires. The reduction of fuels can be through planned burning or through bushfires themselves and it needs to be noted that not all bushfires are destructive. Bushfires under certain conditions can achieve the same outcomes as planned burns.

The need to increase the level of planned burning to address the risks posed by climate change is challenging, as climate change is also decreasing the windows of opportunity in which planned burning can occur, due to longer bushfire seasons.

Planned burning can only occur under very specific weather conditions and when these conditions occur there is often competition for resources across the state. It then becomes difficult to undertake enough planned burns to achieve the objective of a low-intensity, small-size, fire regime.

Planned burns, like bushfires, create a lot of smoke. There is widespread concern in the community about smoke pollution, so efforts are made to only carry out planned burns when conditions are favourable to minimise smoke impact. This includes taking into consideration things such as wind direction, time of year and co-ordination to ensure the amount of smoke emitted on any one day is capped.



#### The way forward

In order to increase the chances of success in reducing damage to the TWWHA from bushfires, a range of options should be utilised to reduce fuel loads. These include planned contemporary fuel-reduction burning, Aboriginal burning, and, in some cases, using bushfires to achieve fuel-reduction. In relation to bushfires, it would mean under some circumstances adopting a 'let-go' policy for bushfires when an assessment indicates outcomes similar to that of a fuel reduction or ecological burn, resulting in positive ecological outcomes and protection of life or property.

#### OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

- 1 Tasmanian Wilderness World Heritage Area fire management objectives
- 03 Planned burning: landscape fuel-reduction burns for asset and ecosystem protection
- Planned burning: use of fuel-reduction burns for ecosystem maintenance
- 05 Aboriginal burning







## Planned burning: landscape fuel-reduction burns for asset and ecosystem protection

#### Background

Landscape fuel-reduction burns are undertaken in vegetation that is fire-dependent, and aim to not only reduce fuel loads but also promote the ecological health of these communities. For example, buttongrass moorland requires frequent fire in order to maintain species diversity. Buttongrass moorland can be burnt throughout most of the year when the soils are saturated, however, when soils are dry, for example in summer, the soils can also burn, which leads to their degradation. Therefore, buttongrass is targeted for burning when the soil is wet, reducing the fuel loads, promoting biodiversity of the moorland, protecting the soil, and reducing the chance of future bushfires impacting on fire-sensitive vegetation that is often found adjacent to the moorlands.

Landscape fuel-reduction burns occur within remote areas of the TWWHA and are effective at stopping the spread of large bushfires as they break up the fuel load. This creates natural barriers to fire progression and increases the chance of firefighters controlling a bushfire.



#### Challenges

The challenges for landscape fuel-reduction burning include climate change decreasing the windows of opportunity in which planned burning can be completed, and competition for resources when weather conditions for burning are suitable.

In recent years there has been a focus on asset-protection burning as part of the statewide Fuel Reduction Program, with priorities placed on protecting built assets and community infrastructure. However, strategic landscape fuel-reduction burning can contribute significantly to the protection of built assets as well as natural and cultural values, and is an important part of land management. Therefore, resources need to be devoted to landscape fuel-reduction burning as well as asset-protection burning as this assists in the overall asset protection strategy and is an important land management tool.

We do not always have detailed information on the ecological responses to planned burning. Some people suggest that until we do, we should not be undertaking any planned burns; however, it needs to be acknowledged that choosing **not to do** something is just as much of a decision with consequences as choosing **to do** something. Research continues into the appropriate fire regimes (fire frequency, size, intensity and season) required to promote healthy ecosystems, however this work is ongoing.

Landscape fuel reduction-burning relies on fuel moisture differentials between vegetation communities and/or evening humidity and temperature changes to extinguish the fire. These conditions typically occur in spring and autumn. However, there are risks associated with using natural barriers and weather conditions to extinguish a fire and some escapes are likely to occur from time to time. In recent history, any impact from these escapes has been minimal. Currently, there is broad community support for fuel-reduction burning and understanding of the limitations and risks. Without community support, the Parks and Wildlife Service and other fire agencies would have significant barriers to undertaking planned burning. Some of these barriers include the level of planning and approval required, which is already significant, as well as burning prescriptions being too narrow, which limits opportunities to undertake burns. The key to an effective burning program is to define an acceptable level of risk in order to be as effective as possible.



### The way forward

Balance the level of resources devoted to landscape and asset-protection burning.

Identify strategic landscape fuel-reduction zones and maintain a planned burning program to achieve asset protection and the conservation of fire-dependent ecosystems.

Continue to research the fire regimes best suited to communities throughout the TWWHA.

Communicate the successes of the planned burning program, including temporary onsite interpretation signs, to highlight the benefits of burning.

#### OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

- 01 Tasmanian Wilderness World Heritage Area fire management objectives
- **02** Fuel-reduction burning
- 04 Planned burning: use of fuel-reduction burns for ecosystem maintenance
- 05 Aboriginal burning









## Planned burning: use of fuel-reduction burns for ecosystem maintenance

#### Background

Many of the ecosystems of the TWWHA are fire-dependent. This means they require fire at certain intervals in order to stay healthy and maintain their biodiversity.

Some examples of fire-dependent ecosystems that occur in the TWWHA include:

- > Buttongrass moorlands
- > Highland (montane) grasslands
- > Dry eucalypt forests

Buttongrass moorlands are highly flammable ecosystems, which are managed for both fuel reduction and as habitat for rare and threatened species, such as the critically endangered orange-bellied parrot. The orange-bellied parrot requires buttongrass around 7-10 years of age so requires regular burning around its breeding sites at Melaleuca in order to forage and feed its young. Other species dependent on buttongrass moorland are the emu wren, striated fieldwren, tawny-crowned honeyeater, broad-toothed rat and ground parrot.

Montane grasslands require regular burning to prevent them being invaded by woody species, such as trees and shrubs. There has been a reduction in the extent of montane grasslands in Tasmania since the cessation of regular burning in these environments. Frequent planned





burning for ecosystem maintenance is required in order to prevent the loss of any more montane grasslands. Fauna species such as the endangered ptunarra brown butterfly are dependent on grasslands such as those found in the TWWHA, and require a very specific fire regime. This would be best achieved through regular patchy burning, in order to achieve a range of tussock ages and prevent the encroachment of woody shrubs into the grassland.

#### Challenges

Through longer bushfire seasons, climate change is decreasing the windows of opportunity in which planned burning can occur.

A lot of uncertainty remains around the exact requirements needed for individual species.

Different species have competing requirements around burning frequency and season. Burning to favour one species may disadvantage others.

Ecological burning will result in changes to a community and we're not always sure exactly what these changes will be – although some sort of change is often the intent of the management action.

Doing nothing (i.e. no burning) is also a management decision, and usually also results in ecosystem change. However, doing nothing in vegetation communities dependent on fire will build up high levels of fuel that will support destructive bushfires.



### The way forward

The Parks and Wildlife Service recognises its responsibility as a land manager to not only keep fuel levels low for safety reasons but to maintain healthy, functioning ecosystems. This means conducting burning in the TWWHA for the purpose of maintaining fire-dependent ecosystems. Some fire-dependent ecosystems, such as buttongrass moorland, are burnt as part of the fuel-reduction strategy, however montane grasslands do not fall into this category. For that reason, the Parks and Wildlife Service has developed a draft montane grasslands fire management strategy in order to help conserve these ecosystems.

The Parks and Wildlife Service will continue to research the appropriate fire regimes required for threatened species and vegetation communities within the TWWHA.

#### OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

- 01 Tasmanian Wilderness World Heritage Area fire management objectives
- 02 Fuel-reduction burning
- O3 Planned burning: use of fuel-reduction burns for ecosystem maintenance
- 05 Aboriginal burning







## Aboriginal burning

### Background

Aboriginal burning, cultural burning, firestick farming and traditional burning are terms often used to describe the burning practices developed by Aboriginal peoples to enhance the health of the land and its people. Aboriginal burning is one of the ways Aboriginal people maintain their relationship with Country. Indigenous people in many parts of the world undertake traditional burning, or similar practice.

Aboriginal burning principles and techniques vary around Australia, but usually involve patch burning to create different fire intervals across the landscape, which is undertaken during cool evening or morning conditions, in light winds. Aboriginal burning is often used to promote particular plants and animals, as a tool to gain better access to country, to maintain cultural responsibilities, as a ceremonial practice, and to reduce fuel loads. Aboriginal burning in the true sense is place-specific. It involves the use of ancient knowledge of that place, its landscape, flora, fauna and weather to control fire in the landscape – knowledge that has been acquired through multi-generational occupation, use and burning of that country.

Aboriginal burning can be a useful tool in meeting the management objectives of the Tasmanian Wilderness World Heritage Area (TWWHA) through promoting the ecological health of landscapes and reducing bushfire severity through fuel reduction and fuel modification. Traditional burning improves Aboriginal health outcomes, allows Aboriginal



people to connect with country, and can provide training and employment opportunities for Aboriginal people. Aboriginal burning knowledge can also assist and inform non-Aboriginal burning practices, and the reintroduction of Aboriginal burning in the TWWHA offers opportunities for collaboration and knowledge sharing.

The Parks and Wildlife Service acknowledges that Aboriginal people are the knowledge holders and practitioners of cultural burning and a shared understanding of cultural burning, its principles and objectives are necessary in order to achieve the reintroduction of cultural burning within the TWWHA.

#### Challenges

The near complete dispossession of Aboriginal Tasmanians from their traditional lands has led to a discontinuation of Aboriginal burning practices. In recent years, there has been a resurgence in burning activities by Aboriginal Tasmanians, mostly due to ongoing Tasmanian involvement in the annual National Indigenous Fire Workshop, and participation in well-planned and executed burns on Aboriginal land and private property. It is accepted there are a number of Aboriginal Tasmanians and Aboriginal community groups with an understanding of burning principles and experience in executing burns, who could participate in supported burning activity. It may, however, take time and resources to further build Aboriginal community capacity in cultural burning through continued exposure to Aboriginal burning knowledge and activities.

Improving cultural awareness amongst current Parks and Wildlife Service fire managers and operations staff will support the sharing of respective fire knowledge and practices. Greater cooperation and information sharing should also lead to opportunities and support for Aboriginal people to access Country to undertake burning.

There is an assumption that a reintroduction of Aboriginal burning will provide the solution to the bushfire risk we face. While this type of burning can potentially contribute to a reduction in fuels, it is not the panacea to the bushfire risks associated with climate change.

As a cultural activity, Aboriginal burning must be led by Aboriginal people and is subject to their cultural burning lore and protocols. For example, cultural burning is often a family and community activity, performed over many days, and involving supplementary activities. It is a time for Aboriginal people to gather and connect. The involvement of children is common, due to a need to pass knowledge on to future generations. A challenge may be providing such opportunities for Aboriginal burning free of onerous and culturally unacceptable requirements.

#### The way forward

Support Aboriginal communities to re-establish their cultural burning practices within the TWWHA to complement current fire management activities.

The option to simply provide opportunities for Aboriginal Tasmanians to be part of the current Parks and Wildlife Service planned burning program is unlikely to achieve outcomes required by the 2016 TWWHA Management Plan or the aspirations of Aboriginal communities. Cultural burning needs to be led by Aboriginal people.

The TWWHA Fire Management Plan must be consistent with, and effectively implement, the direction set by the 2016 TWWHA Management Plan.

The Parks and Wildlife Service is working with Tasmanian Aboriginal communities with the aim of supporting them to re-establish cultural burning practices in the TWWHA.

#### OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

- 01 Tasmanian Wilderness World Heritage Area fire management objectives
- 03 Planned burning: landscape fuel-reduction burns for asset and ecosystem protection
- 04 Planned burning: use of fuel-reduction burns for ecosystem maintenance







## Backburning

#### Background

Backburning is a fire suppression technique used in the control of bushfires. A backburn is a fire lit close to the edge of an active bushfire, which burns out the fuel between the bushfire and an established control line. The removal of fuel halts the fire's spread, providing suitable conditions for firefighters to finish suppressing the fire.

Backburning is often confused with fuel-reduction burning. Although the outcome is similar (the removal of fuel through fire) the strategies and techniques are different. Fuel-reduction burns (which can also be referred to as controlled burns, planned burns, prescribed burns or hazard-reduction burns) are carried out in a planned way, under a predetermined set of weather conditions. Backburning is conducted as part of a bushfire response, and is carried out under a wider set of weather parameters.

Backburning from good fire breaks may be the only option to safely prevent the spread of a large or intense bushfire. Using already constructed firebreaks can save time and limit environmental disturbance.



### Challenges

Backburning can be risky as it involves lighting fires under conditions suitable for bushfires. Risks include injuries to firefighters as well as the risk of escape. An escaped backburn will add to the size of the bushfire requiring containment.

To be done safely, backburning requires personnel with significant experience as well as a large number of resources.

Backburning requires a fire break, from which it can be lit. Fire breaks can include tracks or water bodies, paddocks and other natural features, including rocky outcrops or moraines. If no existing hard edges exist in the vicinity of the fire it may be necessary to create one with a bulldozer. The issues around the use of machinery in the Tasmanian Wilderness World Heritage Area (TWWHA) are discussed in a different issues paper. Hand tools can also be used to create an edge for a backburn if machinery cannot be used. The use of hand tools is slower, and can be riskier as the fire break will tend to be narrower. Occasionally, wet forest edges can be used as an edge to burn from, particularly early in the bushfire season. Aerial ignition is used to support backburning, particularly when the fire front is some distance from the backburn.

Backburning can be highly effective, but is risky. As such, there is a tendency for backburning not to be undertaken even though it may be the only feasible option to control a bushfire. Furthermore, as there is a general consensus that incident management teams should keep the size of bushfires as small as possible, the prospect of increasing the size of a fire is not often welcomed.

Planning a backburn requires time, so identifying opportunities for backburning needs to occur early on during a bushfire response. In addition, when developing protection plans for natural or cultural assets, the conditions under which backburning may be feasible should be included. On-ground preparations may also increase opportunities for backburning.

Suitable weather is required for the duration of the backburn, and these weather opportunities need to align with other operational aspects, such as adequate resourcing of firefighters to conduct the backburn.

#### The way forward

While there are many challenges to backburning, the Parks and Wildlife Service will continue to utilise backburning as a bushfire suppression option within the TWWHA. There are opportunities for the TWWHA Fire Management Plan to provide a clear intent in regard to supporting backburning, and specifying conditions under which backburning should be undertaken to minimise the risk (e.g. minimum personnel levels, experience, approval prior to backburning, etc).

The TWWHA Fire Management Plan will also highlight the development of protection plans, which will include backburning options and conditions under which those backburns could be undertaken.

#### OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

- 07 Use of aircraft
- 09 Use of machinery





## Use of aircraft

### Background

Aircraft are utilised during firefighting efforts in the Tasmanian Wilderness World Heritage Area (TWWHA) in order to detect fires after lightning storms, transport firefighters into remote areas, provide water for the crews on the fire ground, lay retardant lines, or drop water onto the fire (water-bombing).

Water-bombing aircraft have been routinely used to fight fires in Tasmania from around 2006 onwards. Water-bombing is used to reduce fire intensity and allow crews to extinguish the fire edge. There is currently a strong public perception that aircraft are highly effective and are the answer to fighting bushfires. However, the ability of aircraft to contain an active bushfire is limited without ground crews.

During the early stages of a fire, when it is still small and burning at a lower intensity, waterbombing can be effective in slowing the fire's spread, thus keeping the fire small, allowing firefighters time to travel to the area.

Some aircraft have proved more appropriate for use in the TWWHA than others. For example, small water-scooping airplanes were used during the 2018/19 fire season to scoop water from Lake Pedder and water bomb nearby fires. The quick turn-around time, and the number of suitable large water bodies, make these ideal aircraft in certain situations. The TWWHA's rugged landscape limits the use of larger airplanes due to their reduced capacity to manoeuvre. Helicopters with buckets can take water from streams and rivers and either directly water-bomb a fire or deliver it to portable dams, which fire crews then pump out of for firefighting.



#### Challenges

Water-bombing aircraft provide a useful tool to fight fires, however aircraft on their own are not capable of putting out a fire. Instead, water-bombing aircraft are most effectively used to deliver the water to where it is needed by firefighters on the ground, or by keeping a new fire small, giving firefighters a chance to extinguish it.

Getting firefighters to a fire can be very difficult. In open buttongrass plains and alpine areas helicopters can often land to get crews close to the fire edge. In forest, it can be important to get access to a smouldering tree that has been hit by lightning and has the potential to spread to surrounding forest, however landing a helicopter is often impossible. In the past, firefighters capable of being winched from a helicopter have been brought in from the mainland, however, this access to winch-trained crew and winch-equipped helicopters is dependent on their availability, as there are no helicopters or firefighters trained or dedicated to undertake this type of work within Tasmania. The Tasmanian Government recently announced funding for the Parks and Wildlife Service to train firefighters to be able to be winched into areas where landing is impossible. This will build additional capacity within Tasmania to undertake remote-area firefighting, but will take several years to develop and implement.

The use of aircraft to fight fires is extraordinarily expensive and, like all other firefighting efforts, the effectiveness of action needs to be assessed against the cost as it is very easy to use aircraft and achieve very little return in terms of fire suppression results. The use of aircraft may give the impression that the fire is being suppressed, however their effectiveness is particularly limited when the fire is burning underground in organic soils.

Large water-bombing aircraft come from the mainland so the turnaround time between drops is in the order of hours. The availability of these aircraft is limited if other states are also battling bushfires. Another challenge faced is that by the time the aircraft arrives in Tasmania the weather conditions may no longer be appropriate for flying.



Given finite resources, decisions need to be made on the best mix of aircraft for Tasmanian conditions. The problem is that the environment within the TWWHA is quite different to much of the eastern half of Tasmania. While large air tankers may have limited benefit in the TWWHA environment they could be quite effective in the more open vegetation typical in other parts of the state. Investment in one type of aircraft may limit resources available to secure other types of aircraft.

The TWWHA contains environments largely free of weeds, pests and disease. However, the potential for aircraft to transport water, personnel and equipment from one catchment to another poses a significant biosecurity risk. Identifying environments that are free from weeds, pests and disease, or where they exist, is critical to planning and ensuring that these biosecurity hazards are not spread through firefighting activities.

The organic soils that occur across much of western Tasmania pose an additional challenge to the effective use of aircraft for firefighting and more can be read about that in the issues paper on peat fires.

#### The way forward

The Parks and Wildlife Service recognise that there are many factors to be considered in the effective and efficient use of aircraft. The unique environment of the TWWHA (organic soils, rugged terrain, availability of water, and environments substantially free of weeds, pests and disease) requires significant planning and control to ensure that the bushfire-fighting tactics do not become a greater threat than the fire itself to the conservation of TWWHA values.

Recognise that aircraft are not the great panacea for firefighting that people want them to be and use aircraft only when they are going to have benefits to the firefighting effort.

Continue to investigate new techniques and equipment related to aerial firefighting and adopt as appropriate to the Tasmanian context.

Utilise the most appropriate aircraft for the TWWHA, such as small, water-scooping airplanes and helicopters.

#### OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

**O8** Fire suppressants and retardants

11 Organic (peat soil) fires







# Fire suppressants and retardants

#### Background

Firefighting chemicals (suppressants and retardants) are used in many parts of the world to assist with fire suppression.

Fire retardants are long-term products that are most commonly released from airplanes in long lines. Fire retardants contain fertiliser salts, which act to slow the rate of fire spread by cooling and coating fuels, depleting the fire of oxygen and slowing the rate of fuel combustion through a chemical reaction. Retardants often contain a dye, which makes them appear red. This is so the treated area can be located after application. Fire retardants will not stop a high-intensity fire in its tracks but can assist firefighters on the ground by slowing fires of lower intensity, reinforcing fire breaks, or protecting high-value assets.

The most common fire suppressant is foam. Foam suppressants used on bushfires contain surfactants, similar to dishwashing liquid. Surfactant is added to the water used to fight fires at a concentration of 0.1 to 1.0 per cent by volume. Foam cools the fire by creating a barrier between the fuel and fire and also enhances the effectiveness of water by reducing the surface tension, which enhances the ability of the water to wet fuels.

Rules for applying firefighting chemicals across Tasmania have been developed into a decision-support tool based on a review of known and likely environmental impacts of different retardants and suppressants, largely from the northern hemisphere.



For example, the review highlighted the need to avoid using firefighting chemicals around waterways. The aim is to use these products in situations that maximise bushfire suppression while causing the least amount of environmental impact, understanding that in many cases the impact of using fire suppression chemicals may be lower than the impact of unsuppressed fire on the TWWHA.

### Challenges

Despite some understanding of the likely environmental impact of fire retardants and suppressants on the environment there is still much that is not well understood. The Parks and Wildlife Service has projects underway to improve knowledge in this area, however this will take time.

The appropriate retardant coverage levels required to be effective in Tasmanian vegetation is not known. The option of not using retardants may avoid any environmental risk, however, the use of retardants and suppressants may be a critical factor in being able to protect significant fire-sensitive assets.

The dropping of retardant from an airplane is a very dangerous operation for the air crew. Consequently, the ultimate decision for the position of the retardant drop will be determined by the pilot and based on an assessment of safety.

Aircraft capable of large retardant drops are limited in availability and therefore prioritised for life and property protection. This means that they are not readily available for natural values protection and cannot be relied upon.

#### The way forward

The benefits and consequences of fire suppressant and retardant use in Tasmania are not fully known and will continue to be assessed.

The Parks and Wildlife Service will continue to undertake or support research into the ecological impacts of suppressants and retardants and how they can be applied at appropriate coverage levels for Tasmanian vegetation types.

It seems apparent that fire suppressants and retardants have limited use in stopping the forward movement of a high-intensity fire but in combination with other tactics can be useful in reinforcing a fire break or protecting an asset. The Parks and Wildlife Service will continue to investigate using suppressants and retardants for these purposes.

OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

- 07 Use of aircraft
- 11 Organic (peat soil) fires





## Use of machinery

### Background

After any significant bushfire there is inevitably community debate around the role of machinery in fighting bushfires, with some people calling for greater use of machinery and others adamant that it should not be used under any circumstances.

It is true that sometimes machinery can cause more damage than the fire. Bulldozers can destroy Aboriginal artefact scatters, knock over habitat trees that would have otherwise persisted after the fire, contribute to erosion, and, in high altitude areas, take many decades to rehabilitate.

On the other hand, thoughtful use of machinery can quickly contain a fire to a small size.

The guiding vision for management of the Tasmanian Wilderness World Heritage Area (TWWHA) is to:

"Identify, protect, conserve, present, and, if appropriate, to rehabilitate, the World Heritage, National Heritage and other natural and cultural values of the TWWHA and to transmit that heritage to future generations in as good or better condition than at present." (Tasmanian Wilderness World Heritage Area Management Plan 2016).

Implicit in this statement is minimal impact on the natural environment, which would suggest that earth-moving machinery such as bulldozers and excavators cannot be used. However, the TWWHA Management Plan 2016 does not specifically prohibit the use of machinery to control bushfires.



Furthermore, the National Parks and Reserves Management Act 2002 provides power to the managing authority:

"to take any steps or undertake any activities that the managing authority considers necessary or expedient for the purposes of preventing, managing or controlling fire in reserved land, having regard to the management objectives for that reserved land."

Machinery is often used to construct a track that is then cleared of vegetation. This provides a defendable boundary from which a backburn can be conducted and firefighting vehicles can access the fire ground. Fire trails and fire breaks serve the same purpose as a machine-constructed track for firefighting purposes, but are pre-existing. Due to the remoteness of the TWWHA there are very few existing fire trails and fire breaks. Fire trails, fire breaks and machine-constructed tracks are not intended to be a barrier that stops a fire, but rather a control line from which a backburn can be safely conducted using firefighters and tankers.

#### Challenges

The use of machinery to control bushfires in the TWWHA is considered and approved on a case by case basis. Specific approval is required by officers authorised by the Director of National Parks and Wildlife. In considering a request to use machinery, the officers are required to consider the impact on natural, historic, Aboriginal, recreational and other values. The chances of successfully controlling a fire using machinery also has to be considered. For example, is it likely that the success of machinery use will outweigh the impact? It is also important to remember that the use of a machine-constructed firebreak does not guarantee success in controlling the spread of a bushfire.

Many areas of the TWWHA are not conducive to the use of machinery, as the ground is too soft or inaccessible, or there are no roads for machinery to enter the fire ground. This limits the areas where machinery can be successfully utilised for firefighting in the TWWHA.

The unique organic soils found throughout the TWWHA are of international significance and are particularly vulnerable to damage. This makes machinery operations particularly difficult as the scars left by a firebreak, even if rehabilitated, can be seen many decades later. Dozers and excavators are easily bogged in these environments and extracting these machines can cause even more damage.

The operation of dozers and excavators has to be closely supervised to ensure that sensitive natural and cultural values near the planned fire break are not damaged.

Machinery has been used successfully in the right conditions, particularly in previously disturbed areas near roads, or on disused vehicle tracks that are now overgrown. It is also acknowledged that in some circumstances the protection of life and property in emergency situations requires the use of machinery and there is little time to assess the situation. In such circumstances, having an agreed set of guidelines for machinery use could be beneficial.

#### The way forward

It is suggested that the use of machinery should not be subject to a blanket restriction, but for use to be approved under certain circumstances. It may be beneficial to identify some environments in which use of machinery would generally not be approved (e.g. organic soils, highly erodible environments, or areas posing a biosecurity risk).

The proposed use of machinery that has the potential to result in environmental and cultural impact should be assessed and managed to minimise impact, so far as is reasonably practicable. The nature or type of assessment may vary depending on the urgency of the situation and the actions required. The impact of the use of machinery should be considered against the potential impact of any bushfire.

If machinery use is approved, the operators must be closely supervised and briefed on operational limits and areas nearby that are of significant natural and cultural heritage value. These areas should be clearly marked on maps and on the ground.

As part of the decision-making process, the Parks and Wildlife Service should continue to provide natural and cultural values information to assist incident management teams manage the impact of bushfire suppression methods, including the use of machinery, on TWWHA values.

#### OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

- 06 Backburning
- 07 Use of aircraft
- **08** Fire suppressants and retardants





# Use of military personnel and volunteers

#### Background

Responsibility for fighting bushfires within the Tasmanian Wilderness World Heritage Area (TWWHA) resides at the state level, however, at times when there are large bushfires burning there is usually a public discussion around the use of national resources, such as the Australian Defence Force (ADF). Similarly, there is often an appeal to call on non fire trained volunteers from within the community.

Australian firefighting agencies assist each other across land tenure and state boundaries whenever the need arises and resources are available. During lengthy and difficult fire seasons, additional firefighting resources have been provided from overseas, notably New Zealand, Canada and the United States.

During previous fire seasons the Tasmanian fire agencies have used ADF personnel and volunteers from the community to support bushfire operations. In recent years, calls to increase the use of ADF personnel and community volunteers for firefighting in remote areas have been considered.

Understanding what is involved to safely fight bushfires in remote areas of the TWWHA is critical in making decisions around the use of other agency personnel and volunteers.



#### Challenges

Remote-area firefighting requires specialist skills, as firefighters are working around helicopters and water-bombing aircraft, undertaking off-track navigation, negotiating steep terrain and exposed to extreme weather changes. In Tasmania, it is not uncommon for remote-area firefighters to be fighting fires in high temperatures one day only to be pulled off the fire ground due to snow the next.

Tasmania Parks and Wildlife Service firefighters must complete training in helicopter operations, the use of remote-area pumps, complex hose-lay arrangements and remote-area first aid, as well as completing a medical and fitness test. This requires a large number of hours of training and on-ground mentoring before an individual can be deemed competent in remote-area firefighting.

The Parks and Wildlife Service recognises two types of firefighters based on fitness levels and training. Arduous-rated firefighters are able to operate in remote areas (more than a 45-minute walk from a road), whereas moderate-rated firefighters tend to participate in vehicle-based firefighting. Most Tasmania Fire Service volunteers are skilled in vehicle-based firefighting.

Military type personnel are not trained in remote-area firefighting, but can provide a useful role in organising logistics such as base camps and evacuations. Similarly, most Tasmania Fire Service volunteers are not trained in remote-area firefighting but are utilised for vehicle-based firefighting.

Firefighting agencies such as the Parks and Wildlife Service and Tasmania Fire Service utilise a common system for managing incidents: the Australasian Inter-service Incident Management System. This allows seamless interoperability between firefighting agencies and between states and territories. Any escalation of response involving the ADF means a significant amount of disruption to established processes, as these personnel use a different incident-management system.

The ADF's primary purpose is to defend Australia's borders, people and way of life. To rely on the defence force for routine domestic responses, such as firefighting, would require military personnel to be trained in fighting bushfires. Given military personnel are highly trainedin specialist roles other than firefighting, utilising them for firefighting is a very expensive proposition.

#### The way forward

The Parks and Wildlife Service should continue to only use people who have training, skills and experience recognised at a national level to fight fires in remote areas. The fire ground is a workplace and firefighting must be conducted in accordance with the *Work Health and Safety Act 2012*.

The Parks and Wildlife Service recognises that military personnel and community volunteers, including Tasmania Fire Service volunteer firefighters, can provide a valuable supporting role in remote-area firefighting operations. However, unless individuals have the necessary training and experience they should not be deployed to fight fires in remote areas.

#### OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

07 Use of aircraft

- **68** Fire suppressants and retardants
- 09 Use of machinery





## Organic (peat soil) fires

### Background

The Tasmanian Wilderness World Heritage Area (TWWHA) is a particularly difficult location for firefighting due to the remoteness and inaccessibility of much of the region, but also due to the extensive areas of organic soils – commonly but mistakenly referred to as peat soils – that occur in the area.

Organic soils are made up of decaying and decayed plant material. These soils build up only under wet and cool climatic conditions. Anyone familiar with western Tasmania would therefore know that the climate of the TWWHA has been conducive to the development of organic soils! For this reason, organic soils are widespread across the TWWHA and make up just over 6000 square kilometres, or about 40 per cent of the land area. Organic soils can be up to two metres deep in the broad valley floors but are commonly shallower across much of the rest of the TWWHA. Organic soils are recognised as a unique feature of the TWWHA and are acknowledged as contributing to its Outstanding Universal Value.

Many of the difficulties associated with fires in the TWWHA are due to fires burning underground in organic soils.



#### Challenges

Fires in organic soil are extremely difficult to put out due to the very high moisture levels under which they are capable of burning – some organic soils can still burn when they are so wet that water makes up well over half the weight of the soil! This means that fires can burn even when the soil appears very wet. Additionally, once heated, organic soils can become water-repellent, meaning that water applied to a soil fire will run off the surface, leaving the organic soil underneath still dry enough to burn. This means that simply using water to extinguish soil fires is often ineffective.

Organic soil fires can also be difficult to detect as they are capable of burning underground. It is common for lightning to ignite a fire in organic soil and for that fire to not appear above the surface for days, even sometimes weeks. This is one reason why lightning-ignited fires in the TWWHA can be missed despite regular spotter flights that take place after lightning activity.

These factors contribute to the difficulty of fighting fires in the TWWHA. Extinguishing soil fires is slow and difficult work. Dropping water from aircraft will not put out fires in organic soils and a good example of why the use of water-bombing aircraft alone is ineffective. Techniques employed by remote-area firefighters include digging up the soils on fire and applying water, and setting up sprinkler lines or soaker hoses along the fire edge to keep the fire from coming to the surface. All these techniques are labour intensive and often ineffective when there are hundreds of metres of fire edge. Extinguishing organic soil fires is not always possible and sometimes they are only extinguished after the winter rain, which saturates the soils over many months.

There is a risk that if winter rains are insufficient, organic soil fires could continue burning over winter, resulting in bushfires when the weather warms up.



#### The way forward

The Parks and Wildlife Service strategy is to respond quickly to all new ignitions and prevent fires spreading. This maximises the chance of extinguishing soil fires.

Work on mapping the extent of organic soils in the TWWHA and identifying the moisture content at which organic soils burn will assist in prioritising fires when there is a mass ignition event, such as the 2019 lightning storms. This work is ongoing.

The Parks and Wildlife Service will continue to research new techniques to detect and suppress soil fires, however, there are limitations to the possibility of extinguishing fires once there is a significant amount of fire edge burning in organic soils, and these need to be recognised.

Firefighting efforts will focus on the protection of highly sensitive vegetation from bushfires, once it is impracticable to extinguish fire burning underground.

#### OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

12 Fuel stove only areas







## Fuel stove only areas

#### Background

Managing campfires in the Tasmanian Wilderness World Heritage Area (TWWHA) is particularly problematic due to the extreme fire-sensitivity of the vegetation, which means that any escaped campfire could have devastating consequences. On top of that, the peat soils that are common across much of the TWWHA are able to smoulder underground, meaning that it can be very difficult to tell whether a campfire has been properly extinguished. For those reasons, the introduction of the Fuel Stove Only policy in the 1990s has proven very successful at reducing the number of accidental bushfires caused by campfires.

Currently the vast majority of the TWWHA is a fuel stove only area, with campfires totally banned. There are a few areas where campfires have historically been permitted, such as Little Deadmans Bay on the South Coast Track, and areas included in the 2013 TWWHA boundary extension.

Fuel stove only areas are generally well accepted today, but there can be problems when visitors are not aware of the rules around campfire use.

High-use sites (visitor service sites) accessible by road have areas well suited for the use of campfires. These sites are managed and include constructed campfire places, allowing people to enjoy campfires while minimising the risk of fire escaping.



#### Challenges

Allowing campfires can cause environmental damage. People bringing their own firewood into the TWWHA can inadvertently transport and introduce new pests into natural environments. Also, collecting firewood on site can result in local destruction of vegetation, particularly when insufficient fallen limbs and twigs are available.

The demographics of people visiting the TWWHA have changed, with many people who now use the area not familiar with the principles of remote-area recreation. Messaging therefore needs to be clear and simple. Having exceptions to the rules makes it difficult to simplify messages and encourage compliance.

Allowing people to light campfires in remote areas of the TWWHA poses the risk of a fire escaping – this risk will rise as the impacts of climate change increase. The two sites along the South Coast Track where campfires are allowed are adjacent to vegetation that is often dry during the summer months. In these remote sites there is no one around to ensure that campfires are properly extinguished.

Much of the signage related to campfire bans and fuel stove only areas needs to be updated. Up-to-date signage and messaging are important ways to reinforce the reasons for a campfire ban in the TWWHA. However, in an area as vast as the TWWHA it can be difficult to keep this information current.

#### The way forward

Only allow campfires in purpose-built fireplaces at visitor service sites within the TWWHA where the environmental risks and bushfire risks are low.

Due to the environmental impact and increased bushfire risks associated with campfires, make the entire South Coast Track a fuel stove only area.

On new signage, utilise symbols that clearly show where campfires are not permitted and fuel stoves are permitted.

The Parks and Wildlife Service should reinvigorate the Leave No Trace campaign and employ seasonal rangers to encourage compliance.

OTHER ISSUES SHEETS THAT MAY BE OF INTEREST

11 Organic (peat soil) fires







### Tasmanian Wilderness World Heritage Area Bushfire and Climate Change Research Project

A research project to investigate the impact of climate change on bushfire risk to Tasmania's wilderness areas and appropriate management and firefighting responses

**Dr Tony Press** 

Final Report, December 2016

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As an independent Chair, I chaired a Steering Committee consisting of the head of agency of the Tasmanian Government Departments of Premier and Cabinet; Primary Industries, Parks, Water and Environment; and Police, Fire and Emergency Management, and the First Assistant Secretary of the Australian Government Department of the Environment and Energy. The Steering Committee was supported by a Technical Working Group with representatives from the Tasmanian Government Departments of Primary Industries, Parks, Water and Environment, and Police, Fire and Emergency Management.

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The Research Project has involved extensive engagement with, and input from, a multitude of key stakeholders including the Tasmanian Government and its fire management agencies, the Australian Government, the research community, TWWHA landowners, conservation groups and non-government organisations.

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Responsibility for the content of this Report and its recommendations rests with me.

AJ (Tony) Press

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# **EXECUTIVE SUMMARY**

# Introduction

The Tasmanian Wilderness World Heritage Area (TWWHA) is one of Tasmania's iconic places. It contains globally significant examples of natural and cultural heritage and is an important natural, cultural, economic and social State asset.

Bushfire has been a natural and persistent phenomenon in the TWWHA for millennia. Prior to European colonisation, Aboriginal people actively used fire to manage vegetation in many parts of the region.

Large, landscape-scale bushfires have been reported as early as the 1850s for parts of the TWWHA. Since the 1930s there have been at least 12 fires in or near the TWWHA that were greater than 20,000 hectares in size.

In January and February 2016, Tasmania recorded thousands of lightning strikes, which started multiple fires in exceptionally dry climatic conditions. From 13 January to 15 March 2016, a total of 145 vegetation fires affected approximately 126,800 hectares across Tasmania, including an estimated 19,800 hectares (around 1.3 per cent) of the TWWHA.

The most significant impact to the natural values in the TWWHA from the 2016 bushfires occurred as a result of the fires in the Lake Mackenzie, February Plains and Lake Bill areas. These fires occurred within the fire-sensitive alpine and subalpine vegetation areas and affected 85 hectares of one of the TWWHA's most significant flora values, the pencil pine. This species is an iconic example of Gondwanic legacy in the TWWHA, which contributes to the property's Outstanding Universal Value. The proportion of pencil pines impacted by the 2016 fires comprised a very small percentage of the total extent of pencil pines in the TWWHA, while the majority of the areas affected were composed of vegetation types and fauna that are adapted or resilient to fire.

The scale of the 2016 bushfires, both in number and geographic extent, presented a particularly complex and resource-intensive fire-management challenge for the TWWHA. The 2016 firefighting response involved an unprecedented effort of more than 5,600 Tasmanian volunteer and career firefighters, 1,000 interstate or overseas firefighters, and as many as 40 aircraft assisting each day during the peak. The cost of the 2016 bushfires has been estimated at \$52.6 million<sup>1</sup>.

#### **TWWHA Bushfire and Climate Change Research Project**

The Tasmanian Government established the TWWHA Bushfire and Climate Change Research Project in March 2016. It committed \$250,000 to investigate the impact of climate change on Tasmania's wilderness areas and to identify ways to improve how Tasmania prepares for and responds to bushfires in the TWWHA.

<sup>&</sup>lt;sup>1</sup> Estimate provided by the Tasmania Fire Service in November 2016.

The objectives of the Research Project (as outlined in the Terms of Reference provided at Attachment 3) are to:

- examine how climate change will affect future fire danger and other variables that may lead to an increased risk of bushfire, and its impacts on the TWWHA;
- provide recommendations on the most appropriate methods for monitoring and recording vegetation dryness levels within the TWWHA; and
- examine firefighting techniques, interventions and resources that can be safely and effectively employed by the Tasmania Parks and Wildlife Service and the Tasmania Fire Service to prepare for, and respond to, bushfires in the TWWHA, including the most appropriate methods to extinguish fire within alpine areas.

The outcomes of the Research Project are to improve understanding of how climate change will impact bushfire risk in the TWWHA; and improve the ability to prepare for, and respond to, bushfires in the TWWHA.

#### **Research undertaken through the Research Project**

The Research Project has undertaken a comprehensive review and gap analysis of research and activities relating to bushfires in the TWWHA. This review and gap analysis considered the 'Prevention, Preparedness, Response and Recovery' (PPRR) risk management model. As a result, this Report identifies current operational practice, current work and research underway, and areas for further work or research relating to these broad areas.

High-priority research needs were identified through this review process. A number of these needs were addressed by commissioning new research through this Research Project. This new research examined:

- the history of lightning fires in the TWWHA and adjacent areas (findings of this research are presented in the 'Preparedness' section of the Executive Summary);
- the impact of climate change on weather-related fire risk factors in the TWWHA (findings
  of this research are presented in the 'Preparedness' section of the Executive Summary);
  and
- the impact and effectiveness of fire suppression chemicals in the TWWHA (this research continues to be undertaken at the time of publication of this Report).

In addition to these new research projects, two synthesis studies were commissioned to bring together current understanding of bushfire in the TWWHA. These examined the impact of climate change on:

- future fire behaviour in different vegetation types in the TWWHA (results of this research are presented in 'Values in the TWWHA' of the Executive Summary and
- future fire regimes for natural values (results of this research are presented in 'Values in the TWWHA' of the Executive Summary).

The Research Project has been underpinned by extensive engagement with, and input from, a multitude of key stakeholders, including the Tasmanian Government and its fire management agencies, the Australian Government, the research community, TWWHA managers, conservation groups and non-government organisations.

#### Initiatives undertaken in response to the 2016 bushfires

Following the 2016 bushfires, Tasmanian fire agencies (Tasmania Fire Service, Tasmania Parks and Wildlife Service, and Forestry Tasmania) have undertaken a number of initiatives. These initiatives include commissioning this Research Project, undertaking post-fire surveys of fire-affected areas, establishing monitoring sites, and consulting with the research community to inform responses in key fire-affected areas.

Post-fire data has been incorporated into Tasmania Parks and Wildlife Service's risk assessment models, and mapping of fire boundaries and natural values has been improved. Interested groups and organisations have been consulted in relation to fire preparedness and protection of assets. Scoping of options for increased volunteer support for firefighting efforts has been initiated, and the Tasmania Fire Service has expanded its skills training in remote area firefighting. Lessons from the 2016 bushfires have been incorporated into pre-season briefings for State and regional personnel involved in fire management.

# Values in the TWWHA

#### **Overview**

The Tasmanian Wilderness is inscribed on the World Heritage List under four criteria for "natural heritage" and three criteria for "cultural heritage".

Identifying and understanding the natural and cultural values of significance in the TWWHA, particularly those that are fire-sensitive, is important because their protection has implications for fire management in the TWWHA. Bushfire presents one of the biggest challenges to managing and protecting the values that are recognised as significant to the TWWHA's World Heritage status. The knowledge and management of buttongrass vegetation is particularly important to the successful management of bushfire risk in the TWWHA. This is because buttongrass is extremely flammable and extensive, and is the main vegetation type targeted for planned burning, yet it has intrinsic natural values that also require protection.

Many of the values can be significantly harmed or lost following a single bushfire or by an unfavourable fire regime. Some species are fire-sensitive, while others may be lost or altered in the complete absence of fire. Maintaining and protecting TWWHA values requires the deliberate application of appropriate fire regimes to some areas, while excluding fire, as far as practical, from other areas.

#### **Report findings**

The major impacts projected to occur from climate change are related to increases in vegetation and soil dryness and flammability, as indicated by projections for the Mount Soil Dryness Index and increased dry periods. Increases in soil dryness are likely to be already occurring (ie within the 2010-2030 time period) and manifest as increased occurrence of lightning ignitions and areas burnt, and increased fire occurrence in organic soils. The upward trend in dryness and flammability is expected to continue.

The values in the TWWHA that are most threatened by an increase in fire frequency are firesensitive palaeoendemic species; alpine ecosystems; rainforest ecosystems; and organic soils and landforms.

# Fire management arrangements for the TWWHA

The Tasmania Parks and Wildlife Service is the management authority for the TWWHA and meets its responsibility for managing bushfire in the TWWHA through a combination of activities. These activities are guided by the TWWHA Management Plan 2016 and other well-developed policies and plans that cover bushfire prevention, preparedness, response and recovery.

The Australian Government provides the Tasmanian Government with \$3.4 million per annum (baseline funding until 2018) to assist with management of the TWWHA under a World Heritage Grants Funding Agreement. The Tasmanian Government contributes a minimum \$4.9 million per annum. In 2015, the Australian Government committed to supporting Tasmania to strengthen its management of the TWWHA by providing an additional \$10.2 million, over four years from 2014-15, for its protection, conservation, presentation and rehabilitation. Fire management arrangements for the TWWHA sit within the broader context of Tasmania's fire management arrangements.

The Tasmania Fire Service supports and works closely with the Tasmania Parks and Wildlife Service in fire management in the TWWHA, but does not take a direct operational role for response in the TWWHA, except when very large fires occur, fire threatens human settlements or the fire operational capacity of the Tasmania Parks and Wildlife Service is exceeded. The Tasmania Fire Service has a collaborative role in terms of preparedness and may have a support role in recovery from some bushfires in the TWWHA. Forestry Tasmania also works closely and cooperatively with the Tasmania Parks and Wildlife Service in many aspects of fire management.

#### **Report findings and recommendations**

Current fire management arrangements for the TWWHA are well-developed and the Tasmanian fire agencies have sound protocols and practices for working together in bushfire prevention, preparedness, response and recovery. The scale of the 2016 bushfires was significant in terms of the number of ignitions and the extent of area impacted. The firefighting effort in response was extraordinary in terms of financial, physical and human resources applied from Tasmania and other jurisdictions.

This Report concludes that the risks of bushfire to the TWWHA will increase in coming years under the influence of climate change. It is likely that climatic conditions like those in 2016 will re-occur, and other aspects of fire risk will also increase. It is therefore important to take the lessons learned from the 2016 bushfires, and the climate projections referred to in this Report, to prepare for a future where fire management in the TWWHA is expected to be more challenging. The increase in bushfire risk has already started, and changes to management are needed now and well into the future.

#### Recommendation 1 – Comprehensive fire management planning

Clear, well-defined objectives for fire management should be incorporated into a Fire Management Plan for the TWWHA. These objectives should identify how fire management (fire suppression, 'let go' and management fires) will be used to protect and conserve the natural and cultural heritage values in the TWWHA.

The Fire Management Plan for the TWWHA should clearly set out the circumstances in which priority will be given to protecting the Outstanding Universal Value of the TWWHA over built assets within its boundaries.

# **Prevention**

#### **Current operational practice**

The Tasmania Parks and Wildlife Service's Strategic Fire Management Plans present strategies for preventing and mitigating bushfires in the TWWHA.

Bushfire risk assessment and modelling is an important risk management tool. The risk assessment informs the management of risk by identifying and prioritising areas that may be suitable for risk mitigation activities such as fuel reduction burning. It also identifies areas that are not suitable for risk mitigation, but can be prioritised for suppression or other response activities when bushfires approach or threaten particular values.

In recent years, the development of the Bushfire Risk Assessment Model (BRAM) has been important for planning and fire response in the TWWHA. BRAM is a computer mapping system that models and maps the risk of bushfire at 100-metre grid resolution. Data used by BRAM comes from many sources and is combined and analysed to calculate risk scores for the State, including the TWWHA. The final product is a map of bushfire risk across Tasmania.

Planned burning is used as a management tool in the TWWHA, where it is appropriate to do so and where funding permits, to achieve a number of key objectives.

Bushfires spreading accidentally from campfires are a significant risk to the natural values of the TWWHA. The statutory regulation of campfires is covered under *the Fire Service Act 1979*, and for the TWWHA under the *National Parks and Reserved Land Regulations 2009*. Most of the TWWHA has been declared a Fuel Stove Only Area to protect natural values, and fires are totally banned in these areas. Additional restrictions on campfires are imposed by the Tasmania Parks and Wildlife Service at times of very high fire danger, triggered by criteria that are more stringent than those typically used for the declaration of Total Fire Bans by the Tasmania Fire Service.

#### **Recent work and research**

In the early 1990s, the Tasmania Parks and Wildlife Service started work to improve knowledge of fire behaviour in buttongrass moorland, in order to increase the effectiveness of fire operations; both suppression and planned burning. This has included collecting data from small, experimental fires, planned burns and bushfires. These studies were published in a series of scientific papers, and the operational findings informed the development of fire behaviour equations, the Moorland Fire Danger Index and prescriptions for planned burning. The buttongrass fire

behaviour model now underpins fire operational practice for all buttongrass vegetation in Tasmania.

A landscape fire-spread modelling tool, FIRESCAPE-SWTAS, has been developed for South-West Tasmania. It explores how much benefit, in terms of reduction of damage to natural values such as rainforest, is provided by differing amounts of planned burning.

An understanding of the fire ecology of ecosystems present in the TWWHA is necessary to develop sustainable planned burning programs, and to protect fire-sensitive and fire-dependent values. Fire ecology research and monitoring undertaken by the Department of Primary Industries, Parks, Water and Environment (DPIPWE) has prioritised the unique buttongrass moorland vegetation, where planned burning plays both a crucial ecological and fire protection role. Numerous studies have contributed to Tasmania's understanding of buttongrass vegetation ecology and therefore planned burning.

Fire appears to be important in the maintenance of at least some of Tasmania's grassy vegetation, particularly in highland areas (montane grasslands), where other environmental influences such as frost and poor drainage are insufficient to prevent invasion by shrubs and trees. A draft montane grassland fire management strategy and plan has been prepared with the following aims: (1) to maintain or increase the area of montane grassland in the public reserve estate, (2) to ensure a diversity of structure and floristics that will support all known rare or threatened species that occur within montane grassland, and (3) to maintain cultural traditions that achieve the above objectives.

The Warra Long Term Ecological Research site of 15,900 hectares was established in 1995 to encourage long-term ecological research and monitoring in wet eucalypt forests in Tasmania. Following the extensions to the TWWHA of 2013, 80 per cent of the Warra site is now in the TWWHA, while the remainder is on Permanent Timber Production Zone land managed by Forestry Tasmania. Warra is a scientific research site of national and international importance. The significant value of the investment in the infrastructure and already established data collection at Warra cannot be overstated. The site contributes to the understanding of many aspects of land management and climate change science.

The Antarctic Climate & Ecosystems Cooperative Research Centre (ACE CRC) is currently investigating the changing opportunities for planned burning in Tasmania under climate change, with a focus on particular aspects that could affect the future viability of planned burning.

#### **Report findings and recommendations**

#### Recommendation 2 – The Bushfire Risk Assessment Model (BRAM)

The Tasmania Parks and Wildlife Service and DPIPWE should maintain an ongoing program of investment in and development of fire management tools, including the BRAM and the Bushfire Operational Hazard Model (BOHM). As the BRAM is used across all agencies and tenures in Tasmania, it is imperative that it is fully auditable, and that its structure, inputs and operability are regularly reviewed.

BRAM should be fully integrated as a whole-of-government decision-support system with appropriate governance structures established accordingly; and readily accessible by all Tasmanian fire agencies and incident management teams.

BRAM should be supported to a greater extent than it is at the present time. The current level of operation means that its full capacities are not being used and the incorporation of new information and programming is restricted. It should be noted that while BRAM is an excellent tool to consider the spatial arrangement of risk, other risk modelling tools are available that simulate the spread of fire and these are now routinely used in fire management. BRAM cannot be considered as the sole bushfire risk assessment tool available for the TWWHA.

The current design of BRAM, however, limits the practical availability and use of the system to a small group of fire management officers within the Tasmania Parks and Wildlife Service. There would be significant benefit in increasing the accessibility of BRAM by rebuilding it as a new computer system that is available to inform fire managers in the Parks and Wildlife Service, Forestry Tasmania and the Tasmania Fire Service, and from wherever they may be operating, to make critical decisions on priorities and dispatch in conjunction with other fire behaviour modelling tools. The provision of training on BRAM to a wider range of operational users is also required.

It is imperative that that BRAM continues to incorporate the best knowledge of fire behaviour models. Enhancement of the system should include use of appropriate fire-spread simulation tools for new vegetation types (such as moorland) when they are developed. Existing fire behaviour models and fire simulators should not be misused, that is, used beyond the vegetation types and fuels for which they have been validated.

#### Recommendation 3 – Objectives for planned burns

*Clear objectives (at the strategic and program levels) should be set for management burning in the TWWHA.* 

The short, medium and long-term results of management fires should be monitored to evaluate the fires against specified objectives, and the findings used to retain, improve or modify approaches taken to management burning.

Burning programs should reflect the best available evidence. Fire simulation modelling tools should be used to guide the development of planned burning programs to meet objectives and new data incorporated into the models as they become available.

As with other management activities, the monitoring of management burns should be actively incorporated into the adaptive management framework for the TWWHA.

Similarly, the re-introduction of Indigenous burning practices should have clear objectives, and monitoring should be incorporated into the adaptive management framework for the TWWHA.

#### Recommendation 4 – Monitoring the consequences of fire

The short, medium and long-term impacts of planned and unplanned fires should be monitored in order to understand the consequences of fire for the natural and cultural values of the TWWHA.

The findings of this monitoring should be used to plan future response to bushfires and to inform decisions about the use of management burning.

As with other management activities, monitoring the impacts of bushfire management should be actively incorporated into the adaptive management framework for the TWWHA.

# **Preparedness**

#### **Current operational practice**

The Tasmania Parks and Wildlife Service has, for 20 years, employed firefighters specifically trained in remote area firefighting and has developed techniques, specialised equipment and expertise to support this activity. In more recent years, the Tasmania Parks and Wildlife Service has increased the number of other specialist fire staff.

Remote area firefighting is a highly specialised field for both firefighting crews and pilots and requires a high level of fitness. Aircraft, primarily helicopters, are available for firefighting in the TWWHA through shared contracting arrangements coordinated by the Tasmania Fire Service. The Tasmania Parks and Wildlife Service operates a Fire Duty Officer system to manage daily fire preparedness and response.

Early fire detection and response time is critical for the successful delivery of any fire management program. The smaller the fire, and less vigorous the fire behaviour, the greater the probability that initial attack crews will be able to suppress or contain the fire. For example,

bushfires in buttongrass can grow within less than an hour to a size where suppression is no longer practical.

In Tasmania, bushfire detection is generally undertaken by ground-based staff or public reporting through the Tasmania Fire Service FireComm branch (000 emergency calls), or through operational detection systems including fire towers, aerial spotter flights, monitoring systems such as cameras, and websites that present satellite data, such as Sentinel, Weatherzone or Landgate Firewatch.

When advance notice is possible, the Bureau of Meteorology provides lightning warning forecasts to the Tasmania Parks and Wildlife Service. Lightning occurrence tracking is paramount to early detection and response to any remote fire or fires caused by lightning strike. Information available from monitoring systems, both pre- and post-lightning events, is used in association with information and advice from the Bureau of Meteorology forecasters to guide timing and location of fire-spotter flight paths.

#### **Recent work and research**

The Tasmania Parks and Wildlife Service is augmenting the operational capacity of the Bushfire Risk Assessment Model (BRAM) to support decision-making. This involves developing a Bushfire Operational Hazard Model (BOHM) that takes into account the daily and forecasted weather observations to calculate fire weather indices and fire behaviour values, based on vegetation types and fuel loads. This system will assist personnel making resource deployment decisions, based on risk and the availability of resources, to prepare for and dispatch in response to bushfires.

Research undertaken through the Research Project indicates that the occurrence of lightning fires in the TWWHA and adjacent areas has greatly increased over the past 45 years, and particularly in the past 15 years. All of the recorded lightning fires between 1980-81 and 2015-16 were ignited in long unburnt vegetation. It is probable that the risk of lightning ignition in buttongrass increases with time post-fire.

Research undertaken by the Antarctic Climate and Ecosystems Cooperative Research Centre (ACE CRC) through the Research Project indicates that climate change will impact on a number of weather-related climate risk factors. Specifically, the research indicated:

- an increase in fire danger ratings towards the end of the century for dry eucalypt and buttongrass moorlands;
- an increase in soil dryness that continues from now and throughout the rest of the century, as indicated by the Mount Soil Dryness Index (MSDI) and identified thresholds of flammability;
- a rapid transition between summer and winter (ie a longer summer and a shorter autumn), with more intense conditions in summer;
- a slight decline in lightning-conducive conditions, but no change to extreme dry-lightning conditions; and
- a likelihood that extreme dry-lightning conditions will peak in summer, coinciding with peak increases in dryness indicators.

#### **Report findings and recommendations**

The findings of this research have significant implications for future fire management in the TWWHA, as the conditions that led to the 2016 bushfires are expected to become more frequent as the century progresses. Increased spring and summer dryness, lower rainfall, higher temperatures and increased occurrence of lightning fires, combined, pose a major challenge to fire management in the TWWHA and the long-term protection of its natural and cultural values.

# Recommendation 5 – Research on fire and natural and cultural heritage values

An ongoing program of scientific research and monitoring should be maintained in the TWWHA that supports understanding:

- the interaction between climate change and the natural and cultural values of the TWWHA; and
- the evolving relationship between climate change and the projected impacts of fire on natural and cultural values in the TWWHA.

This research should focus, in the first instance, on those values that are expected to be most vulnerable in the short term (for example relict Gondwanan flora).

This program of research should involve a broad spectrum of the research community, as well as personnel from DPIPWE and other Tasmanian Government agencies.

The program of research should be regularly reviewed and audited. The 'DPIPWE TWWHA Bushfire Research Group' should continue to be actively engaged in the process of developing objectives for this research program.

Attachment 9 sets out a prospective list of priority research to support fire management in, and the understanding of the impacts of fire on, the World Heritage values of the TWWHA.

# Recommendation 6 – Research on fire vulnerability, fire behaviour and fire model inputs

In the short to medium-term, significant research effort should be directed to:

- *further understanding the consequential interactions of climate change with fire vulnerability, behaviour and impact;*
- understanding fire behaviour and flammability thresholds, particularly in dry conditions, of organic soils and the interaction between climate change, fire and organic soils;
- developing a comprehensive understanding of soil and fuel moisture in the various vegetation communities in the TWWHA; efficient methods to monitor and model soil and fuel moisture across the vegetation types in the TWWHA; and the development of reliable soil moisture indices for the TWWHA that can then be incorporated into fire behaviour models and fire danger indices;
- developing techniques for more accurately assessing fuel loads and mapping fuel types in different vegetation communities in the TWWHA and incorporating these into fire behaviour models; and
- developing fire behaviour models and associated fire spread simulators for peatlands, grasslands, wet eucalypt forest, coniferous rainforest, rainforest without conifers, and other vegetation communities in the TWWHA.

This research should take into account national initiatives that are currently underway in the development of bushfire indices, and modelling and fire behaviour tools. The research should concentrate on those areas, soils and vegetation communities in the TWWHA that are not currently well represented in fire behaviour models and fire danger indices.

## Recommendation 7 – Lightning and ignition detection

The Tasmanian fire agencies, in consultation with the Australian Bureau of Meteorology, should keep abreast of emerging technologies for predicting and detecting lightning strikes and ignitions.

If and when new technologies become available, these should be incorporated into preparedness and response planning for bushfire in the TWWHA.

A detection strategy should be developed that details the bushfire detection arrangements for the TWWHA, based on contemporary ignition risks and detection methods.

#### Recommendation 8 – Capital investment

The Tasmanian fire agencies should develop a whole-of-government program of investment in facilities and equipment that enhance fire management capabilities in the TWWHA and more generally in Tasmania.

This program should include:

- identification and evaluation of options for installing new automatic weather stations in the TWWHA and nearby areas to improve weather and data records for the region; remote area sensors for monitoring local rainfall and soil moisture; and early detection facilities such as fire-watch installations;
- *firefighting equipment available to fire agencies in different regions of Tasmania;*
- *improved communication facilities (that is for the radio network), to enable better communication between agencies, and for remote firefighting teams; and*
- investment in facilities and equipment to enhance aerial firefighting efforts.

This investment program should be developed on a whole-of government basis to maximise the benefits to all fire agencies and the Tasmanian community. Organisations such as the Bureau of Meteorology should be involved in order to ensure the fire agencies obtain the highest benefits from Tasmanian weather and climate data.

In constructing this investment program, an audit of existing weather and climate sensors in the region should be conducted and protocols developed for incorporating these data into real-time forecasts of fire weather.

# Response

#### **Current operational practice**

The main means of identifying fire-sensitive natural and cultural values, and relevant priorities and response in the TWWHA is through the Natural Values Atlas, the Bushfire Risk Assessment Model (BRAM), and specialist staff from the Department of Primary Industries, Parks, Water and Environment.

The basic principle for determining response strategies and priorities is that the highest rated values from BRAM will be protected in preference to lower rated values.

Human life is afforded the highest priority in BRAM, and areas where visitors to the TWWHA are likely to be present are given the highest ranking. Typically, the highest ranking for natural values is assigned to areas that are fire-sensitive because there would be permanent and significant losses if burnt.

Responding to fires in the TWWHA requires consideration of broader strategic fire suppression priorities after consideration of the values, operational limitations and available resources. In reality, not all values can be protected at all times, and therefore a triage process is involved in strategic decision-making. The suppression objectives, strategies and allocation of resources are ultimately based on what can realistically be achieved to protect identified and agreed priorities.

Bushfire risk assessment is a dynamic process that recognises and adjusts to circumstances as they change. It relies on information from a range of sources and the application of appropriate fire models.

During a large bushfire event, where there are a number of fires that require suppression response, assessment can occur at both the State and regional level, using a risk assessment approach consistent with the National Emergency Risk Assessment Guidelines (NERAG) to:

- enable the timely and relevant issuing of community warnings;
- prioritise operational activities on the fireground; and
- undertake options analyses in determining suppression and control strategies.

Fire risk to visitors is mitigated by developing emergency response plans or actions within the Fire Action Plan to enhance visitor safety. The Tasmania Parks and Wildlife Service has a draft emergency response plan for the Mt Field National Park, which includes responding to fire with appropriate trigger points.

During the 2016 bushfires, the Tasmania Parks and Wildlife Service set up a Visitor Management Team to coordinate warnings to walkers, detection and relocation of visitors at risk (those in the path of fires), closure of campgrounds, walking tracks and reserves, communication with the public, and liaison with incident management teams and the State Fire Duty Officer.

#### **Report findings and recommendations**

#### Recommendation 9 – Mapping of values

DPIPWE and the Tasmania Parks and Wildlife Service should continue to improve mapping, and incorporate the most up-to-date and available vegetation, soil and other natural and cultural values mapping into TASVEG and the Bushfire Risk Assessment Model (BRAM).

The availability of high-resolution aerial imagery has increased significantly in the past decade. Higher resolution mapping of natural values will significantly improve the inputs to the BRAM and enhance the fire risk assessments BRAM produces.

There is a role for the broader research community in providing both input to, and review of, natural and cultural values mapping for the TWWHA.

#### Recommendation 10 – Operational capability

The Tasmania Parks and Wildlife Service should review its immediate, medium and long-term fire suppression capabilities, including staffing.

This review should be done in consultation with other fire agencies in Tasmania as skills, demographic factors, and agency capabilities are expected to change significantly across all agencies.

This review should also take into account the spatial context of bushfire risk; emerging technological development; future fire suppression capabilities such as new fixed- and rotary-wing aircraft; and the future requirements for skilled, remote-area firefighting teams.

A review of resources and staffing arrangements should be undertaken to facilitate flexibility and responsiveness in capability to match annual variation in fire seasons (ie that impact workload).

The aim of this review is to understand what resources are required by the Tasmania Parks and Wildlife Service to manage current and future bushfire risk, and what actions need to be taken now to ensure that adequate levels of skill, staffing, equipment and decision-support tools are available for fire management in the future.

#### Recommendation 11 – Use of volunteers

The Tasmania Parks and Wildlife Service, in conjunction with other Tasmanian fire agencies, should review the future potential for the use of volunteers in supporting fire management activities, including the potential to use trained remote area volunteer fire crews.

*This review should be conducted in conjunction with the review of the Tasmania Parks and Wildlife Service's fire suppression capabilities.* 

#### Recommendation 12 – Fire suppression techniques and methods

The Tasmanian fire agencies should regularly review operational practices, fire suppression technologies and techniques used in other jurisdictions and determine their efficacy for Tasmania, including in the TWWHA.

*In the TWWHA, particular attention should be paid to:* 

- early intervention techniques and technologies such as early detection and rapid attack; and
- continuing to investigate methods and equipment for extinguishing ground (organic soil) fires (eg spike and pump combinations).

#### Recommendation 13 – Aerial fire suppression

The Tasmania Parks and Wildlife Service and the Tasmania Fire Service should review future capabilities in fixed- and rotary-wing aircraft for fire suppression in the TWWHA, and for the safe insertion of remote area firefighting teams, including where landing or hover exit is not possible.

This review of aircraft support should be carried out in conjunction with the review of staffing capabilities.

#### Recommendation 14 – Research on fire suppression chemicals

The current research on the efficacy and environmental impacts of the use of fire suppression chemicals in the TWWHA should be continued in the short term.

This research should inform the development of guidelines for future use of fire suppression chemicals in the TWWHA.

#### Recommendation 15 – Use of fire suppression chemicals

The Tasmania Fire Service and Parks and Wildlife Service should review the future use of fire suppression chemicals in the TWWHA following the conclusion of the research project currently being undertaken.

Research, monitoring and adaptive management should continue on the use of fire suppression chemicals from the perspective of both impacts on TWWHA values, and guidelines on the effective and efficient operational strategies and tactics of the various fire chemical classes.

If the research determines that the use of fire suppression chemicals is appropriate in the TWWHA, suitable procedures will need to be established, as well as training and equipment, to manage the use of these products in a safe and responsible manner.

Protocols for future decisions to use fire suppression chemicals in the TWWHA should be incorporated into the TWWHA Fire Management Plan and associated operational fire guidelines.

As an interim measure, the use of fire suppression chemicals should be undertaken using a precautionary approach, where application is assessed and approved on a case-by-case basis.

The use of fire suppression chemicals for firefighting in the TWWHA should balance potential environmental impacts (if any) with the protection of the natural and cultural heritage values of the TWWHA.

# Recommendation 16 – Improved public information and communications

The Tasmania Parks and Wildlife Service should develop a specific communications plan on bushfires and fire management. This plan should include:

- public information on the restrictions on lighting fires in the TWWHA and the impacts of bushfire on sensitive natural and cultural assets;
- the dissemination of public information on fire danger during the fire season;
- the dissemination of public information during fire events including bushfires and management fires, including suppression activities; and
- the dissemination to the public of information on the extent and impacts of bushfire in the TWWHA.

The communications plan should also cover the provision of public information during extreme bushfire events, such as those that occurred during 2016.

Good quality public information can play an important role in building community support for fire management in the TWWHA, and for the efforts of fire agencies during extreme events.

## Recovery

#### **Current operational practice**

Building on the Victorian approach, in 2011 New South Wales and the Australian Capital Territory developed Burned Area Assessment Teams and also invited the Tasmania Parks and Wildlife Service to participate in a cooperative arrangement across jurisdictions.

These teams draw together expertise in a range of scientific disciplines and conduct a rapid risk assessment immediately following an emergency event. These assessments are used to assist managers in identifying and minimising future impacts – both immediate and longer-term – caused by the emergency event. The goal is to reduce further threat to life, property, infrastructure and the environment. The outputs of the process, which include a written report, support the transition from emergency response to recovery.

The Department of Primary Industries, Parks, Water and Environment (DPIPWE)'s Natural and Cultural Heritage Division and the Tasmania Parks and Wildlife Service have supported this multijurisdiction approach, providing some input to the development of the process, and may provide personnel for teams in the future. This assessment approach has been used in Tasmania by the Parks and Wildlife Service, Forestry Tasmania and the Tasmania Fire Service in 2013 and 2016, drawing on the assistance of expertise from other states and territories.

Assessment of the impacts on natural values following major fire events is a function performed by DPIPWE's Natural and Cultural Heritage Division, where resources and time permit. The tasks are assigned to a small team of specialists, typically botanists, zoologists, geomorphologists, soil scientists and spatial data analysts. Brief reports are prepared that highlight:

• the area of different vegetation types burnt within the fire perimeter, based on TASVEG vegetation mapping;

- natural values that may have been affected, such as threatened species, threatened vegetation communities and fire-sensitive species or soils; and
- the context of the impacts within the broader management of fire regimes for species or ecosystems of concern.

When considered appropriate, longer-term monitoring and studies are established for targeted species or values.

#### **Report findings and recommendations**

#### Recommendation 17 – Role of Bushfire Rapid Risk Assessment

The Tasmania Parks and Wildlife Service and other fire agencies should establish protocols for 'rapid assessment' of the impacts of major bushfires in the TWWHA and resourcing of immediate priorities for recovery action.

Rapid assessment techniques are used in many jurisdictions in Australia and overseas to provide an initial assessment of fire impacts and priorities for recovery and rehabilitation. While these 'rapid assessments' cannot replace long-term investigation and monitoring of fire impacts, they can be useful in prioritising recovery efforts and rationalising commitment of resources to recovery.

The efficacy and usefulness of rapid assessment techniques should subsequently be evaluated, and their implementation modified if required.

#### Recommendation 18 – Ecosystem rehabilitation and restoration trials

The Tasmania Parks and Wildlife Service and DPIPWE should undertake trials of post-bushfire rehabilitation techniques (eg erosion control, tree planting, seed germination and seed banks), especially for vulnerable species, communities and other significant values in the TWWHA.

This work should be integrated into a broader research strategy for the TWWHA, and incorporated into the Adaptive Management framework contained in the TWWHA Management Plan.

Protecting the natural and cultural heritage values of the TWWHA will be challenged by the increased likelihood of bushfires under projected climate change. Some of these challenges are already apparent as increased soil dryness and increased occurrence of ignition from lightning strikes. Given the national and international significance of the TWWHA and its importance to the Tasmanian economy and Tasmania's image, it is imperative that steps be taken now to prepare and plan for these future challenges.

Tasmania has well-developed fire management arrangements and procedures for the TWWHA across the areas of bushfire prevention, preparedness, response and recovery. Tasmania also has

well-developed interagency cooperation mechanisms that underpin responses to large and complex bushfire events. It is likely that the capacity of all Tasmanian fire agencies will be under great pressure at times in the future. Tasmania's ability to call in additional resources from other jurisdictions may also be challenged by extreme climate events elsewhere.

This Report sets out recommendations that can be employed by Tasmania to prepare for, and respond to, future bushfire threat in the TWWHA. While some recommendations focus on the responsibilities of particular agencies, responding to and implementing these recommendations will require consideration across all areas of government so that the benefits that accrue are available and shared across the Tasmanian economy.

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# **1. INTRODUCTION**

# **1.1** History and role of fire in the Tasmanian Wilderness World Heritage Area (TWWHA)

#### 1.1.1 History

Bushfire has been a natural and persistent phenomenon in the Tasmanian Wilderness World Heritage Area (TWWHA) for millennia. Prior to European colonisation, Aboriginal people actively used fire to manage vegetation in many parts of the region. The fire regimes subsequently changed following European colonisation.

Landscape-scale bushfires were reported as early as 1850 for parts of the TWWHA and there is good evidence of such fires occurring before European settlement (Dr Jon Marsden-Smedley pers. comm.; Dr Michael-Shawn Fletcher pers. comm.). Table 1 lists the large fires that have burnt in or near the TWWHA or in similar country in North-West Tasmania. Since the 1930s there have been at least 12 fires in or near the TWWHA that were greater than 20,000 hectares in size. Eight fires were greater than 40,000 hectares in size. One of these events, the Giblin River fire, occurred in 2013.

Fire name	Year	Area (ha)
Tasmania*	1897-98	~ 2,000,000
Mostly in TWWHA*	1933-34	629,000
Pelion Range*	1930s	16,907
Frenchmans Cap*	1939	118,054
Eldon Range*	1950s	24,346
Central Plateau*	1961	85,197
Raglan Range*	1966	9,448
1967 Fire	1967	198,780
Adam Range*	1981	7,515
Zeehan	1981	13,527
Cape Sorell - Dunes Beach - Hibbs Lagoon	1982	11,253
Savage River	1982	53,721
Pine River 1*	1982	13,648
Tungatinah 1	1982	7,610
Birch Inlet - Low Rocky Point*	1986	36,724
Mulcahy Bay*	1987	23,561
Central Plateau*	1989	6,173
Pieman River	1995	10,791
Temma Road	1995	5,268
Ummarrah Creek*	2000	5,008
Cape Sorell	2001	6,235
Mt Frankland Donaldson	2003	78,168
Reynolds Creek*	2007	25,273
Cracroft River*	2007	13,085
Heemskirk Rd	2008	13,719
Wayatinah	2010	6,285

#### Table 1: Estimated area of large fire (more than 5,000 hectares) events in or near the TWWHA

Fire name	Year	Area (ha)
Meadowbank Road	2012	5,234
Poatina*	2012	8,512
Giblin River*	2013	40,468
Lake Repulse	2013	10,238
Lake Mackenzie Complex*	2016	24,700

\* These fires occurred in the TWWHA

(Source: database records of Tasmania Parks and Wildlife Service; Marsden-Smedley 1998)

#### 1.1.2 Role of fire

Fire plays a fundamental role in maintaining and changing ecosystems in the TWWHA, and protection of the natural values of the TWWHA depends on both past and future fire regimes (DPIPWE 2015a). Fire is also an important component of cultural landscapes, past and present, and its management is important for protecting cultural heritage. It is also an important cultural tool for Tasmanian Aboriginal people, who have used fire to manage and connect to the landscape (DPIPWE 2015a), as described in section 4.3.1.

Since the arrival of Europeans in Tasmania, both the presence and absence of fire have resulted in major changes to vegetation, and there are many examples of this across Western Tasmania. Around half of the fire-sensitive vegetation types in the Central Plateau were deliberately burnt by a highland grazier, resulting in the 1960-61 fires (alpine and subalpine heath, subalpine rainforest, rainforest and native conifers) (Johnson and Marsden-Smedley 2002). This included about half of the pencil pine on the Central Plateau.

The Savage River fires in 1982 burnt approximately 15,000 hectares of rainforest (Barker 1991) and, over a period of 100 years, over one third of King Billy pine forest has been lost to fire across Tasmania (Brown 1988). In addition, fire has caused a major loss of subalpine coniferous vegetation and soils on the Central Plateau, with erosion still continuing over 50 years since the fires (Cullen 1995; Bridle et al. 2001; Storey and Comfort 2007). In contrast, inadequate fire frequency in Tasmanian montane grasslands is currently leading to loss in species diversity and has reduced the extent of this community (Kirkpatrick 1999; Bowman et al. 2013; DPIPWE unpublished data).

The effect of fire on biodiversity and geodiversity depends on the fire regime (ie intensity, season, frequency, distribution and the type – crown, surface or ground fires). Without management intervention, summer bushfires can burn with great intensity and on a landscape scale. These fires can extend into fire-sensitive areas and may cause damage that is effectively permanent, resulting in a landscape that contains large areas of uniform-aged vegetation and lacks fire-sensitive features.

## **1.2 Tasmanian fires of January – March 2016**

#### 1.2.1 The scale of the fires in the TWWHA

Leading into the 2015-16 bushfire season, Tasmania experienced drier than average winter, spring and summer seasons, due to the combination of an El Niño event and strong Indian Ocean Dipole (Tasmanian Government 2016a). The North-West region of Tasmania experienced the driest weather period on record. The lower levels of rain contributed to extremely dry fuel and soil conditions, which increased fire risk and exacerbated fire behaviour on days of increased fire danger (Tasmanian Government 2016a).

A map depicting the climatic conditions in Tasmania leading up to the 2016 bushfires is provided at Figure 1, including sustained negative values (below -7 degrees Celsius) of the Southern Oscillation Index (SOI), which indicates the El Niño episode. Figure 1 also depicts the record low rainfall experienced across much of Western Tasmania, including areas of the TWWHA.

Figure 2 shows that the potential for bushfire was assessed as above normal across North, North-West and East Tasmania, as well as in the Midlands and South-East Tasmania (Bushfire and Natural Hazards Cooperative Research Centre 2015). The bushfire potential in the remainder of the State, including much of the TWWHA, was considered to be normal, despite the record low rainfall that was experienced over the TWWHA, as depicted in Figure 1.

According to the Tasmanian Government (2016a), on 13 January 2016, mainland Tasmania recorded 889 ground strikes from lightning, which started over 80 fires. These were followed by 2,487 lightning strikes on 28 January 2016 and another series of lightning strikes in February 2016.

From 13 January to 15 March 2016 the Tasmania Fire service recorded a total of 229 vegetation fires (AFAC 2016a) that affected approximately 126,800 hectares across Tasmania including an estimated 19,800 hectares (around 1.3 per cent) of the total TWWHA area<sup>2</sup>. The areas of the TWWHA impacted are represented at Figure 3.

The firefighting effort involved more than 5,600 Tasmanian volunteer and career firefighters, 1,000 interstate or overseas firefighters, and as many as 40 aircraft assisting each day during the peak (Premier of Tasmania 2016a). The cost of the bushfires has been estimated at \$52.6 million<sup>3</sup>.

The following fires and fire complexes were the most significant in the TWWHA: the Lake Mackenzie Complex (including Patons Road, Mersey Forest Road, February Plains, Lake Mackenzie Road and Devils Gullet), Lake Bill, Dove River, Maxwell River South and Gordon River Road. Figure 4 indicates the location of these fires and the other major fires that were burning between January and March 2016. Attachment 1 (AFAC 2016a) provides a summary description of the major fires that were burning across Tasmania during this time.

Further details of the assessment of the impact of the 2016 bushfire on the TWWHA are provided in section 7.2.3.

<sup>&</sup>lt;sup>2</sup> Based on information provided by the Department of Primary Industries, Parks, Water and Environment (DPIPWE).

<sup>&</sup>lt;sup>3</sup> Estimate provided by the Tasmania Fire Service in November 2016.



#### Southern Oscillation Index - monthly







Figure 2: Southern Australia Seasonal Bushfire Outlook 2015-16 November update (Bushfire and Natural Hazards Cooperative Research Centre 2015)



# Figure 3: Location of fires that started from 13 January to 27 January 2016 inclusive in the TWWHA and areas further west. Fire names are shown for the major fires in the TWWHA (see Table 2)

(Source: information provided by the Department of Primary Industries, Parks, Water and Environment and map prepared by the Tasmania Parks and Wildlife Service)



# Figure 4: Location of active fires in Tasmania during the period 13 January to 15 March 2016 (Source: information provided by the Department of Primary Industries, Parks, Water and Environment and

map prepared by the Tasmania Parks and Wildlife Service)

#### **1.2.2 Early stages of response to TWWHA fires, January 2016**

In the immediate aftermath of the lightning storm that crossed the State in the early evening (or late afternoon) of 13 January 2016, the Tasmania Parks and Wildlife Service Fire Duty Officer (see section 5.1.2) responded to fires as they were detected during the evening. At the outset, it was not known how many fires there were or where they were located, and with the low number of fires initially reported it was clear that the priorities were to suppress some fires and to warn or relocate visitors near others. A small visitor management team was established during the evening to coordinate the management of visitors in remote areas to ensure their safety.

The number of known fires grew overnight, and so prioritising fires as a separate and more formal task began. On the morning of 14 January 2016, all known fires were assessed in terms of their size, vegetation that they were burning in, soil and fuel moisture in the vicinity of the fire, potential to grow, which fires would grow fastest and values that would be affected if they grew. The values considered included human life, natural values, infrastructure and other assets. As new fires were detected, the process was repeated and the priorities were communicated to incident management teams.

The number of fires outside the reserve system continued to grow at the same time, and these also needed to be considered within the overall State priorities. A Strategic Planning Unit was established within the State Fire Operations Centre of the Tasmania Fire Service, which took over prioritisation of all fires irrespective of tenure.

The Tasmania Parks and Wildlife Service reviewed the overall strategy for the management of these incidents developed by the fire agencies. The revised strategy for management of these incidents included the following:

- ensuring safety of visitors to the reserve system by establishing a formal Visitor Management Team that liaised with the Incident Management Teams around the State to coordinate the warning and relocation of visitors at risk, and closure of tracks, campgrounds or reserves where required;
- reducing the likelihood of impact on reserve visitors by informing the public of track, campground and reserve closures and ways to keep safe through media, social media, internet and the Visitor Information Network;
- ensuring the most appropriate response to fires and protection of values by prioritising fires and communicating the priorities to Incident Management Teams. Initially the Tasmania Parks and Wildlife Service prioritised fires on reserved land, but subsequently participated in a multi-agency, coordinated statewide prioritisation of fires across all lands; and
- reducing the likelihood of further fires starting and distracting the current suppression effort and increasing the workload by conducting a risk assessment of campgrounds and implementing an indefinite ban on campfires in high risk reserves across the State. These areas were then patrolled at a higher level.

The lightning storm of 13 January 2016 ignited 29 fires that were recorded as affecting the TWWHA (see Table 2)<sup>4</sup>. Eleven of the fires affecting the TWWHA spread to a size more than 38 hectares, while the remaining 18 fires each remained less than seven hectares in size. All of the Tasmanian fire agencies, including the Tasmania Parks and Wildlife Service, were engaged in managing dozens of ignitions on all categories of public and private tenures.

The major TWWHA fires were detected from 15 January to 21 January 2016. Table 2 provides a summary of these detected fires. The information regarding detection dates, provided in Table 2, indicates how some lightning fires can remain hidden for many days from available methods of detection including spotter flights (see section 5.1.3). A multi-agency Incident Management Team at Launceston took over the management of the northern TWWHA fires on 19 January 2016, while the southern TWWHA fires were managed from an incident management team at Cambridge from 22 January 2016

The largest of the TWWHA fires, the Lake Mackenzie Complex fire, started as five separate lightning ignitions; two started outside the TWWHA in the Mersey Valley, but all five fires eventually joined up to create one fire. As indicated in Table 2, detection of three of these ignitions did not occur until 19 January 2016 when all five fires made their first significant spread under high fire weather conditions.

Date detected	Total number of	Names of significant fires and approx. final	Comments on significant fires
	fires	size	
12 12 12 12 12	detected		No similiant fine developed from these fine
13 January	5		No significant fires developed from these fires.
14 January	6	Gould Point (100 ha)	Gould Point fire was monitored until 19 January
			when back-burning was undertaken.
15 January	9	Patons Road*; Mersey	Patons Road and Mersey Forest Road fires
		Forest Road*; Lake Bill	started on Forestry Tasmania managed land.
		(1,400 ha)	Suppression on Patons Road and Lake Bill fires
			started on 15 January 2016; Mersey Forest
			Road fire on 16 January.
16 January	1	Dove River (56 ha)	Dove River fire was assessed as a risk to the
			Cradle Mountain area visitors, so crews were
			redeployed from Lake Bill fire to this fire on
			16 January.
17 January	2	February Plains*;	The location of the February Plains fire could
		Gordon River Road	not be determined following initial report until
		(4,200 ha)	19 January.
			Suppression action on Gordon River fire began
			18 January.
18 January	3	Maxwell River South	Suppression action began 31 January.
18 January	3	Gordon River Road (4,200 ha) Maxwell River South (1,400 ha)	not be determined following initial report until 19 January. Suppression action on Gordon River fire began 18 January. Suppression action began 31 January.

# Table 2: Summary of the detection and suppression of fires affecting the TWWHA from the Ightning storm of 13 January 2016

<sup>&</sup>lt;sup>4</sup> There are likely to have been more ignitions in the TWWHA from this lightning storm which were never detected.

Date detected	Total number of fires detected	Names of significant fires and approx. final size	Comments on significant fires
19 January	2	Lake Mackenzie Road*; Devils Gullet*	Devils Gullet was a spot fire from the Lake Mackenzie Road fire. Suppression started by TFS crews on 19 January (all PWS firefighters were committed to other fires).
21 January	1	Norway Range (40 ha)	Norway Range fire was monitored only.

\* Fires that joined together to create the Lake Mackenzie Complex fire (24,700 ha).

(Source: information summarised from records of duty officers of Tasmania Parks and Wildlife Service and Forestry Tasmania; fire size from information provided by the Department of Primary Industries, Parks, Water and Environment)

## **1.3 TWWHA Bushfire and Climate Change Research Project**

#### **1.3.1 Research Project background**

The 2016 fires highlighted the need to consider the impacts that climate change will have on the occurrence, frequency, and extent of bushfires in the TWWHA and the implications this will have for the management and protection of the values of this iconic region.

In March 2016, the Premier, Will Hodgman MP, announced the Tasmanian Government's commitment of \$250,000 towards a new research initiative to investigate the impact of climate change on Tasmania's wilderness areas and strengthen firefighting techniques to prepare for and respond to bushfires in the wilderness, hereafter referred to as the TWWHA Bushfire and Climate Change Research Project (the Research Project) (Premier of Tasmania 2016b).

The Research Project focused on the TWWHA, the location of which is indicated in Attachment 2, and included on the World Heritage List (UNESCO 2016a). The results of the Research Project are also relevant to adjacent and other protected areas in Tasmania.

The Research Project has been led by an independent chairperson, Dr Tony Press, Adjunct Professor at the Antarctic Climate and Ecosystems Cooperative Research Centre (ACE CRC). The Research Project was overseen by a high-level Steering Committee with representatives from the Tasmanian Departments of Premier and Cabinet; Primary Industries, Parks, Water and Environment; Police, Fire and Emergency Management; and the Australian Government's Department of the Environment and Energy. A Technical Working Group with representatives from the aforementioned Tasmanian agencies was established to support the Research Project.

The Research Project has been undertaken in two stages:

- Stage One: Interim Report was provided to the Tasmanian Government in July 2016; gap analysis to identify research needs in relation to the project's objectives (see below); and commissioning of specific research to address high priority research needs.
- Stage Two: Final Report (this Report) to be provided to the Tasmanian Government by December 2016.

#### **1.3.2 Research Project Terms of Reference, objectives and outcomes**

The Terms of Reference for the Research Project are at Attachment 3. The objectives of the Research Project are to:

- examine how climate change will affect future fire danger and other variables that may lead to an increased risk of bushfire, and its impacts on the TWWHA;
- provide recommendations on the most appropriate methods for monitoring and recording vegetation dryness levels within the TWWHA; and
- examine firefighting techniques, interventions and resources that can be safely and effectively employed by the Tasmania Parks and Wildlife Service and the Tasmania Fire Service to prepare for, and respond to, bushfires in the TWWHA, including the most appropriate methods to extinguish fire within alpine areas.

The outcomes of the Research Project are:

- improved understanding of how climate change will impact on the TWWHA; and
- improved ability to prepare for, and respond to, bushfires in the TWWHA.

#### **1.3.3 Related activities to the Research Project**

Two activities related to the Research Project have recently been undertaken, and relevant elements of these activities have been considered in this Final Report.

Firstly, the Australasian Fire and Emergency Service Authorities Council (AFAC) undertook an independent operational review into the management of the Tasmanian fires of January 2016 (AFAC 2016a). The AFAC Review report was publicly released in April 2016 and provided Tasmania's fire agencies with 12 recommendations. These recommendations have been considered in this Report. The AFAC Review did not include a detailed discussion of the impacts of climate change on future bushfire risk in the TWWHA. It did, however, reference research by CSIRO and the Bureau of Meteorology relating to trends in climate variables out to 2100 (AFAC 2016a).

Secondly, on 17 March 2016, the Australian Senate called an inquiry into the 'Response to, and lessons learnt from, recent bushfires in remote Tasmanian wilderness'. Following the calling of the July 2016 federal election, the inquiry lapsed, delaying the report timeframe. On 13 September 2016, the Senate agreed that the inquiry would recommence, with a reporting date of 1 December 2016 (Parliament of Australia 2016). The Research Project has considered the submissions made to the Senate inquiry.

# **1.4 Final Report purpose and structure**

#### 1.4.1 Purpose

The purpose of the Final Report, as outlined in the Terms of Reference for the Research Project, is to:

- summarise the work undertaken in Stage One of the Research Project and provide practical information and tools for the Tasmania Parks and Wildlife Service and the Tasmania Fire Service to manage bushfires in the TWWHA; and
- provide recommendations to the Tasmanian and Australian governments regarding future management of bushfire threat in the TWWHA.

#### 1.4.2 Structure

The structure of the Final Report follows the 'Prevention, Preparedness, Response and Recovery' (PPRR) risk management model and is presented in eight sections:

- **SECTION 1 (Introduction)** provides context regarding the history and role of fire in the TWWHA and an outline of the Research Project.
- SECTION 2 (Values in the TWWHA) provides an overview of the natural and cultural values of the TWWHA and the link between the protection of these values and fire management.
- SECTION 3 (Fire management arrangements for the TWWHA) provides an overview of fire management arrangements for the TWWHA including funding, and relevant Tasmania Parks and Wildlife Service plans, policies and procedures.
- **SECTION 4 (Prevention)** focuses on bushfire prevention and mitigation in the TWWHA in terms of current operational practices, recent work and research, and areas for further work or research.
- SECTION 5 (Preparedness) focuses on bushfire preparedness in the TWWHA in terms of current operational practice, recent work and research, and areas for further work or research.
- **SECTION 6 (Response)** focuses on bushfire response in the TWWHA in terms of current operational practice, recent work and research, and areas for further work or research.
- **SECTION 7 (Recovery)** focuses on bushfire recovery in the TWWHA in terms of current operational practice, recent work and research, and areas for further work or research.
- SECTION 8 (Conclusions) provides the Research Project's conclusions.

# **1.5** Research commissioned through the Research Project

As part of the Research Project, new research was commissioned to help inform the findings and recommendations of this Report. This research included:

- an examination of the history of lightning fires in the TWWHA and adjacent areas. This
  research was undertaken by Dr Jon Marsden-Smedley (Marsden-Smedley 2016) and is
  discussed in more detail in Section 5.2.2 Future Bushfire Risk;
- an examination of the impact of climate change on weather-related fire risk factors in the TWWHA. This research was undertaken by the Antarctic Climate and Ecosystems Cooperative Research Centre (ACE CRC) (Love et al. 2016a, Love et al. 2016b) building on
the ACE CRC's Climate Futures for Tasmania research and is discussed in more detail in Section 5.2.2 – Future Bushfire Risk; and

 an examination of the impact and effectiveness of fire suppression chemicals in the TWWHA. This research was being undertaken by the Department of Primary Industries, Parks, Water and Environment at the time of publication of this report and the results of the research will be available towards the end of 2017.

In addition to these new research projects, two synthesis studies were commissioned to bring together current understanding of bushfire in the TWWHA:

- an examination of the impact of climate change on future fire behaviour in different vegetation types in the TWWHA. This report was written by Dr Jon Marsden-Smedley (Marsden-Smedley 2016) and is discussed in more detail in Section 2.5.1 – Future Fire Behaviour; and
- an examination of the impact of climate change on the future fire regimes for natural values. This report was written by Professor Jamie Kirkpatrick (Kirkpatrick 2016) and is discussed in more detail in Section 2.5.2 – Consequences of future fire regimes for natural values.

# 2. VALUES IN THE TWWHA

# 2.1 Roles and responsibilities

Identifying and understanding the natural and cultural values of significance in the TWWHA, particularly those that are fire-sensitive, is important because their protection has implications for fire management in the TWWHA.

The TWWHA was first inscribed on the United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage List in 1982. Since 1982, the TWWHA has been expanded several times, with a major extension in 1989 and minor boundary modifications in 2010, 2012 and 2013 (Australian Government 2016a). The 1,584,460 hectare TWWHA property comprises approximately 20 per cent of the area of the State of Tasmania. Attachment 2 (DPIPWE 2016a) depicts the location of the present TWWHA.

As a signatory to the Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention), the Australian Government has obligations to identify, protect, conserve and present its World Heritage properties, in this case the TWWHA (Australian Government 2016a).

An Australian World Heritage Intergovernmental Agreement (IGA) (Australian Government Intergovernmental Agreement 2009) was established in 2009, between the Australian Government and all Australian states and territories, to determine respective roles and responsibilities in meeting Australia's obligations under the World Heritage Convention.

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) is the principal instrument for implementing Australia's World Heritage Convention obligations. Under the EPBC Act, World Heritage places, among other things, are defined as matters of national environmental significance (Australian Government 2016b).

The TWWHA consists primarily of reserves proclaimed under the Tasmanian *Nature Conservation Act 2002* and managed by the Tasmania Parks and Wildlife Service. Since its inscription on the World Heritage List, there has been a partnership arrangement between the Australian Government and the Tasmanian Government to ensure the protection of the outstanding natural and cultural heritage of the TWWHA (DPIPWE 2016a).

Obligations imposed under the World Heritage Convention (that are delegated by the Australian Government to the Tasmanian Government) are implemented by the day-to-day management responsibilities of the Tasmania Parks and Wildlife Service under the Tasmanian *National Parks and Reserves Management Act 2002*. Further details regarding the Tasmania Parks and Wildlife Service's legislative responsibilities are provided at Attachment 4.

# 2.2 The TWWHA and the World Heritage List criteria

The Tasmanian Wilderness is inscribed on the World Heritage List under four criteria for "natural heritage" and three criteria for "cultural heritage". The criteria are:

Natural heritage:

- "(vii) to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
- (viii) to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
- (ix) to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
- (x) to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation" (UNESCO 2016a); and

Cultural heritage:

- "(iii) to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;
- (iv) to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;
- (vi) to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance" (UNESCO 2016a).

The criteria for assessing whether cultural and natural heritage is of Outstanding Universal Value have evolved over time and the criteria against which the TWWHA was listed in 1982 and 1989 are not identical with the current criteria (UNESCO 2016b). However, the underlying concepts have remained constant.

Attachment 7 (Australian Government 2016a) provides a list of World Heritage values from the Department of the Environment and Energy. The list is based on the 1981 and 1989 nominations for the TWWHA, assessments by the advisory bodies to the World Heritage Committee (International Union for Conservation of Nature (IUCN) and International Council on Monuments and Sites (ICOMOS)) and reports to the World Heritage Expert Panel. The Department is updating this list to include the values in the areas added to the property in 2010, 2012 and 2013 that contribute to the property's Outstanding Universal Value under each criterion.

# 2.3 Statement of Outstanding Universal Value (SOUV)

Outstanding Universal Value is defined as "cultural and/or natural significance which is so exceptional as to transcend national boundaries and be of common importance for present and future generations of all humanity" (Australian Government 2016c).

When the Tasmanian Wilderness was first listed as World Heritage in 1982, a Statement of Outstanding Universal Value (SOUV) was not required. An SOUV is the official statement adopted by the World Heritage Committee identifying the criteria under which a property is inscribed on the World Heritage List (Australian Government 2016c).

The primary purpose of an SOUV is to be a key reference for the future effective protection and management of a World Heritage property.

At the request of UNESCO's World Heritage Centre, the Australian Government is working with the Tasmanian Government, and technical advisory bodies to the World Heritage Committee, to develop the SOUV for the TWWHA (Jaeger and Sand 2015). The retrospective SOUV will be submitted to the World Heritage Centre by 1 December 2017 in the State Party Report on the state of conservation of the TWWHA. The State Party Report will be considered by the World Heritage Committee at its meeting in 2018 (Australian Government 2016c).

The SOUV for the TWWHA will take into account the findings of a synthesis report which will compile all available information about cultural sites in the TWWHA, and it will provide more detailed information on the cultural values of the TWWHA and how these values relate to its Outstanding Universal Value (Australian Government 2016c).

Once endorsed by the World Heritage Committee, the SOUV will be a key reference point for future protection and management of the TWWHA. It will also be a key reference point for monitoring, periodic reporting and state of conservation reporting. It is proposed that the SOUV be updated in future years to reflect the results of a comprehensive cultural study (which will be conducted over several years).

More information on the process to finalise an SOUV for the TWWHA is included in the 2016 State Party Report on the state of conservation of the Tasmanian Wilderness World Heritage Area (Australian Government 2016d).

## 2.4 Fire and the TWWHA values

Bushfires present one of the biggest challenges to managing and protecting the values that are recognised as significant to the TWWHA's World Heritage status.

Many, but not all, values can be significantly harmed or completely lost following a single bushfire or by an unfavourable fire regime. Examples of some of the most fire-sensitive values in the TWWHA include (see section 2.5.2, Table 7 and Attachment 7):

- some categories of Aboriginal heritage sites;
- endemic conifers: King Billy pine (*Athrotaxis selaginoides*), pencil pine (*A.* cupressoides) and Huon pine (*Lagarostrobos franklinii, Diselma archeri, Microcachrys tetragona, Pherosphaera hookeri*);
- deciduous beech (Nothofagus gunnii);
- rainforest and alpine vegetation;
- some organic soils, including Sphagnum peatlands; and
- breeding habitat of orange-bellied parrots (Neophema chrysogaster).

Conversely, some values in the TWWHA may be lost or altered in the complete absence of fire. Examples include:

- the broad patterns of vegetation in the landscape, which were shaped by Aboriginal fire regimes over thousands of years and are still significant to Aboriginal people;
- habitat for some fauna, including the feeding habitat for orange-bellied parrots;
- some areas of montane grassland; and
- plant species that depend on fire for regeneration.

Therefore, maintaining and protecting TWWHA values requires the deliberate application of appropriate fire regimes to some areas, while excluding fire, as far as practical, from other areas.

# 2.5 Overview of expected climate change impacts and consequences for bushfires in the TWWHA

### 2.5.1 Future fire behaviour

The following is a summary of Dr Jon Marsden-Smedley's report titled 'Lightning fires in the Tasmanian Wilderness World Heritage Area and adjacent areas' (Marsden-Smedley 2016), as commissioned through this Research Project and provided on 9 November 2016.

Dr Marsden-Smedley's report is informed by the Antarctic Climate and Ecosystems Cooperative Research Centre's (ACE CRC)'s analysis of the impact of climate change on weather-related fire risk factors in the TWWHA, which was also commissioned through the Research Project (see section 5.2.2.2) (Love et al. 2016a and Love et al. 2016b), and considers the implications of this information for future fire events in the TWWHA.

# 2.5.1.1 Implications for fire from climate change in the TWWHA between 1980 and 2100

The climate change projections provided by ACE CRC's analysis (Love et al. 2016a and Love et al. 2016b) indicate that between 1980 and 2100, only minor changes are projected to occur for: wind speed, Moorland Fire Danger Index<sup>5</sup> and relative humidity. Moderate increases are projected in: Forest Fire Danger Index<sup>6</sup> and temperature, along with minor decreases in moorland fuel moisture.

<sup>&</sup>lt;sup>5</sup> The Moorland Fire Danger Index (MFDI) was developed from the Buttongrass Moorland Behaviour Prediction System in recognition that other fire behaviour prediction systems were not appropriately reflecting fire behaviour in Buttongrass moorlands (see section 4.2.1.1).

<sup>&</sup>lt;sup>6</sup> The McArthur Forest Fire Danger Index (FFDI) is a standard index used by weather forecasters and fire services in Australia to determine fire hazard and make operational decisions around fire management. The FFDI incorporates surface air temperature, relative humidity and wind speed, combined with an estimate of fuel dryness (Drought Factor, based on Soil Dryness Index and recent precipitation) to give an index of daily fire danger. It is based on dry forest fire behaviour measurements.

In contrast, major increases are projected to occur in Mount Soil Dryness Index<sup>7</sup> (MSDI) and two measures of dry periods: more than 30 days with less than 50 mm of rain; and MSDI greater than 50, particularly in summer and autumn. The lightning potential is expected to decrease.

The major impacts projected to occur from climate change are related to changes in vegetation and soil flammability resulting from increases in the MSDI and dry periods. These increases in soil dryness are likely to be already occurring and manifest as increased occurrence of lightning ignitions and areas burnt, and increased fire occurrence in organic soils.

The relationships between organic soil types in the TWWHA and their potential to burn during bushfires are very poorly understood. From the information that is available, the critical factors determining the potential for organic soil fires to occur are related to the soil organic content and moisture content. This means that the organic soils most at risk are probably those that have high levels of organic matter and are located in areas that were, in the past, too wet to sustain burning.

Under the current climate, the conditions suitable for conducting safe and effective buttongrass moorland planned burning occur more frequently in autumn than in spring. The projected increases in autumn of MSDI and dry periods will mean that planned burning in buttongrass moorland in autumn is highly likely to be adversely impacted, most notably because wet scrub that is adjacent to buttongrass moorlands will be dry enough to burn throughout autumn.

Based on post-fire recovery times, the area of coniferous alpine heath and coniferous rainforest will be reduced if fires burn, on average, more than about 0.1 to 0.2 per cent of the total area of the vegetation type per year. In the case of rainforest without conifers, the area of rainforest will be reduced if fires burn, on average, more than about 1 per cent of the total rainforest area per year. During the period 1980 to the present, fires burnt about 0.01 per cent of coniferous alpine heath, about 0.05 per cent of coniferous rainforest and about 0.6 per cent of rainforest without conifers per year. While significant, the rate of burning over this period is low enough to permit post-fire recovery without causing overall decline of these vegetation types. The burning of these fire-sensitive vegetation types did, however, cause very significant decline over the 100 years preceding 1980.

### **2.5.2 Consequences of future fire regimes for natural values**

The following is a summary of Distinguished Professor Jamie Kirkpatrick's report titled 'Consequences of future fire regimes on world heritage values' (Kirkpatrick 2016), as commissioned through this Research Project and provided on 28 October 2016.

Professor Kirkpatrick's analysis is informed by ACE CRC's analysis of the impact of climate change on weather-related fire risk factors in the TWWHA, which was also commissioned through the

<sup>&</sup>lt;sup>7</sup> The Mount Soil Dryness Index (MSDI) is a simple soil moisture model calculated from rainfall and temperature observations and has been used in Tasmania for over 40 years in bushfire management. The MSDI is used as an indicator of soil and surface fuel dryness and therefore vegetation flammability across a region, but it does not account for variation of soil or vegetation type.

Research Project (see section 5.2.2.2) (Love et al. 2016a and Love et al. 2016b) and considers the implications of this information for natural values in the TWWHA.

### 2.5.2.1 Introduction

Formally and informally recognised values of the TWWHA under the World Heritage criteria vary in their likely responses to possible changes in fire regimes. Responses range from: susceptible to extinction; to sublimely indifferent; to likely to increase. Changes in fire regimes that may threaten some of the TWWHA values may benefit others, as the ecosystems of the World Heritage Area vary from those that can be destroyed for long periods by a single fire to those that can be destroyed by the absence of fire for decades to centuries. Species and geoheritage features in the same ecosystem can respond very differently to fire. These variations in response require a diversity of fire regimes to match the functional diversity of the highly Tasmanianendemic biota. A diversity in fire regimes is provided, with or without human intervention, by variability in the spatial and temporal incidence of ignition, the differing tendencies of different vegetation types to propagate fire, and the influence of lakes, rivers and topography on the patterns of fire spread (Jackson 1968; Wood et al. 2011a; di Folco and Kirkpatrick 2013).

(Note: The vegetation communities listed below are a subset of the communities in Kirkpatrick (2016). Kirkpatrick (2016) also provides detail on other values that may be threatened by decrease in fire frequency, and discussion of Indigenous burning.)

### 2.5.2.2 Values most threatened by an increase in fire frequency

### Fire-sensitive palaeoendemics

The surviving plant clades from the Cretaceous are concentrated in the zone of intergradation between rainforest and alpine vegetation where fire has been long absent (Jordan et al. 2015). The most fire-sensitive of these clades, such as King Billy pine (*Athrotaxis selaginoides*) and pencil pine (*A. cupressoides*) have no capacity to vegetatively recover after all their foliage has been killed by fire. They do not store disseminules in their canopies or the soil, and do not have disseminules adapted to long-distance dispersal. They can be rendered locally extinct by just one fire (Kirkpatrick and Dickinson 1984). There are many invertebrate species that are concentrated on, or totally depend upon, the most fire-sensitive clades (Kirkpatrick et al. 1993).

There is no doubt that the early European fire regimes resulted in a massive reduction of the firesensitive palaeoendemics, and that the fire prevention and fire management associated with reservation for conservation have dramatically slowed the process of loss in range of these species of outstanding universal value. Recent spatial modelling has suggested that attrition of fire-sensitive vegetation will continue, given business as usual in the context of climate change (Yospin et al. 2015).

### Alpine ecosystems

The globally unusual dominance of alpine vegetation by highly Tasmanian-endemic scleromorphic shrubs and cushion plants (Kirkpatrick 1997) is sensitive to changes in fire regimes. Most alpine shrubs are obligate seed regenerators, with very few vegetatively recovering from fire, and most having limited dispersal ability. A frequency of fire of once in 20-40 years would prevent most alpine areas from becoming alpine heath (Kirkpatrick and Bridle 2013; Harrison-Day et al. 2016).

Despite the general undesirability of fire, some alpine daisy shrubs, which are wind-dispersed and short-lived, can become highly abundant after fire, dying out after approximately half a century (Kirkpatrick et al. 2002). In long unburned areas they persist because fluvial erosion provides a constant regeneration niche.

A second situation in which an increased incidence of fire may be construed to have positive conservation effects on shrubs and cushion plants in the alpine and subalpine parts of the World Heritage Area, is where rushes, sedges and shrubs overwhelm cushion plants in the eastern part of the World Heritage Area, where all the species in the cushion mosaic recover rapidly after a fire, in contrast to the invading shrubs. However, in the central and western mountains, the frequent presence of the fire-sensitive cushion plant *Dracophyllum minimum* (Kirkpatrick and Dickinson 1984) in the mosaics makes fire undesirable.

The balance between bare ground and vegetated patches in fjaeldmarks is affected by fire. Fjaeldmarks are rare in Tasmania and are the habitat of several rare species (Kirkpatrick 1997). However, a mildly higher fire incidence may have some positive effects.

#### Rainforest ecosystems

Several of the fire-sensitive palaeoendemic clades can dominate or co-dominate rainforest. Yet, there are many tree and shrub species in rainforest that can recover from fire vegetatively, by long-distance dispersal or through soil seed stores. Thus, rainforest as a formation will recover from a single fire while losing the most fire-sensitive of its species. However, repeated fire eliminates the formation, as indicated by the many areas where moorland occupies soils formed under rainforest (di Folco and Kirkpatrick 2013). Conversely, rainforest can replace moorland in the absence of fire, even kilometres away from rainforest boundaries (di Folco and Kirkpatrick 2013), as sassafras (*Atherosperma moschatum*) is wind-dispersed and celery top pine (*Phyllocladus aspleniifolius*) is bird-dispersed (Barker and Kirkpatrick 1994).

The projection of drier summers in western Tasmania with global warming (see section 5.2.2.2) is yet to be evident in the climatic data, but, if it does occur, and dry lightning strikes continue to be frequent, the probability of rainforest burning might be greater than in the past. However, if ignition occurs before the rainforest soils dry out, therefore burning only moorland, the burned moorland would provide a barrier to the movement of fire into rainforest, possibly lowering the probability of rainforest loss. Planned aerial ignition of large areas of moorland when the rainforest areas are too moist to burn might possibly achieve the same outcome (Marsden-Smedley and Kirkpatrick 2000; King 2004; King et al. 2006).

### Organic soils and landforms

The organic soils of the World Heritage Area are globally unusual in that they are bioturbated by burrowing crayfish. The extensive moorland organic soils recover quickly from losses related to fire on valley flats, and very slowly on slopes (di Folco and Kirkpatrick 2011). The diverse alpine organic soils can be truncated by fire (Kirkpatrick and Dickinson 1984; Bridle and Kirkpatrick 1997).

The patterned mire formations of the alpine and subalpine zones of the World Heritage Area have been recognised to have outstanding universal value because they are formed from a different process from those in the Northern Hemisphere. Wherever upright shrubs grow in the dams of mire ponds or along the ridges, fire can disrupt the features, as happened on Mt Wellington in 1967 (Whinam and Kirkpatrick 1994).

There can be catastrophic loss of the fibric layer of organic soils during and immediately after fire. Such loss has frequently been observed under scrub and rainforest. Organic soils slowly combust under the surface until the soil is soaked by rain. Losses appear to be rare under moorland.

# 3. FIRE MANAGEMENT ARRANGEMENTS FOR THE TWWHA

# 3.1 Funding

The Australian Government and the Tasmanian Government have jointly contributed to the costs of managing the property since 1983.

The Australian Government provides the Tasmanian Government with \$3.4 million per annum (baseline funding until 2018) to assist with management of the TWWHA under a World Heritage Grants Funding Agreement (Australian Government 2016e). The Tasmanian Government contributes a minimum \$4.9 million per annum.

This combined funding has contributed to a number of activities that increase Tasmania's capacity to manage and reduce the impacts of fires in the TWWHA (Australian Government 2016e).

In 2015, the Australian Government committed to supporting Tasmania to strengthen its management of the TWWHA by providing an additional \$10.2 million, over four years from 2014-15, for its protection, conservation, presentation and rehabilitation (Australian Government 2016e). The funding, over four years from 2015, includes:

- "An annual payment of \$1.5 million per year, indexed for inflation, to support the Tasmanian Government's management responsibilities in the area added to the TWWHA in 2013. This funding is matched by the Tasmanian Government.
- A one-off payment of \$3.2 million in 2015-16 to address high priority road safety issues and biosecurity concerns relating to the spread of invasive species, pests and pathogens in the area added to the TWWHA in 2013.
- \$575,000 to progress the work being undertaken by the Tasmanian Aboriginal Heritage Council with the Tasmanian Aboriginal community to provide more detailed information on the cultural heritage of the property and how this relates to its Outstanding Universal Value." (Australian Government 2016e).

The Australian Government also provided a one-off payment of \$1.5 million in 2012-13 to the Tasmanian Government to support the development of a new management plan for the TWWHA (Australian Government 2016d).

In relation to the management of bushfires, Tasmania assists in meeting Australia's obligations under the World Heritage Convention through a combination of measures, predominantly managed by the Tasmania Parks and Wildlife Service under the Tasmanian *National Parks and Reserves Management Act 2002*. This includes the TWWHA Management Plan 1999 and policies and plans that govern fire management in the TWWHA. These are outlined in subsequent sections.

# 3.2 Legislation and statutory plans

Fire management arrangements for the TWWHA sit within the broader context of Tasmania's fire management arrangements. These arrangements are detailed in full at Attachment 4 (from AFAC 2016a and Tasmanian Government 2016a) and the legislation relevant to fire management in Tasmania is listed at Attachment 5.

The Tasmania Parks and Wildlife Service is responsible for managing bushfire in the TWWHA through a combination of activities. These include mitigation activities, such as fuel reduction burning and responding to bushfires in the TWWHA, which are carried out using a risk management approach.

Subsection 30(3)(ca) of the Tasmanian *National Parks and Reserves Management Act 2002* gives authority to the Tasmania Parks and Wildlife Service to "take any steps or undertake any activities that the managing authority considers necessary or expedient for the purposes of preventing, managing or controlling fire in reserved land".

As an occupier of land, the Tasmania Parks and Wildlife Service is also obligated under section 64 of the Tasmanian *Fire Service Act 1979* to take diligent steps to extinguish fire or prevent it from spreading to other land tenures and to report the fire. The Tasmania Parks and Wildlife Service must also consider fire management arrangements in the private land in the TWWHA (owned by the Tasmanian Land Conservancy, Bush Heritage Australia and Hydro Tasmania) as well as Aboriginal land vested in the Aboriginal Land Council of Tasmania, areas managed by TasNetworks, and Forestry Tasmania.

A map depicting the contiguous land tenure boundaries of the TWWHA is provided at Attachment 6.

## 3.2.1 TWWHA Management Plan

## 3.2.1.1 TWWHA Management Plan 2016

The formulation of the TWWHA Management Plan 2016 (DPIPWE 2016a) (the Plan) is a statutory process set out in the Tasmanian *National Parks and Reserves Management Act 2002* (the Act).

In respect to fire management, the Plan does not specifically set out the objectives for fire management in the TWWHA. Rather, it refers to the relevant policies and plans that govern fire management in the TWWHA. This enables the relevant policies and plans, particularly the regional strategic fire management plans, to be reviewed and updated, providing the Tasmania Parks and Wildlife Service with more flexibility than would be the case if prescribed in the TWWHA Management Plan (which is only required to be updated once every 10 years).

The Plan has a strong emphasis on ongoing research and provides numerous management actions in support of this. It also prescribes a fire plan for the TWWHA that will integrate all aspects of fire management. The fire plan is to include objectives to guide the use of fire management, provide guidance on protection of outstanding universal values over other values and built assets, integrate cultural and ecological burning, map strategic and priority areas for burning, identify areas for strategic protective burning and cultural landscape burning, and guide an increase in the level of planned burning to meet modelled risk management requirements. The Plan prescribes management actions to increase understanding of the ecological role of fire, to protect values from inappropriate fire regimes through planned burns and for improved treatment of Aboriginal cultural values in the Bushfire Risk Assessment Model (BRAM) (DPIPWE 2016a).

# 3.3 Fire policies and procedures of the Tasmania Parks and Wildlife Service

### 3.3.1 Tasmania Parks and Wildlife Service Fire Management Policy 2014

The Fire Management Policy 2014 (DPIPWE 2014b) is the top level policy for the Tasmania Parks and Wildlife Service fire management, and all other Tasmania Parks and Wildlife Service fire management policies are subordinate to it. The Policy outlines the Tasmania Parks and Wildlife Service's management responsibility and obligations regarding the TWWHA and what it will do to deliver its responsibilities.

## 3.3.2 Fire Planning Policy 2014

The purpose of the Fire Planning Policy 2014 (DPIPWE 2014a) is to identify the framework (Figure 5) for fire management planning to be used by the Tasmania Parks and Wildlife Service for reserved land, and other Crown land, that it is responsible for managing. The policy aims to identify:

- the hierarchical relationships between legislation, codes of practice, various fire plans and other administrative documents;
- the names, primary purposes and content of the various categories of fire plans within the multi-tiered framework; and
- the responsibilities for preparation, delivery and approval of the fire plans (DPIPWE 2016a).

Some key plans and documents specified in this policy include:

- Regional Strategic Fire Management Plans (see section 3.3.6);
- Fire Management Strategies (for individual reserves or groups of reserves, although there are none current for the TWWHA);
- Fire Action Plan;
- Fire Works Plans;
- Annual Planned Burning Program; and
- Fire Emergency Response Plans (DPIPWE 2014a).



Figure 5: Fire Planning Framework of the Tasmania Parks and Wildlife Service, from the Fire Planning Policy

### **3.3.3 Wildfire Response Procedures**

The purpose of the Wildfire Response Procedures is to ensure that:

- Tasmania Parks and Wildlife Service employees are aware of their responsibilities and the responsibilities of others, and how to proceed when notified of a bushfire; and
- the response to bushfires is timely, efficient, adequate and consistent, and to improve the allocation and distribution of firefighting resources, especially people, within the limits of overall staffing.

### **3.3.4 Fire Duty Officer procedures**

This document specifies the procedures to be adopted in the establishment and operation of Duty Officers at the State level, with the aim to ensure that:

- Tasmania Parks and Wildlife Service responses to reported fires are initiated;
- an appropriate state of readiness for Tasmania Parks and Wildlife Service employees is maintained;
- Tasmania Parks and Wildlife Service employees are provided with points of contact to coordinate resource sharing between the regions, and facilitate the use of Hobart office employees and the fire crew; and
- other agencies, particularly the Tasmania Fire Service and Forestry Tasmania, are provided with a single, reliable and authoritative point of contact in the Tasmania Parks and Wildlife Service.

### **3.3.5 Other operational fire procedures**

In addition to the aforementioned policies and procedures, the Tasmania Parks and Wildlife Service has a suite of policies and procedures that document preparedness and response arrangements. These cover a variety of matters such as:

- firefighter fitness assessment;
- Incident Management Team (IMT) guidelines;
- training framework;
- strategic pre-position of helicopter resources; and
- process for the use of foam and water enhancer products for fire management and suppression (see section 6.1.4).

### **3.3.6 Regional Strategic Fire Management Plans**

Regional Strategic Fire Management Plans have been developed by the Tasmania Parks and Wildlife Service for each of its operational regions: Northern (DPIPWE 2009), Northwest (DPIPWE 2012) and Southern (DPIPWE 2011b). The boundaries of the operational regions are shown in Attachment 8. The principle of these plans is to ensure that the approach taken by the Tasmania Parks and Wildlife Service focuses resources on areas with the highest levels of identified bushfire risk.

The Regional Strategic Fire Management Plans, which were prepared much later than the 1999 TWWHA Management Plan (DPIPWE 1999), have informed the management of fire in the

TWWHA since their development, with bushfire risk assessment (Bushfire Risk Assessment Model – see section 4.1.2) as their basis. The plans cover fire prevention, preparedness, response, restoration, resource requirements, and standards monitoring and reporting.

Guided by the risk assessment, the TWWHA is mapped into a fire zoning overlay with four categories:

- **Asset Zone** areas with assets of high importance requiring protection from fire (includes natural, cultural and built assets).
- Asset Protection Zone areas of high strategic importance to protect values in Asset Zones.
- Strategic Fuel Management Zone areas for fuel management that will increase the likelihood of controlling a bushfire in, or the forward spread through, the area.
- Land Management Zone fire management in the zone aims to maintain appropriate fire regimes for the vegetation communities, species diversity and cultural heritage.

### 3.3.7 Fire Action Plan

The Tasmania Parks and Wildlife Service annually reviews and updates its Fire Action Plan (FAP), which guides daily preparedness during the bushfire season and provides information and guidance to staff to consider in the initial response to a fire. A key principle of the Fire Action Plan is that the activities of the Tasmania Parks and Wildlife Service staff depend on the forecast Forest Fire Danger Index (FFDI) and consequent bushfire risk. The Fire Action Plan specifies arrangements for:

- FFDI triggers for staff actions and availability;
- standby or prepositioning of resources including firefighters, equipment, machinery and aircraft;
- fire-spotter flights;
- walking track closures;
- reserve closures; and
- campfire restrictions (at FFDI 25 a lower level than Total Fire Bans which are usually triggered at FFDI 38).

### 3.3.8 Bushfire preparedness and response

Collectively, the policies, procedures and plans summarised above guide the daily preparedness and response of the Parks and Wildlife Service to bushfires during the fire season.

Preparedness is provided by:

- preseason preparation activities and training (eg fire training; fire season preparedness days; firefighter fitness assessment);
- rostering of duty officers, firefighters and Incident Management Teams across the State (Fire Duty Officer Procedures; Incident Management Team Guidelines; Fire Action Plan);
- daily fire action plans prepared by the Fire Duty Officer, which detail the arrangements for the next day in accordance with the triggers specified in the Fire Action Plan; and

• the functioning of the Fire Operations Room in Hobart and continuous 24/7 monitoring of the State situation by the Fire Duty Officer.

Response is guided by the Wildfire Response Procedures, the Regional Strategic Fire Management Plan, the Fire Action Plan, the Bushfire Risk Assessment Model (BRAM) and Bushfire Operational Hazard Model (BOHM) and coordinated in the first instance by the Fire Duty Officer (see section 5.1.2). Further details on response strategies and tactics are provided in section 6.

# **3.4 Evaluation of the effectiveness of fire management in the TWWHA**

In November 2015, the Tasmania Parks and Wildlife Service published a report on fire management as a component of its broader monitoring and evaluation program for Tasmania's parks and reserves (DPIPWE 2015b).

While the Tasmania Parks and Wildlife Service has noted that future editions of the Report will examine the impacts and implications of the 2016 bushfires, it concluded, at the time, that fire management in the TWWHA was being undertaken appropriately. The evaluation report also found that:

- The total area affected by fire has increased significantly in the decade ending in 2013 compared with the previous decade.
- The actual number of bushfires increased slightly in an inter-decade comparison, with 37 fires across 1993-2003 and 43 fires across 2003-2013.
- The number of planned fires had increased slightly in the most recent decade compared to the earlier one, but the total area affected by planned fires had trebled in the same decade in comparison, as the average size of planned burns had increased.
- In the decade from 1993-2003, ignitions caused by lightning accounted for only 15 per cent of the total fire-affected area. By contrast, in the recent decade 2003-2013, 99 per cent of the total area affected by unplanned fire was attributed to lightning ignitions.
- Relatively small areas of fire-sensitive vegetation have been affected in the last decade, and only a small percentage of the total TWWHA area. Most of the affected area is buttongrass, which is fire-adapted. For example, only one per cent of the total area affected by the Giblin River fire in January 2013 was subsequently assessed as firesensitive.

The Report identified elements being progressed of a strategy to manage the risks to fire-sensitive vegetation from dry lightning:

(i) improved dry lightning forecasting (some aspects of Antarctic Climate and Ecosystem's Climate Futures for Tasmania research, see section 5.2.2.2);

(ii) improved understanding of fire behaviour and flammability of fire-sensitive vegetation (eg rainforest flammability, see section 5.2.3);

- (iii) early fire detection and faster initial response; and
- (iv) development of a strategy for more fuel reduction burning.

# **3.5 Recommendations relating to fire management in the TWWHA**

### Recommendation 1 – Comprehensive fire management planning

Clear, well-defined objectives for fire management should be incorporated into a Fire Management Plan for the TWWHA. These objectives should identify how fire management (fire suppression, 'let go' and management fires) will be used to protect and conserve the natural and cultural heritage values in the TWWHA.

The Fire Management Plan for the TWWHA should clearly set out the circumstances in which priority will be given to protecting the Outstanding Universal Value of the TWWHA over built assets within its boundaries.

# 4. **PREVENTION**

## 4.1 Current operational practice

### 4.1.1 Prevention and mitigation strategies

The Strategic Fire Management Plans (see section 3.3.6) present strategies to be used for prevention and mitigation of bushfires in reserves managed by the Tasmania Parks and Wildlife Service. These are summarised in Table 3. Two of these strategies are discussed in more detail: fuel reduction burning (see section 4.1.3) and campfire restrictions (see section 4.1.4).

# Table 3: Summary of the strategies used in the TWWHA for prevention and mitigation ofbushfires

Strategy	Description	Level of use
Fire	Zoning of all areas of the Tasmanian	Entire TWWHA is in the process of being
management	Wilderness World Heritage Area	mapped into four zone categories (see
zoning	(TWWHA) to guide priorities for mitigation	section 3.3.6)
	and response strategies	
Fuel reduction	The planned application of fire to reduce	Used regularly, mainly in buttongrass
burning	hazardous fuel quantities; undertaken in	(see section 4.1.3)
(planned	prescribed environmental conditions	
burning)	within defined boundaries	
Campfire	Statutory restriction of campfires (eg Fuel	Campfires prohibited in most of the
restrictions	Stove Only Areas)	TWWHA, except designated fireplaces
		and areas added recently to the TWWHA
Administration	Hazardous works shut down (eg welding,	Routine practices specified in the Fire
	chainsaw use); reserve closures (partial or	Action Plan
	complete)	
Education	Communication programs to increase	Interpretation (visitor centres, Discovery
	understanding of bushfire safety and fire	Ranger program) and publications
	prevention	widely used
Enforcement	Tasmania Parks and Wildlife Service	Rangers, field officers and firefighters
	Authorised Officers enforce statutory laws	enforce laws throughout TWWHA
	and regulations relating to bushfire	including patrols of at-risk areas
	prevention (eg illegal campfires)	
Emergency	A pre-incident plan that sets out the	Several plans in draft form for specific
response plans	response required (actions and roles) to	visitor areas of the TWWHA
	expedite decision-making to protect	
	people from bushfires in specific areas	
Fire breaks	Mechanical construction of fuel-reduced	Rarely used in TWWHA at present; a
	areas adjacent to assets	possible future tactic to protect fire-
		sensitive natural values in small areas
		(eg stands of conifers)
Fire trails	Tracks created and managed specifically	Very few fire trails in the TWWHA
	to provide access for fuel reduction	
	burning and fire control	
Engineering	Design of structures that are resistant to	Few buildings designed to contemporary
	bushfires or to minimise the risk of	building standards for bushfire-prone
	bushfire ignitions	areas

# 4.1.2 Bushfire Risk Assessment Model (BRAM): Risk mapping in the TWWHA

Bushfire risk assessment and modelling is an important risk management tool. The risk assessment informs the management of risk by identifying and prioritising areas that may be suitable for risk mitigation activities such as fuel reduction burning, and identifying areas that are not suitable for risk mitigation but can be prioritised for suppression or other response activities when bushfires approach or threaten particular values.

There is a recognised need to understand fire behaviour specific to vegetation types, and to develop predictive modelling that identifies both level of risk and potential impact in the event of bushfire. This modelling is key to supporting effective management of the risk of fire in the TWWHA. Tasmania has made significant progress in the State's bushfire risk management capability, through developing and introducing the Bushfire Risk Assessment Model (BRAM) by the Tasmania Parks and Wildlife Service in the late 2000s.

BRAM is a computer mapping system that models and maps the risk of bushfire at 100-metre grid resolution. Data used by BRAM comes from many sources and is combined and analysed to calculate risk scores for the State, including all Tasmania Parks and Wildlife Service reserves. The final product is a map of bushfire risk across Tasmania.

BRAM identifies the likelihood and consequence of a fire at a particular point. The risk is determined through a qualitative risk matrix, incorporating likelihood of fire and values at risk (consequences). The process identifies relative risk at a particular point. The output is represented as spatial layers that show the likelihood, values at risk and actual risk (DPIPWE 2011a). The model uses four major elements to calculate risk (Figure 6):

- **fire behaviour potential**: the manner in which fuel ignites, flame develops, and fire spreads;
- **ignition potential**: the probability or chance of fire starting as determined by the presence of causative agents (likelihood);
- **suppression capability**: the factors and limitations that are related to the ability to contain a bushfire upon detection (likelihood); and
- values at risk: a specific or collective set of natural resources, cultural sites and manmade improvements and/or developments that have measurable or intrinsic worth, and which could potentially be destroyed or otherwise altered by fire in any given area (consequence) (DPIPWE 2011a).

BRAM is fully operational and updated annually to ensure that areas identified as being at higher risk are prioritised for treatment (planned burning, mechanical fuel reduction, emergency response plans). BRAM enabled the prioritisation for the development of Strategic Fire Management Plans for the Southern, Northern and Northwest regions of Tasmania, as described in section 3.3.6. BRAM and associated tools are also used by fire duty officers for daily preparedness throughout the bushfire season (see section 5.1.2) and for determining values at risk and suppression priorities once fires start (see section 6.1.1).





Figure 6: The Bushfire Risk Assessment Model (BRAM) developed and used by the Tasmania Parks and Wildlife Service

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### 4.1.3 Planned burning

From a natural values conservation perspective, fire management in the TWWHA should ensure that ecosystem function, approximate distributions of the major biomes, and fire-dependent and fire-sensitive values in the TWWHA are maintained through appropriate fire regimes. The changes in burning post-European settlement have contributed to loss of both fire-sensitive and fire-dependent values (see Glossary for definitions of terms) in the TWWHA (Marsden-Smedley and Kirkpatrick 2000). Removing planned burning altogether from the TWWHA is considered an ecologically unacceptable fire management policy because of the deleterious consequences for natural and cultural values that would ensue (see section 4.2.1).

Planned burning is used as a management tool in the TWWHA, where it is appropriate to do so and where funding permits, to achieve the following objectives (see section 4.3.1):

- 1. To protect people and built assets (Asset Protection Burns).
- 2. To reduce the risk of damage to fire-sensitive values from bushfires (Asset Protection Burns and Strategic Fuel Reduction Burns); and
- 3. To provide the fire regime (eg frequency, season and intensity) required by firedependent species and vegetation communities (Ecological Burns).

The tourist infrastructure at Cradle Mountain, Lake St Clair and Mount Field are examples of where planned burning has been undertaken to achieve the first objective.

Planned burning to achieve the second objective is undertaken almost exclusively in the extensive buttongrass moorlands in lowland and montane areas. Where possible, this burning is planned to simultaneously address the third objective. Strategic Fuel Reduction Burns aim to reduce the likelihood and impact of landscape-scale bushfires, thus indirectly protecting natural values, while Asset Protection Burns are typically located close to specific fire-sensitive natural values.

The third objective is commonly referred to as 'ecological burning' while the first and second objectives are often called 'fuel reduction burning'.

Examples of recent burning to achieve the third objective include montane grasslands at Lees Paddocks in the northern part of the TWWHA, where floristic diversity is believed to have declined due to lack of fire (Balmer et al. 2015); and buttongrass moorlands in the South-West aimed at maintaining the feeding habitat of the orange-bellied parrot (see section 4.3.3.4).

The priorities, patterns and methods of planned burning in the TWWHA have changed considerably over the past 30 years. Planned burning to maintain orange-bellied parrot habitat, and protect visitor areas, has occurred throughout this period, but burning along the Lyell Highway (second objective) has declined as malicious illegal fire-lighting in the TWWHA has virtually ceased. Through this period, there has been an increase in understanding of the benefits and techniques for the planned application of fire in buttongrass moorlands. Larger burns in remote areas are now routinely undertaken as part of the program of Strategic Fuel Reduction Burns guided by recent research (see section 4.2.1).

Large planned burns are undertaken in remote areas by helicopter ignition with minimal or no onground crews. More traditional styles of planned burns, using fire crews and tankers, are undertaken at visitor nodes.

Possible deleterious impacts of planned burning in the TWWHA are assessed via the Reserve Activity Assessment process undertaken by the Tasmania Parks and Wildlife Service (DPIPWE 2014a), which mandates an annual internal review of proposed planned burns.

### 4.1.4 Campfire restrictions

Bushfires spreading accidentally from campfires is a significant risk to the natural values of the TWWHA. This risk is increasing with growing visitation from interstate and international visitors who are not aware of the 'Fuel Stove Only Area' policy or do not receive adequate information due to ageing interpretation, limited availability of material (eg signs and publications), language and/or cultural barriers.

There is poor understanding among many TWWHA visitors about how to safely light and extinguish campfires. In the TWWHA, this risk is exacerbated by the significant extent of organic soils. Campfires lit on organic soils can smoulder underground (hidden from view) and few people are aware of how difficult it is to properly extinguish such fires. Accidental fires from fuel stoves (eg petrol and methylated spirits) do occur and user inexperience is often the cause.

The statutory regulation of campfires is covered for all of Tasmania under the Tasmanian *Fire Service Act 1979*, and for the TWWHA under the *National Parks and Reserved Land Regulations 2009* (made under the Tasmanian *National Parks and Reserves Management Act 2002*). Most of the TWWHA has been declared a Fuel Stove Only Area to protect natural values, and fires are totally banned in these areas. There are some places where campfires in existing fireplaces are permitted, particularly in areas included in the TWWHA in 2013. Additional restrictions on campfires are imposed by the Tasmania Parks and Wildlife Service at times of very high fire danger, triggered by criteria that are more stringent than those typically used for the declaration of days of Total Fire Ban by the Tasmania Fire Service, and signs are erected at locations specified in the Fire Action Plan.

## 4.2 Recent work and research

### 4.2.1 Planned burning

### 4.2.1.1 Buttongrass fire behaviour

In the early 1990s, the Tasmania Parks and Wildlife Service recognised that the knowledge of fire behaviour in buttongrass moorland was very limited and therefore fire operations (both suppression and planned burning) were not as effectively managed as they could be.

Buttongrass moorland communities are the most extensive vegetation group in the TWWHA (see Table 6 and Attachment 7), the most flammable and the most frequently burnt by both planned and unplanned fires. A series of research projects were developed by the Tasmania Parks and Wildlife Service to better understand the weather and fuel parameters that influence the rate of spread and intensity of fires in buttongrass.

An area of small experimental fires was established at McPartlan Pass in the TWWHA in 1991 and fire-spread data was collected from this experiment, and also from planned burns and bushfires. More experimental fires were lit later in the 1990s, to better understand the conditions under which buttongrass fires self-extinguish. These studies were published in a series of scientific papers and the operational findings were summarised in Marsden-Smedley et al. (1999), including fire behaviour equations, the Moorland Fire Danger Index and prescriptions for planned burning. The buttongrass fire behaviour model now underpins fire operational practice for all buttongrass vegetation in Tasmania.

Buttongrass fires spread very quickly and intensely, even when the ground is completely saturated or has freestanding water. Fires can spread within 24 hours of rain, but wind speed is the overriding factor determining the rate of spread. Even on relatively calm days, buttongrass fires can be fast moving and very difficult to control.

### 4.2.1.2 Fire simulation modelling: FIRESCAPE-SWTAS

The computer simulation model called FIRESCAPE-SWTAS was developed for South-West Tasmania. It is used to explore how much benefit, in terms of reduction of damage to natural values such as rainforest, is provided by differing amounts of planned burning. FIRESCAPE has also been applied to other parts of Australia (King et al. 2011; Bradstock et al. 2012).

FIRESCAPE-SWTAS incorporates fire-spread equations from models (eg buttongrass as described above), as well as real landscape spatial data on topography and vegetation, and a 'weather generator' based on available historic data from weather stations. FIRESCAPE-SWTAS 'lights fires' and they spread through the landscape for as many simulated years as desired (typically 100 'computer years'). Testing of different patterns and annual percentage of area burnt by planned burning is what the FIRESCAPE model was designed to do. Recently burnt areas are assumed to either stop unplanned fires or at least slow their rate of spread in accordance with the fire behaviour models.

The published papers (King et al. 2006; King et al. 2008) indicate that if burning is applied at the broad scale, 10 per cent of the total buttongrass area in South-West Tasmania needs to be burnt every year to significantly reduce the extent of unplanned bushfires and consequently achieve a result with tangible benefit for protecting fire-sensitive natural values, although lower levels of burning (eg 5 per cent) can still provide some benefit. The model also shows that if planned burns are applied strategically (eg immediately adjacent to fire-sensitive assets such as rainforests) then a level of protection can be achieved by burning about 3 per cent of the total area of buttongrass moorland per year.

### 4.2.1.3 Buttongrass fire regime and natural values impacts

An understanding of the fire ecology of ecosystems present in the TWWHA is necessary to develop sustainable ecological or planned burning programs, and to protect fire-sensitive and fire-dependent values. Fire ecology research and monitoring undertaken by the Department of Primary Industries, Parks, Water and Environment (DPIPWE) has prioritised the unique buttongrass moorland vegetation, where planned burning plays both a crucial ecological and fire protection role. Studies to date have primarily focused on the stability of the moorland-forest

boundaries, the rate of community recovery following planned management burning in the different types of moorland present in the TWWHA, and community response to differing fire intervals. To date, there has not been any attempt to investigate the impacts of differing spatial patterns as a factor of fire regimes.

DPIPWE's role has focused on long-term monitoring which is less suited to research undertaken by other organisations or to address specific operational fire management questions. A significant amount of research that is relevant to fire regimes and planned fire is also undertaken by a range of other organisations including universities, CSIRO and non-government organisations.

In the 1990s, DPIPWE's Natural and Cultural Heritage Division (then a part of the Tasmanian Parks and Wildlife Service) initiated a series of research projects to investigate the response of natural values to fire in buttongrass moorlands. This was triggered by limited knowledge of fire regime requirements for natural values, plans to undertake landscape-scale planned burns in moorland, and guidelines at the time that recommended burning moorlands every five to seven years. Research monitoring sites were established in moorlands near Lake Pedder and Lake St Clair representing low productivity and moderate productivity moorlands respectively. Collaborations were established with the University of Tasmania, with several PhD projects completed. A series of publications and reports were produced and these are mostly summarised in the proceedings of the Buttongrass Moorland Management Workshop held in 2007 (Balmer et al. 2010). Since then, research has continued and further publications and reports have been produced, both within and outside DPIPWE (eg di Folco and Kirkpatrick 2011; Driessen et al. 2013; Driessen 2016; Storey and Betts, 2011). The results of this work form the basis for advice on fire regimes for natural values conservation in the TWWHA (DPIPWE 2015a). The monitoring is ongoing and the January and February 2016 bushfires, which burnt long-term monitoring sites, provide an opportunity to compare differences in impact and recovery time from these bushfires to the previously measured response to planned fires.

The buttongrass moorland flora comprises at least 209 vascular plant species that are substantially dependent on buttongrass moorlands; of these about 69 are endemic to Tasmania, most largely restricted to Western Tasmania (Jarman et al. 1988; Lawrence et al. 2007). Buttongrass moorland ecological studies have found that most of these species recover quickly following fire (Brown et al. 2002; Storey and Balmer 2010). Nevertheless, successional patterns can be seen, for example the abundance of some is greater in the first few years post-fire, while others become an increasingly important component of older moorlands (Jones 2007; Kantvilas 2007; Storey and Balmer 2010). A small proportion of species (mainly shrubs and obligate seeders and some lichens) may be significantly reduced in abundance by short intervals between fires (less than years), but others (mainly grasses and herbs) are advantaged by such short intervals (Kantvilas 2007; Storey and Balmer 2010). Few species are known to be eliminated from the community by long fire-free intervals (more than 20 years) provided the structure of the vegetation remains as moorland. However, some species become more sparsely distributed (particularly grasses, herbs and some bryophyte species, Brown et al. 2002).

Transition to scrub does not typically begin to occur for at least 25 years in fertile habitats and takes much longer in infertile, poorly drained situations. However, given the risks associated with

fire intervals of short or long duration, an optimal fire regime for most moorland plants would vary fire intervals, avoiding the occurrence of either short intervals or long intervals across large areas (DPIPWE 2015a). Fire has occasionally been observed to cause losses of organic soil in some environments and may take many decades to be replaced by natural soil formation (di Folco and Kirkpatrick 2011). Given the importance of soil-stored seed and vegetative regeneration from surface rhizomes, it is desirable to avoid combustion of the organic soil surface.

There still remains much to learn about fire ecology of moorland plants. For example the effect of patch size and spatial patterns of burning has not been investigated and may influence the community patterns due to effect of distance from unburnt vegetation on browsing and colonisation rates. The effect of fire age on reproductive behaviour in moorland plant species has not been studied, but observations of lack of seed production in many common sedges and Restionaceae may warrant further study to determine if seed production may be stimulated by fire, and whether seed productivity influences granivore population levels. Water permeability of soils and soil depth is associated with floristic composition, but it is not known how floristic composition impacts on vegetation flammability of moorland or how fire might impact on water permeability, soil depth or organic soil accumulation rates.

Over 35 species of vertebrate fauna have been recorded using buttongrass moorlands. However, few of these animals are known to spend their entire lifecycle within buttongrass moorland and the majority of them also occur in other habitats.

Buttongrass moorland is the primary habitat in Tasmania for four species of vertebrate: the broad-toothed mouse (*Mastacomys fuscus*), the ground parrot (*Pezoporus wallicus*), the striated fieldwren (*Calamanthus fuliginosus*) and the southern emu-wren (*Stipiturus malachurus*). Some research has been undertaken on the use of moorlands of different fire age by small mammals and birds (Arkel 1995; Driessen 1999; Chaudhry 2010). Some small mammals are absent from early successional stages (less than five years in moorlands on medium productivity soils, and 15 to 20 years in moorlands on low productivity soils). Mean densities of resident bird species are lowest in early successional stages after fire, and their presence is strongly influenced by the presence of adjacent unburnt vegetation (Chaudhry 2010). Unburnt riparian and other edge habitats are important for maintaining populations of birds and mammals.

Invertebrates comprise the greatest component of biodiversity in buttongrass moorlands. For example, in a study of the resilience to fire of ground- and foliage-active invertebrates in buttongrass moorlands, over 1,600 recognisable taxa were collected, yet only 16 per cent could be assigned a species name (Driessen 2016). Thus, it is difficult to determine what component of the invertebrate fauna is restricted to buttongrass moorlands. Ground-and foliage-active invertebrate fauna were found to be resilient to fire, with no medium/long-term loss of species following single fires. However, there are indications that other invertebrate assemblages such as soil-active invertebrates may be more vulnerable to fire; or at least take long periods of time (more than 30 years) to return to pre-fire levels of diversity and abundance (eg Green 2009).

### 4.2.1.4 Stability of fire boundaries

Several studies have been undertaken to investigate the stability of buttongrass moorland boundaries (Brown and Podger 1982; Balmer 1990; Brown et al. 2002; Marsden-Smedley et al. 2000; Wood et al. 2011a; Wood et al. 2011b).

This work demonstrated that while boundaries are normally stable, because of the feedback between vegetation flammability and environmental gradients related to drainage, topography and soil fertility, they can shift in response to changed fire regimes (Podger et al. 1988; Brown et al. 2002; Wood et al. 2011b).

Long-term monitoring plots have been established by DPIPWE's Natural and Cultural Heritage Division at sites originally surveyed in 1990 (Marsden-Smedley et al. 2000). Evidence for shifts in vegetation has also been observed from pollen analysis of peat cores (Fletcher et al. 2014; Fletcher et al. 2015) and changes in the physical properties in the soil profile (di Folco and Kirkpatrick 2013).

# 4.2.1.5 Impact of fire regimes on natural values in montane grassland

Fire appears to be important in the maintenance of at least some of Tasmania's grassy vegetation, particularly highland areas (montane grasslands), where other environmental influences such as frost and poor drainage are insufficient to prevent invasion by woody shrubs. Grasslands may also be lost through a conversion to sedgeland. There is strong evidence that many of the montane grasslands were maintained and extended through burning by Aboriginal people (Bowman et al. 2013), and since 1820, by clearing and burning by graziers (Kirkpatrick 1999). Substantial patches of montane grassland occur on reserved land, including the TWWHA.

A draft montane grassland fire management strategy and plan has been prepared (Kirkpatrick 2012) with the following aims: (1) to maintain or increase the area of montane grassland in the public reserve estate, (2) to ensure a diversity of structure and floristics that will support all known rare or threatened species that occur within montane grassland, and (3) to maintain cultural traditions that achieve the above objectives.

Burning of an area in Cradle Valley was unsuccessfully used to attempt to restore a grassland community that had become dominated by sedges. The cool wet conditions at the time of the ecological burn resulted in a low intensity patchy fire and resulted in very little bare ground. While a soil seed trial had proven the presence of *Poa* seeds in the soil, the fire failed to promote the recovery of grasses.

In October 2012 and 2013, as part of the montane grassland fire management strategy, the Tasmania Parks and Wildlife Service conducted low intensity ecological burns on land it manages at Lees Paddocks, and burning is planned for several other grassland areas in the TWWHA.

In order to determine whether the Tasmania Parks and Wildlife Service ecological management burning achieves the aims of the montane grassland fire management strategy, the Natural and Cultural Heritage Division has established basic monitoring of vegetation (Balmer et al. 2015) and invertebrates (Driessen in prep.) at Lees Paddocks. Concurrent with burning on land managed by the Tasmania Parks and Wildlife Service, the Tasmanian Land Conservancy has developed a fire management plan for the Vale of Belvoir (Marsden-Smedley and Leonard 2014).

Further grassland monitoring sites in the TWWHA are planned, together with a more general vegetation survey of the current condition of grasslands in the TWWHA, to be undertaken in areas previously surveyed (Kirkpatrick and Duncan 1987). The areas where monitoring is likely to be established include grassland areas burnt in the Lake Mackenzie Complex, February Plains and Lake Bill fires of January 2016.

### 4.2.2 Warra Long Term Ecological Research site

The Warra Long Term Ecological Research site of 15,900 hectares was established in 1995 to encourage long-term ecological research and monitoring in wet eucalypt forests in Tasmania. Following the extensions to the TWWHA of 2013, 80 per cent of the Warra site is now in the TWWHA, while the remainder is on Permanent Timber Production Zone land managed by Forestry Tasmania.

In 2010, Warra became a member site of the Terrestrial Ecosystem Research Network, which was established under the Australian Government's National Collaborative Research Infrastructure Scheme (Terrestrial Ecosystem Research Network 2016). The management of Warra currently resides with the scientific staff of Forestry Tasmania, although a transition to joint management with Tasmania Parks and Wildlife Service is anticipated.

Warra is a scientific research site of national and international importance. The significant value of the investment in the infrastructure and already established data collection at Warra cannot be overstated. The site contributes to the understanding of many aspects of land management and climate change science. Some examples include (Forestry Tasmania 2016):

- Mt Weld Altitudinal Transects a network of plots at 100-metre intervals along a 50 to 1300-metre altitudinal gradient to monitor long-term shifts in species' range;
- Log Decay Study compares the succession of saproxylic species colonising large logs from mature *Eucalyptus obliqua* and smaller logs from regrowth *E. obliqua*;
- Warra Weirs Hydrology continuous monitoring of stream flow and water quality in three small catchments;
- Warra Climate Station an automatic climate station managed by the Bureau of Meteorology;
- Bushfire Chronosequence Plots a series of 0.25-hectare plots in single-age, wet eucalypt forest stands established along a chronosequence of time-since-disturbance;
- Southern Forests Experimental Forest Landscape a 33 x 32 km landscape dominated by lowland wet eucalypt forest that captures a gradient of disturbance intensity resulting from past bushfires and post-European land use;
- Warra Flux Tower (80 m tall) and Core 1-hectare plot (Supersite) a member site of the Ozflux Network which aims to understand mechanisms controlling exchanges of carbon, water vapour and energy between terrestrial ecosystems and the atmosphere and to

provide data in carbon and water balances of key ecosystems for model testing (Ozflux 2016);

- Warra AusCover 5 x 5 km plot a field site of the AusCover Network used for field validation and calibration of remote sensing products;
- Silvicultural Systems Trial compares alternative methods of harvesting and regenerating tall, wet eucalypt forests; and
- AusPlots Forests plots Warra hosts three plots in a continental network of 1-hectare plots in tall, wet eucalypt forests used to track forest growth and productivity along continental gradients.

DPIPWE's Natural and Cultural Heritage Division has been collaborating with Forestry Tasmania on the ongoing long-term monitoring at Warra. The studies of flora and fauna in wet forest communities aim to determine how these communities change over time, and when possible, changes in response to stochastic disturbance events such as bushfire. There is significant potential to expand the role of Warra for bushfire management, for example (Tim Wardlaw pers. comm.):

- including soil moisture recording for the Australian Soil Moisture Information System (see section 5.2.4);
- ongoing monitoring of fuel accumulation in wet eucalypt forest;
- relating forest structure to post-fire intensities; and
- improved understanding of rainfall intensity and fuel moisture in wet eucalypt forests, by relating canopy intercept and run-off to monitored catchment flow.

### 4.2.3 Modelling climate change impact on planned burning

The Antarctic Climate & Ecosystems Cooperative Research Centre (ACE CRC) has established a 'Prescribed Burning Project'. Through this project, ACE CRC is investigating the changing opportunities for planned burning in Tasmania under climate change, with a focus on three aspects that could affect the future viability of planned burning:

- Part I is an assessment of changes in the factors that determine when prescribed burning can be applied. These conditions include wind speed, atmospheric stability and fuel moisture, which directly influence fire behaviour, and relative humidity, temperature, Drought Factor and Mount Soil Dryness Index, which indirectly affect fire behaviour through their influences on fuel moisture. Changes in monthly values between current and future time periods in the Climate Futures for Tasmania projections have been assessed.
- Part II is a description of daily weather patterns related to extreme fire danger, and an overview of how these may change in the future. Changes in the frequency and distribution of daily weather patterns associated with atmospheric instability and extreme fire danger are investigated. This will focus on particular months and seasons when planned burning is applied in Tasmania.
- Part III describes changes to broad vegetation types caused by the interaction between climate change and frequency of burning (planned and unplanned). A vegetation model is

being developed to provide an indication of the future trajectory of vegetation, allowing gradual change to flammability across the landscape to be incorporated into longer-term planning and the consequences of prescribed burning to be considered.

The results of this work will help inform future planned burning regimes, both in the TWWHA and statewide, and will also improve knowledge of the interaction between climate change, burning and impacts on vegetation types.

# 4.3 Areas for further work or research

### 4.3.1 Aboriginal fire regimes

Planned burning is one of the strategies used in the TWWHA to mitigate the risk of damage caused by bushfires (Marsden-Smedley and Kirkpatrick 2000). While this is a contemporary use of fire as a management tool, planned burning is not only about bushfire prevention; Aboriginal people were also applying fire for cultural reasons in the TWWHA for thousands of years.

The detailed knowledge of the patterns of burning and fire regimes applied across the TWWHA by Aboriginal people is incomplete. However, it is apparent that the patterns of vegetation observed in the landscape today are strongly influenced by past Aboriginal burning. For example, the significant extent of buttongrass plains, created at the expense of rainforest, reflects, at least in part, Aboriginal burning patterns.

There is a need to develop as complete an understanding as possible of Aboriginal burning practices. This should draw on all lines of evidence, including cultural, historic and scientific sources. The knowledge gained will assist in developing planned fire regimes for the future.

The TWWHA Management Plan (DPIPWE 2016a) has the following management action:

*Engage Aboriginal people to develop protocols that allow the use of fire as a traditional cultural practice.* 

The contemporary use of planned burning in natural value management may reflect past anthropogenic fire regimes to some extent, where these are known. It will, however, need to respond to a new fire management paradigm, where land use, climate, landscape, management priorities and planning frameworks have all been fundamentally altered (Marsden-Smedley and Kirkpatrick 2000).

The reintroduction of Aboriginal involvement in planned burning will require the development of a partnership, and a new vision of planned burning that integrates objectives on cultural aspirations, biodiversity management and management of bushfire risk (including the risk to visitors, neighbours and staff during fire operations).

### 4.3.2 Bushfire risk modelling

Large summer bushfires ignited by lightning have occurred in the TWWHA in 2007, 2009, 2013 and 2016, and these have highlighted the threat to natural values from unplanned fires. As described in section 4.2.1.2, FIRESCAPE-SWTAS has provided significant insight into the role that planned burning in buttongrass can play in reducing this threat.

That said, the insight provided to date by FIRESCAPE-SWTAS is far from sufficient or complete evidence on which to design an expanded planned burning program. The cost/benefit ratio for both economic and nature conservation measures requires further analyses, as does the most beneficial and strategic patterns of burning. The results of published FIRESCAPE-SWTAS analyses are limited by the quality of data and models that were then available as inputs to the simulator.

Further analyses are required using a landscape fire-spread modelling tool (FIRESCAPE-SWTAS is one example of such a tool but others have since been developed) with improved input data and models to test specific hypotheses and planned burning scenarios, particularly under future climates. Questions that still require answering include:

- 1. On the basis of new input data and sub-models, what benefit is provided by planned burning for protecting natural values?
- 2. What are the spatial and temporal burning patterns that provide the most or optimum advantage?
- 3. What natural values are likely to be lost or severely impacted despite fuel reduction burning because of other factors?
- 4. What is the potential environmental cost (eg inter-fire interval for both planned and unplanned fires) for buttongrass vegetation of an expanded planned burning program?
- 5. What is the economic cost of a planned burning program for the buttongrass of the TWWHA and how much does that reduce bushfire suppression costs?
- 6. How will the costs and benefits be altered with climate change is fire risk mitigation through fuel reduction burning a viable long-term strategy?

### 4.3.3 Impacts from planned burning

Based on the monitoring and research summarised in sections 4.2.1.2 and 4.2.1.3, there is now a clear understanding that planned burning can play an important ecological role in maintaining buttongrass moorland, as well as having a role in the protection of fire-sensitive values.

However, more knowledge is required to better understand the tolerance of species and landforms to fire frequency and intensity, and the other fire regime requirements of fauna, flora and landforms, such as fire size and patchiness. This knowledge is necessary in order to ascertain how we define and apply an appropriate fire mosaic at a landscape scale.

Furthermore, the impact of fire, including planned burning, on the formation and persistence of organic soils is poorly understood, as is the interaction of fire regimes with climate change.

Therefore, the monitoring and research of fire regimes and natural values of buttongrass ecosystems continue while implementing an adaptive management approach to the planned burning program.

## 4.3.3.1 Organic soils

Organic soils reflect an ongoing balance between plant production and the decomposition of plant remains. There is, however, more to learn about the interaction between fire and organic soils in Western Tasmania buttongrass, and opinions differ among scientists. For example, one

view is that burning under conditions when the soils are wet prevents soil loss and may actually increase levels of soil organic matter. However, there is wide consensus that burning when soils are dry has the potential to result in soil loss through combustion.

Soils may be vulnerable to ongoing losses for a significant period following fire, through the normal processes of mechanical soils erosion of bare ground and through increased rates of decomposition caused by changes to the hydrology and temperature regime of the soil (Bridle et al. 2003; di Folco and Kirkpatrick 2011). Effectively, the soil may be lost as gasses to the atmosphere and as dissolved organic carbon to the waterways. Soil formation following fire may be slower because of decreased inputs until the vegetation biomass returns to pre-fire levels. A sustainable fire regime may depend on sufficient time between fires for new organic accumulation to replace the material lost during and after fire.

The existing data (di Folco and Kirkpatrick 2011) suggests that the vulnerability of buttongrass soils to fire-associated losses varies with topography, with slopes being more vulnerable than valley flats. The work of di Folco and Kirkpatrick (2011) raises the possibility that the fire regimes required to reduce fire risk to sensitive values may result in net loss of soil at some sites. However, this research is based on data collection at three sites, over four years. Further work is required to more clearly identify thresholds in existing soil cover, topography and vegetation productivity that influence sustainable fire intervals. There is also a need to extend the work from buttongrass into other vegetation types with organic soil horizons that are vulnerable to losses during fire, to better understand the degree of protection needed in all environments.

The fauna of organic soils and their response to fire is poorly understood. A study of mites has found that both their diversity and density is greatest 30 years after fire, suggesting they may be vulnerable to more frequent fire regimes (Green 2009).

### 4.3.3.2 Fire regions

The TWWHA encompasses ecosystems with differing fire ecologies and fire regimes in a mosaic across the property. For example, even within a biome such as grasslands, altitudinal and floristic differences may mean differences in sustainable fire regimes. Similarly, fire is not uniform across the property; there are patterns in fire distribution and regular fire paths. Strategic fire planning would be aided by developing a fire regions map showing areas where the fire ecology and fire management environments are similar.

A fire regions map could be developed in an adaptive management approach where the regions are determined on current knowledge and updated over time as experience or targeted research indicate the need. To be most easily integrated into fire management planning, fire-related ecological research needs to consider the interaction of fire with environmental variation and operational constraints. The results of such research can then be used to update the fire region map.

## 4.3.3.3 Buttongrass fuels, organic soils and mapping

Buttongrass moorland fuels are highly variable across the landscape and overlay soils that spatially vary in depth and organic content. Current fuel accumulation models identify two fuel types in the TWWHA with moorlands associated with either low or medium-productivity

substrates (Marsden-Smedley and Catchpole 1995). However, an investigation has been proposed to determine if a third model of 'very low productivity' fuel accumulation is required for sparse buttongrass moorland, which indicates areas with a very shallow or incomplete organic soil cover (DPIPWE 2015a). Research has also been proposed to determine if burning to reduce the fuel loads in buttongrass may be contributing to unsustainable rates of organic soil loss (DPIPWE 2015a). This may be important because, according to present mapping, 'sparse buttongrass on slopes' is the most abundant sub-class of buttongrass vegetation in South-West Tasmania and where planned fire may result in substantial soil losses. It has been suggested, however, that the current map of 'sparse buttongrass on slopes' is an inaccurate and overrepresented artefact resulting from use of aerial photography taken soon after fires (Jon Marsden-Smedley pers. comm.). Accurate mapping of the three different moorland classes is required.

In the future, remote sensing tools will give the opportunity to look at fuel variation over time, over the landscape, to produce fuel maps for assessing fire risk and improving efficiency and prescriptions for sustainably burning moorland vegetation. Further data capture of fuel characteristics in sparse buttongrass moorland for calibration of remote sensing is required.

### 4.3.3.4 Orange-bellied parrot

Most known breeding activity of the critically endangered orange-bellied parrot occurs within 10 kilometres of Melaleuca Lagoon, South-West Tasmania. The birds nest in natural hollows or man-made nest-boxes in eucalypt forest and rainforest, and forage on the seeds and flowers of low vegetation in adjacent moorland and sedgeland plains. Inappropriate fire regimes have been identified as a high risk threat to the survival of the orange-bellied parrot (Department of Environment, Land, Water and Planning 2016). Inappropriate fire regimes affect the structure and productivity of moorlands and sedgeland plains in the breeding range. Orange-bellied parrots in the breeding range appear to prefer to forage in locations with a time-since-last-fire of between one and eight years (Brown and Wilson 1980). Limited fire in the breeding range between 2000 and 2010 may have reduced the amount of habitat in the preferred age-class and contributed to the observed decline in breeding participation by females (Department of Environment, Land, Water and Planning 2016). While available information supports the application of some fire in the breeding range, more work is required to determine appropriate ecological fire regimes for this species. The need for a better understanding of appropriate fire regimes for this species was identified as a priority by the Tasmania Parks and Wildlife Service in developing research and monitoring priorities for the TWWHA 2013–2018 (DPIPWE 2013). However, obtaining this information will be challenging, with fewer than 70 orange-bellied parrots known to exist in the wild.

### 4.3.3.5 Invertebrate fauna

Aspects of fire ecology relating to invertebrate fauna in buttongrass that require research include:

- Soil-active fauna, because previous work suggests that they may be more sensitive to fire than ground- and foliage-active fauna.
- The impact of fire on water-active fauna in moorlands, which has not been studied. Moorlands support a diversity of freshwater fauna in adjacent streams and rivers, as well as in pools and burrows within the moorland proper. In particular, moorlands support a

highly distinct assemblage of freshwater crayfish (*Ombrastacoides* spp. and *Spinasticoides* spp.) whose burrows provide habitat for a fauna known collectively as pholeteros.

Assessing the extent to which invertebrate species are restricted to moorland – this will
not only assist with understanding the potential impacts and recovery of moorland fauna
from fire (for example, does adjacent vegetation provide a refuge for recolonisation), but
also contribute to further understanding the significance of this ecosystem.

### 4.3.3.6 Montane grasslands

Research is needed to determine the extent of woody plant invasion (eg by scrub or rainforest species) or conversion to sedgeland (eg by buttongrass or other sedge species) of the montane grasslands of the TWWHA and to what extent this may be a response to changing fire regimes, browsing, or climate. Continuation of monitoring and research is also required to determine to what extent the invasion of woody plants into grasslands and grassy woodlands can be reversed through the implementation of ecological burning as specified in the draft montane grassland burning plan (Kirkpatrick 2012).

#### 4.3.4 Planned burning strategy for the TWWHA

Although there is some guidance provided by the Regional Strategic Fire Plans, there is no overall direction for undertaking planned burns in the TWWHA in any single existing document. The TWWHA Management Plan (DPIPWE 2016a) calls for a fire management plan. A fire management plan is needed with clear program level objectives (AFAC 2016b) for planned burning and other fire strategies. The required components of a fire management plan are:

- objectives for managing cultural and natural values while mitigating bushfire risk to people and assets; and
- a program of mosaic burning for the TWWHA at a range of scales, from local to landscape, to achieve the stated objectives.

#### 4.3.5 Organic soil dryness field testing method

Successful planned burning in Western Tasmania is very dependent on identifying the right conditions of fuel dryness that ensure target fuels will burn, while non-target fuels will not. Typically, this means that there should be a moisture differential between buttongrass, which is usually the target fuel, and other vegetation types such as scrub and forest, which are the non-target fuels (Marsden-Smedley 2009).

Furthermore, organic soils, in both the buttongrass and the surrounding vegetation, should be sufficiently wet to minimise the likelihood of smouldering fires in the ground. The suitable days for planned burning in buttongrass are understood in a general sense – two to three days following the end of significant rainfall are usually ideal – and buttongrass fuels can burn well even with saturated soils (Marsden-Smedley 2009). There is always a risk, however, that organic soils are drier than thought because of local scale inaccuracy of the Mount Soil Dryness Index (MSDI) and lack of local and recent rainfall records. There is anecdotal evidence that organic horizons in scrub can in some circumstances be significantly drier than the organic soil in buttongrass, creating the chance of smouldering soil fires should the planned burn cross the scrub boundary.

At the present time, there is no tested quantitative method for measuring organic soil dryness in the field, to verify the assumed soil moisture. Therefore, there is a need to develop a field method for checking organic soil dryness for use with planned burning with the following components:

- testing and choice of a suitable field measuring instrument;
- identification of appropriate threshold values for organic soil moisture in target vegetation (ie buttongrass) and non-target vegetation (eg scrub, forest, alpine communities) and links to modelled soil moisture mapping; and
- preparation of documentation, protocols and training for fire operational staff.

It is recognised that the second component listed above will involve considerable work.

### **4.3.6 Managing fire-sensitive values in flammable landscapes**

There are areas in the TWWHA with fire-sensitive natural values that paradoxically occur in flammable parts of the landscape. One example is stands of pencil pines that occur in sedgy grasslands. There is a need to investigate techniques and strategies to manage fire in these areas, including testing whether planned low intensity fires can mitigate the risk of high intensity summer fires while maintaining natural processes and diversity.

#### 4.3.7 Fire refugia prediction

Fires in the TWWHA, particularly in the South-West, can be predicted to occur more frequently in certain topographic positions than others. For example, north-facing slopes and lower altitudes are generally drier and therefore more likely to burn than southern-facing slopes and higher altitudes. There is, in turn, a positive feedback from this phenomenon that leads to less flammable vegetation in places where fire is less likely to occur (Wood et al. 2011b). There are other landscape features that can also reduce the likelihood of fire, such as where fire spread is restricted by boulder fields and water bodies. Fire-sensitive vegetation is often found in these areas, which can also be described as fire refugia.

It is assumed that fire refugia are where fire-sensitive vegetation is most likely to persist in the longer-term, particularly when confronted with increased fire frequencies. Modelling on how climate change will alter the distribution patterns of species even in the absence of fire, if available, should also be considered.

Therefore, areas that are both fire refugia, and direct climate change refugia, are important to identify, and may help determine the priorities for fire prevention, preparedness and response. DPIPWE has created a fire refugia spatial data layer, but there is potential for further work to ensure that the mapping is as robust and accurate as possible, based on the best available data and models, and to inform management systems such as the Bushfire Risk Assessment Model (BRAM).

### 4.3.8 Campfire and fuel stove risk

There is a need to develop a strategic document that reviews the prevention strategies and practices associated with campfires and fuel stoves to ensure that:

• the extent of the risk to TWWHA values is adequately analysed and understood; and

• the risk treatment strategies are updated commensurate with the level of risk, including designation of Fuel Stove Only Areas and other fire restrictions, development of education media and enforcement.

# 4.4 Recommendations relating to prevention of fire in the TWWHA

### Recommendation 2 – The Bushfire Risk Assessment Model (BRAM)

The Tasmania Parks and Wildlife Service and DPIPWE should maintain an ongoing program of investment in and development of fire management tools including the BRAM and the Bushfire Operational Hazard Model (BOHM). As the BRAM is used across all agencies and tenures in Tasmania, it is imperative that it is fully auditable, and that its structure, inputs and operability are regularly reviewed.

BRAM should be fully integrated as a whole-of-government decision-support system with appropriate governance structures established accordingly; and readily accessible by all Tasmanian fire agencies and incident management teams.

BRAM should be supported to a greater extent than it is at the present time. The current level of operation means that its full capacities are not being used and the incorporation of new information and programming is restricted. It should be noted that while BRAM is an excellent tool to consider the spatial arrangement of risk, other risk modelling tools are available that simulate the spread of fire and these are now routinely used in fire management. BRAM cannot be considered as the sole bushfire risk assessment tool available for the TWWHA.

The current design of BRAM, however, limits the practical availability and use of the system to a small group of fire management officers within the Tasmania Parks and Wildlife Service. There would be significant benefit in increasing the accessibility of BRAM by rebuilding it as a new computer system that is available to inform fire managers in the Parks and Wildlife Service, Forestry Tasmania and the Tasmania Fire Service, and from wherever they may be operating, to make critical decisions on priorities and dispatch in conjunction with other fire behaviour modelling tools. The provision of training on BRAM to a wider range of operational users is also required.

It is imperative that that BRAM continues to incorporate the best knowledge of fire behaviour models. Enhancement of the system should include use of appropriate fire-spread simulation tools for new vegetation types (such as moorland) when they are developed. Existing fire behaviour models and fire simulators should not be misused, that is, used beyond the vegetation types and fuels for which they have been validated.

## Recommendation 3 – Objectives for planned burns

*Clear objectives (at the strategic and program levels) should be set for management burning in the TWWHA.* 

The short, medium and long-term results of management fires should be monitored to evaluate the fires against specified objectives, and the findings used to retain, improve or modify approaches taken to management burning.

Burning programs should reflect the best available evidence. Fire simulation modelling tools should be used to guide the development of planned burning programs to meet objectives and new data incorporated into the models as they become available.

As with other management activities, the monitoring of management burns should be actively incorporated into the adaptive management framework for the TWWHA.

Similarly, the re-introduction of Indigenous burning practices should have clear objectives, and monitoring should be incorporated into the adaptive management framework for the TWWHA.

### Recommendation 4 – Monitoring the consequences of fire

The short, medium and long-term impacts of planned and unplanned fires should be monitored in order to understand the consequences of fire for the natural and cultural values of the TWWHA.

The findings of this monitoring should be used to plan future response to bushfires and to inform decisions about the use of management burning.

As with other management activities, the monitoring of the impacts of bushfire management should be actively incorporated into the adaptive management framework for the TWWHA.
## 5. PREPAREDNESS

## 5.1 Current operational practice

## 5.1.1 Capability

The Tasmania Parks and Wildlife Service has, for 20 years, employed firefighters specifically trained in remote area firefighting and has developed techniques, specialised equipment and expertise to support this activity. In more recent years, the Tasmania Parks and Wildlife Service has increased the number of other specialist fire staff. There is a Fire Management Section based in Hobart consisting of a State Fire Manager, two Fire Management officers, a Fire Equipment Officer, Fire Administration Staff, a Fire Crew Manager and permanent firefighters. In each region there is a Fire Management Officer and Fire Operations Officers. Seasonal firefighters are employed each season to bolster the number of firefighters. As well as specialist firefighters, field staff (including rangers and field officers) also contribute to this capability.

Remote area firefighting is a highly specialised field for both firefighting crews and pilots and requires a high level of fitness. In this context, all Tasmania Parks and Wildlife Service remote area firefighters are required to undertake a fitness assessment developed in the United States (Sharkey and Gaskill 2009). This assessment ensures they can cope with the demands of remote area firefighting and that the Tasmania Parks and Wildlife Service is not putting them or their colleagues at risk by tasking them with activities that they are not fit for. This assessment has been adopted by most Australian land management agencies and is considered current best practice.

There are many specialist roles that support firefighters on the ground including:

- Fire duty officers;
- Incident management teams (various specific skill sets see section 5.3.1.2); and
- Fire observers (detection flights).

Staff from across the Tasmania Parks and Wildlife Service, including the Hobart Office and all field centres, are trained in these specialist fire functions as a secondary role to their regular work duties.

Aircraft, primarily helicopters, are available for firefighting in the TWWHA from shared contracting arrangements coordinated by the Tasmania Fire Service. More information on the Tasmania Fire Service, Forestry Tasmania, interagency arrangements and national support arrangements is provided in Attachment 4.

## **5.1.2 Fire Duty Officer**

The Tasmania Parks and Wildlife Service operates a Fire Duty Officer system to manage daily fire preparedness and response. The Fire Duty Officer is on call 24 hours a day, seven days a week, from 1 October to 30 April and is the agency's first point of contact for fire reports or fire activity. The Fire Duty Officer operates from the Fire Operations Room in Hobart and uses the policies and procedures summarised in section 3.3 to maintain appropriate preparedness levels and response.

The position is a proactive one where the occupant actively seeks out likely fire situations, takes steps to prevent fire and responds rapidly to any fire reports.

Each day, the Fire Duty Officer sets out a daily fire action plan for the State based on forecast fire danger rating triggers set out in the Fire Action Plan (see section 3.3.7). This includes ensuring an appropriate level of staff resources, pre-positioning of staff, equipment, machinery and aircraft, deploying fire-spotter flights, monitoring fire weather and lightning detection websites, etc. This daily fire action plan is circulated to all relevant staff so that they are advised of the arrangements in their area and across the State.

The Fire Duty Officer initiates a response to any fire on reserved land or in areas where the Tasmania Parks and Wildlife Service has the nearest available firefighting resources. In most situations, the Fire Duty Officer manages the response as the Incident Controller but will delegate management of the fire to the on-call preformed Incident Management Team if the fire or fires exceed the Fire Duty Officer's span of control or ability to manage the fire with the resources allocated to the fire operations room. In the majority of cases, the Fire Duty Officer will dispatch a number of firefighters with a skilled sector commander to supervise the operations on the ground. In more complex cases, the Fire Duty Officer will dispatch an Incident Management Team and a large team of firefighters, and the Incident Management Team will assume responsibility for management of the fire.

The Fire Duty Officer role is tasked to the Tasmania Parks and Wildlife Service's specialist Fire Management Officers. The agency currently has five Fire Management Officers (two in Hobart and one in each of the three regions).

Where there are multiple fires going at any one time, the Fire Duty Officer may need to prioritise the response to fire. The process used to prioritise fire response will vary significantly depending upon the number, nature (values at risk) and scale of the fires. The process can be quite simple and based on the Fire Duty Officer's knowledge of the situation and likely outcomes, or it can be a more complex operation tasked to another team. Further detail on the prioritisation process is set out in section 6.1.1.

Effective emergency management relies on a comprehensive approach to preparedness and response.

#### 5.1.3 Detection: flights, websites, public, fire towers

Early fire detection and rapid response is critical for the successful delivery of any fire management program. For example, bushfires in buttongrass can grow within less than an hour to a size where suppression is no longer practical. The smaller the fire, and less vigorous the fire behaviour, the greater the probability that initial attack crews will be able to suppress the fire.

In Tasmania, bushfire detection is generally undertaken by ground-based staff or public reporting through the Tasmania Fire Service FireComm branch (000 emergency calls), or through operational detection systems including fire towers, aerial spotter flights, monitoring systems such as cameras, and websites that present satellite data such as Sentinel, Weatherzone or Landgate Firewatch.

When advance notice is possible, the Bureau of Meteorology provides lightning warning forecasts to the Tasmania Parks and Wildlife Service. Lightning occurrence tracking is paramount to early detection and response to any remote fire or fires caused by lightning strike. Information available from monitoring systems, both pre- and post-lightning events, is used in association with information and advice from the Bureau of Meteorology forecasters to guide timing and location of fire-spotter flight paths.

A summary of the methods used to detect fires in the TWWHA is provided in Table 4. All of these methods, in combination, contribute to detecting bushfires; no single method is considered sufficient on its own. The Fire Duty Officer actively monitors all available information sources and instigates detection flights when considered necessary.

Detection method	Level of use	Effectiveness	Risks – impact on	Research
			TWWHA values	opportunities
Ignitions detection by aircraft	Used regularly – the most effective of available detection methods	Moderate – some fires not visible; weather can prevent flying	Ignitions not detected in time, resulting in large fires with significant environmental & cultural impact	
Ignitions detection by remote sensing	Publicly available websites are used regularly	Low – often too slow to facilitate rapid attack; cloud cover & satellite timing can prevent detection	As above	Research into best available technology is required. New products coming on stream.
Ignitions detection by public & fire towers	Used regularly – opportunistic reporting of fires by public	Low – often reports are too late to facilitate rapid attack; very limited coverage from existing fire towers	As above	
Remote lightning detection	Publicly available websites are used regularly	Low accuracy (± 1 km & high false negative rate)	Areas with potential ignitions not determined, resulting in large fires & significant environmental impact	Research of higher accuracy systems, and new systems.

#### Table 4: Summary of the methods used in the TWWHA for detection of bushfires

## 5.2 Recent work and research

## 5.2.1 Bushfire Operational Hazard Model (BOHM)

The Tasmania Parks and Wildlife Service is augmenting the operational capacity of the Bushfire Risk Assessment Model (BRAM) to support decision-making. This involves developing a Bushfire Operational Hazard Model (BOHM) that takes into account the daily and forecasted weather observations to calculate fire weather indices and fire behaviour values, based on vegetation types and fuel loads. This system will assist personnel making resource deployment decisions, based on risk and the availability of resources, to prepare for and dispatch in response to bushfires (Figure 7).





Once a fire occurs, the Tasmania Parks and Wildlife Service Fire Duty Officer is able to enter into the system an incident location and resource type (eg aircraft, fire tankers or remote crews) to dispatch to the location of the fire. The system will process the request, either using the road network (ground attack along with operating speed by vehicle class) or cruise speed (by aircraft type and straight line), to determine the most effective resource to dispatch (Figure 7). An

additional function has been added to the tool to display a rate of spread time to a five-hectare fire boundary (five hectares being a size identified as the threshold for successful initial attack) using topographic and vegetation type base maps. The Fire Action Plan of the Tasmania Parks and Wildlife Service also outlines minimum dispatch levels (for fires accessible by tankers), predicted fire behaviour according to vegetation types and Forest Fire Danger Index (FFDI) or Moorland Fire Danger Index (MFDI), and recommended firefighting strategies and tactics.

Deployment of remote area firefighters only occurs after a risk assessment has been undertaken, including consideration of the values at risk, likelihood of success, fire behaviour, current and forecast weather conditions, access and evacuation. The BOHM and BRAM tools contribute to this risk assessment.

## 5.2.2 Future bushfire risk

#### 5.2.2.1 Changes in lightning fire incidence in the TWWHA

The following is a summary of Dr Jon Marsden-Smedley's report titled 'Lightning fires in the Tasmanian Wilderness World Heritage Area and adjacent areas' (Marsden-Smedley 2016) which was commissioned through this Research Project, and provided on 9 November 2016.

The occurrence of lightning fires in the TWWHA and adjacent areas has greatly increased over the past 45 years. During this time, lightning fires have gone from about 0.1 per cent of fires and 0.01 per cent of the area that was burnt, to about 28 per cent of fires and 78 per cent of the area that was burnt. Overall, nearly 60 per cent of the areas that were burnt during this period by lightning fires consisted of buttongrass moorland, about 12 per cent wet eucalypt forest, six per cent mixed forest and six per cent rainforest. This increase in the incidence of lightning fires in the TWWHA has been particularly marked in the past 15 years, with major lightning-caused fires occurring in 2001, 2007, 2013 and 2016. Most of the area burnt since 1980 is in the southern half of the TWWHA.

All of the recorded lightning fires between 1980-81 and 2015-16 were ignited in long unburnt vegetation. This indicates that it is highly probable that, in buttongrass moorland, there is a positive interaction between fire age and the potential for lightning to result in a sustaining fire. This is due to markedly smaller amounts of rain being required to extinguish lightning fires in low-density open moorlands than is the situation in closed high-density moorlands. This also indicates that planned burning in buttongrass moorlands, by creating more open fuel arrays, has the potential to significantly reduce the risk of lightning fires sustaining.

# 5.2.2.2 ACE CRC's Climate Futures for Tasmania research into impacts of climate change on future bushfire risk

#### Statewide Climate Futures for Tasmania Future Fire Danger Project

The high quality and fine-scale climate projections generated by the Antarctic Climate and Ecosystems Cooperative Research Centre (ACE CRC's) Climate Futures for Tasmania project was applied through the Climate Futures for Tasmania Future Fire Danger Project, to increase understanding of bushfire meteorology and fire danger hazards and risks in a changing climate (ACE CRC 2016).

The project focused on six districts across the State, identified using the Bureau of Meteorology's weather forecast districts. These districts include a western region and a central plateau region, which cover some of the areas of the TWWHA. The results of the project were released in December 2015, with publication of the Climate Futures for Tasmania *Future Fire Danger: the Summary and Technical Report* (Fox-Hughes et al. 2015).

Cumulative Forest Fire Danger Index (FFDI) is the sum of the daily maximum FFDI, in this case across one year, centred on a single fire season (ie July to June), and represents the level of potential incidence and/or severity of bushfire (Fox-Hughes et al. 2015). The results of the Future Fire Danger Project indicated an increase in the cumulative FFDI in all districts over the next century. The results also indicated a fire season that begins earlier and lasts longer across the State and a significant increase in the area of Tasmania experiencing very high and extreme levels of fire danger (ie 'high' fire danger days).

# 2016 analysis of the impact of climate change on weather-related fire risk factors in the TWWHA

Building on analysis undertaken for the statewide Future Fire Danger Project, ACE CRC was commissioned through this Research Project to undertake analysis of the impact of climate change on weather-related fire risk factors in the TWWHA (Love et al. 2016a and Love et al. 2016b).

Under a high emissions scenario in the Climate Futures for Tasmania downscaled climate models, the ACE CRC's preliminary research findings had the following broad characteristics (Love et al. 2016a and Love et al. 2016b):

- Widespread lightning outbreaks decrease in frequency and extent (but not necessarily intensity).
- Average conditions are projected to be less conducive to lightning. Love et al. (2016a) note that these findings relating to lightning are consistent with the work of Timbal et al. (2010), where instability is projected to decrease with time over Southern Australia during the current century (in the cooler months investigated in their study).
- Indicators of fire danger relevant to dry eucalypt forest increase significantly with respect to both average conditions and the intensity of extreme events.
- The mean fire danger increases in areas of buttongrass moorlands.
- Increases in fire danger indicators accelerate in the second half of the century.
- The most extreme values of buttongrass moorlands fire danger are projected to remain steady through to the end of the century.
- The number of days per fire season on which the Mount Soil Dryness Index (MSDI) exceeds 50, averaged over the TWWHA, increases by 16 per cent in the near future, 58 per cent by mid-century and 218 per cent by end-of-century.
- The area of the TWWHA over which MSDI exceeds 50 on a given day is projected to increase by similar percentages.
- The number of days per fire season on which 30-day antecedent rainfall is less than 50 mm increases by 8 per cent in the near future, 22 per cent by mid-century and 91 per cent by end-of-century.

- The tendency of dryness indicators is towards longer, more intense summers with more rapid transitions between summer and winter conditions.
- The areal extent of the TWWHA subject to dry lightning potential environment decreases across all seasons.
- The most extreme dry lightning potential environment events do not decrease in extent beyond the near future and peak in summer, coinciding with peak increases in dryness indicators.
- The frequency of occurrence of synoptic weather conditions, quantified using an operational classification scheme on an annual basis, does not change significantly.

ACE CRC is continuing to work on a full technical report of their research findings, which will be completed by March 2017.

## 5.2.3 Rainforest flammability

Unlike buttongrass, rainforests in the TWWHA do not burn often because they are too damp most of the time. The weather and fuel dryness conditions under which rainforests will burn is, however, of considerable interest to fire managers, because it is at these times that bushfires have the potential to cause them damage.

The Tasmanian fire agencies (Tasmania Fire Service, Tasmania Parks and Wildlife Service and Forestry Tasmania) provided support for a PhD project to investigate rainforest flammability in Western Tasmania (Styger 2014). A key finding of this work was that rainforests are unlikely to burn, unless there is less than 50 mm of rain in the previous 30 days. The research also found that the Mount Soil Dryness Index (MSDI) is also a predictor of rainforest fires but the Forest Fire Danger Index (FFDI) is not. Therefore it is clear that the fuel moisture is the factor limiting the occurrence of rainforest fires.

These findings provide fire managers with good insight to prepare for bushfires at the critical times when rainforests are vulnerable, ensuring adequate fire restrictions are in place and firefighting resources are ready.

## 5.2.4 Australian Soil Moisture Information System (JASMIN)

The Mount Soil Dryness Index (MSDI) is a simple soil moisture model calculated from rainfall and temperature observations and has been used in Tasmania for over 40 years in bushfire management. The MSDI is used as an indicator of soil and surface fuel dryness and therefore vegetation flammability across a region, but it does not account for variation of soil or vegetation type.

The Bureau of Meteorology has, for several decades, prepared a daily map of MSDI isolines for Tasmania, based on 9am rainfall observations throughout the State. The MSDI is known to have significant limitations; for example, it is not uncommon for field observers to report that the soil and surface fuels are much drier than current mapped value of MSDI should indicate, as happened in North-West Tasmania during the 2015-16 fire season. For the TWWHA, contributing factors to inaccuracies are believed to be (Styger 2014):

- 1. The very limited number of weather observation stations located in or near the area and therefore inaccurate interpolation between quite distant stations.
- 2. Accumulated errors in the value of the MSDI that follow many months, or in some areas years, without a return to saturated soils.
- 3. Variation in soil type and depth/slope/aspect and the variability in canopy capture and run-off from individual rain events.

The Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC) is funding a national project to develop an Australian Soil Moisture Information (JASMIN) system (Dharssi and Kumar 2016). An output of this project will be a soil moisture model that will be of higher spatial resolution and accuracy than the current MSDI. Published data indicated that a physically-based land surface model, related to JASMIN, had greater skill at predicting soil moisture than MSDI (Dharssi and Kumar 2016). Further development of JASMIN is expected to incorporate inputs from satellite-derived measurements, surface weather and soil observations, and downscaling, which will improve the accuracy and resolution of the soil moisture model even further. An enhanced and adequate network of weather observation sites will be important to ensuring satisfactory ground verification of modelled values and confidence in the new system.

It is anticipated that JASMIN will eventually replace the current method of calculating MSDI, although it may be several years before it is fully operational. Trial outputs on a five kilometre grid are expected by the end of 2016. In the more distant future, empirical fire behaviour models may be developed with more direct inputs from newer soil moisture models and fuel moisture models; thereby making the MSDI completely redundant.

## **5.3** Areas for further work or research

## 5.3.1 Parks and Wildlife Service model of fire cover

## 5.3.1.1 Initial attack capability

Records of causes of bushfires in or near the TWWHA indicate that the overwhelming contemporary risk is from lightning fires (see section 5.2.2.1). Fires started by people, either accidentally (eg accidents with fuel stoves or campfire escapes) or maliciously (eg arsonists) have been recorded, but over the past 15 years such fires have had a relatively small impact on TWWHA values compared to fires caused by lightning.

Lightning ignitions can occur anywhere, including very remote parts of the TWWHA, and rapid suppression response to these fires is critical. In the right circumstances, fires in the TWWHA have the potential to spread very quickly; for example, a buttongrass fire event on an average summer day can grow from a single ignition point to 20 hectares in size in two hours. At this size, the fire

will have more than two kilometres of actively spreading fire edge to be extinguished. Therefore, the faster a fire can be attacked, the smaller the problem and greater probability of success of early extinguishment. Thus, the first few hours after fires start is the critical period when suppression will be most effective.

Multiple ignitions starting in the TWWHA from a single dry lightning event have become regular events over the past 15 years (although not every summer). For example, in 2010 and 2016, more than 10 fires in the TWWHA were started and spread on each occasion during single lightning events. When weather and fuel dryness conditions following a dry lightning event are favourable for firefighting, the Tasmania Parks and Wildlife Service has had success at extinguishing all fires with remote firefighters. Such was the case in early January 2010. However, dry lightning events have caused significant fires at other times.

The question of adequate preparedness to extinguish these fires comes down to having sufficient firefighters and aircraft of the right type in the right places at the time fires start. Ideally, firefighting resources would be deployed to a fire and be actively working on that fire within an hour, or even much quicker under severe fire weather conditions. Therefore, the strategic planning of an adequate level of firefighting resources depends on quantifying what the spatial and temporal level of bushfire risk is likely to be across the TWWHA over a summer and determining the multiples of firefighting resources required to cover that risk. The placement of these resources in or around the TWWHA on a daily basis becomes the operational task, but the resources must be available and ready in the first place. However, the Tasmania Parks and Wildlife Service has responsibility for bushfire response for a network of reserves in addition to the TWWHA, so the strategic planning must address the resourcing of bushfire risk at the statewide level, not just for the TWWHA.

The Tasmania Parks and Wildlife Service has never undertaken an analysis of its firefighting capability that can address the question at a strategic level of how many and what type of firefighting resources (eg remote firefighters, aircraft) are required on an annual basis for initial attack, specifically to address the protection of TWWHA values. Such an analysis is needed, although it cannot be done in isolation of the fire suppression arrangements of the broader Tasmanian community. In undertaking a strategic capability analysis, the aim would be to define levels of risk coverage based on the values to be protected, statement of unacceptable outcomes and the extremity of fire behaviour to be covered. It is worth recognising that it is unrealistic for the TWWHA to have 100 per cent fire suppression cover of all values on the most extreme fire weather days that may only occur on very rare occasions (eg once every 10 years).

## 5.3.1.2 Incident management capability

All firefighting operations, including remote fires, are supported by Fire Duty Officers and Incident Management Teams, to ensure that adequate forward planning and support for incidents is provided. The Tasmania Parks and Wildlife Service does not have a large fire operational workforce – there is good expertise, but resources quickly become stretched once major fires become established. Furthermore, major fire events commonly occur during the peak tourist and holiday season, when the Tasmania Parks and Wildlife Service also has responsibility for managing visitors to national parks, and other reserves and associated infrastructure. The majority of the

Tasmania Parks and Wildlife Service's permanent firefighter workforce, including remote firefighters, is primarily engaged in managing reserve visitation when not firefighting. Therefore, the tourist season contributes to stretching operational resources; and heavily booked tourist accommodation can also increase fatigue for individuals if fire personnel have to travel further each day.

There is a need to quantify the overhead resources needed to adequately support the Tasmania Parks and Wildlife Service's firefighting capability during normal and slightly above normal fire periods, and how these resources can be provided. Many of these resources are trained in specialist skills, including:

- Fire Duty Officers to ensure appropriate preparedness arrangements are in place on a daily basis; trained to use systems such as the Bushfire Risk Assessment Model (BRAM) and the Bushfire Operational Hazard Model (BOHM); as well as having good fire experience to rapidly assess fires when they occur and make timely and critical decisions.
- Incident Management Teams including Incident Controllers, Operations Officers, Air Operations Managers, Planning Officers, Situation Officers, Fire Behaviour Analysts, Public Information Officers and Logistics Officers.

There are a number of possibilities regarding how these skills could be provided across one or more organisations to ensure adequate fire cover for the TWWHA and other reserves. However, it must be recognised that an underpinning of knowledge regarding the management of natural and cultural values in reserves is essential across most of these skill sets. Interstate support is likely to be available for the most significant fire events, such as occurred in 2013 and 2016, but cannot be relied upon for the busy periods that can be expected in most years.

## **5.3.2 Fuel dryness and fire behaviour**

Successful bushfire operations, including both the suppression of fires and the lighting of planned fires, depends on a good understanding of the fire behaviour in different vegetation and fuel types and how that is related to weather conditions. The fire behaviour is typically described in terms of fire rate of spread and fire intensity, and prediction of these parameters is undertaken using various empirical fire behaviour models that are specific to generalised vegetation or fuel types (Cruz et al. 2015). The models are in turn used to determine:

- operational preparedness on a daily basis throughout the fire season, including the location, type and number of firefighting resources; and
- what operational strategies and tactics can or should be employed, depending on the expected fire behaviour.

The rate of spread and intensity of bushfires in the TWWHA is strongly influenced by vegetation dryness, usually expressed as fuel moisture content. The flammability of surface fuels on the ground (eg dead leaf litter) is influenced by soil dryness, rainfall and humidity; while the flammability of vegetation fuels above the ground is controlled by rainfall and humidity. In some vegetation types the Mount Soil Dryness Index (MSDI) can be used to estimate coarse fuel moisture content (eg dead logs) and vegetation flammability. Most of the TWWHA is exposed to

high rainfall at all times of the year, although summer (December to February) tends to be drier and can include periods without significant rainfall. The daily bushfire risk is very dynamic, particularly in the summer months, rising and falling with rainfall events, as well as temperature, wind speed and humidity.

The flammability of organic soils is another factor that influences bushfire dynamics in the TWWHA. For example, bushfires that stop at the boundaries of less flammable vegetation may still be smouldering in the organic soils at the margins of rainforest, wet eucalypt forest and wet scrub. As well as causing damage to soil and vegetation in the area burnt, such soil fires form an ignition point for further above-ground fire when conditions change (eg increased wind speed and/or decreased humidity). Soil flammability is related to soil properties and soil dryness.

Comprehensive soil moisture and fuel moisture inputs determining whether or not fires will spread or smoulder in organic soils in the TWWHA are not available. Contributing factors include the paucity of weather stations throughout the TWWHA and the limited predictive power of the existing soil moisture model (MSDI). The flammability thresholds for organic soils are also poorly understood, both in terms of weather and physical soil properties (eg organic content, soil structure).

Fire behaviour models used widely in other parts of Australia have limited application in the TWWHA. For example, the McArthur Mk 5 Forest Fire Danger Meter (converted to equations by Noble et al. 1980) was developed for dry eucalypt forest, but is known to poorly predict fire spread in the wetter eucalypt forests of the TWWHA. No fire behaviour models have been developed for many widespread vegetation types of the TWWHA; for example: montane forests, wet eucalypt forests, eucalypt forests with a rainforest understorey, rainforests, wet scrub, and alpine vegetation. Some existing models developed elsewhere may be suitable for some vegetation types following validation and testing. A promising example is the New Zealand rainforest fire spread model which was developed for forests that are structurally very similar to Tasmania's rainforest. Fortunately, a reasonably robust fire behaviour model was developed for buttongrass vegetation in the 1990s (Marsden-Smedley et al. 1999).

Recent experience has shown that a single thunderstorm event can ignite 10 or more fires in the TWWHA; some of these will spread very little, if at all, while others will develop into major conflagrations. To be able to predict which fires are the biggest threat, and when, would be extremely useful. The controlling factors of vegetation type and fuel dryness are recognised in a general way. However, improving the predictive power of fire behaviour models that are applicable to TWWHA vegetation would provide fire managers with much better capacity to prioritise and plan for suppression operations.

Some research projects funded through the Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC) and elsewhere (that are already underway) will contribute to better fire spread prediction in the TWWHA. An example is the development of a high resolution soil moisture system that will have application across Australia (Dharssi and Kumar 2016). There is still much to do for the TWWHA bushfire context, including:

• quantifying fuel and soil moisture thresholds of flammability for most vegetation types;

- quantifying soil moisture thresholds that control organic soil flammability;
- designing and installing an adequate network of weather data observation stations across the TWWHA;
- validating and customising systems (eg soil moisture models) for the Western Tasmanian environment; and
- developing new fire spread models for those vegetation types that need it and for organic soils.

#### **5.3.3 Detection**

#### 5.3.3.1 Lightning forecasting

Lightning has become the most significant cause of bushfires in the TWWHA (see section 5.2.2.1). Therefore, prediction services for lightning events, and the probability of fires starting, are important tools for preparing for fire suppression. The Bureau of Meteorology provides forecasts of thunderstorms with reasonable accuracy at a regional scale 24 to 48 hours forward.

Any improvements in the accuracy and forecast capability would enable fire agencies to prepare better for response. Aspects of the forecasting that assist preparedness include:

- indication of the probable amount of rain associated with the thunderstorm, as well as the spatial patchiness and extent;
- the probable area where strikes will occur;
- the number of strikes that is likely; and
- atmospheric, fuel and landscape conditions that facilitate the spread of lightning fires.

Recent research (Dowdy and Mills 2012) has identified atmospheric and weather conditions that are good predictors of dry lightning fires spreading. Examples are: rainfall amount, atmospheric conditions (dew point depression and atmospheric instability) and fuel dryness. There is still a need to further develop these findings into forecast tools that assist fire managers; for example, a forecast map indicating the areas with high probability of ignitions from lightning fires. It may also be possible to explore, from historic fire records, if there are landscape predictors that could further help predict lightning fires, such as altitude, aspect, position on slope, vegetation type, fuel dryness and soil dryness.

In an ideal world, the accuracy of the forecast would be high enough to enable adequate numbers of firefighters and aircraft to be pre-positioned close to areas forecast to be at high risk.

## 5.3.3.2 Strike detection systems

Real-time detection systems are available for recording and mapping lightning strikes that hit the ground and including strikes as point data onto Geographic Information System (GIS) maps. These data have proven helpful in identifying where to look for lightning ignitions from detection flights over the TWWHA and other areas; typically such flights are only scheduled if little or no rainfall was associated with the lightning event. Examples of outputs from lightning detection systems are available in real time or near real time on free websites, but at much lower spatial resolution than commercially available.

The Tasmania Parks and Wildlife Service trialled a lightning detection service over the 2013-14 fire season. No analysis has yet been undertaken, but lightning ignitions that were recorded in the TWWHA, and elsewhere in Western Tasmania during that fire season, were certainly in the general area of detected and recorded ground strikes, with an indicative accuracy of approximately ± one kilometre. Issues limiting the usefulness of lightning detection services include:

- For every fire started by lightning, hundreds, if not thousands, of ground strikes can be detected.
- False negatives do occur, that is, ignitions with no indication from available lightningdetection services or forecasts.
- Smouldering fires starting from lightning can remain hidden for weeks and only become evident and spread when fuels become drier and or it becomes windier.
- With current system accuracy, it is not productive to invest in close aerial inspection of recorded strikes, searching for very small 'smokes'.

Thus, these lightning-detection services are of general value for searching areas for lightning fires, but with limitations. Any technological advancement in accuracy would assist in the early detection of lightning fires and early suppression. The Bureau of Meteorology is trialling new systems of lightning-detection and forecasting, and service enhancements are scheduled to start late in 2016 and continue over the coming years.

## 5.3.3.3 Detection strategy

The detection arrangements that have been used in the TWWHA over the last 25 years (see section 5.1.3) may no longer be adequate for the anticipated future bushfire risk for the TWWHA or even the apparent increase in lightning fires in recent times.

There is a need to ensure that the arrangements for detecting bushfires in the TWWHA use contemporary technology and methods and provide the best practical opportunity for rapid detection of new fires. The preparation of a detection strategy that includes the following components would assist:

- review of new and emerging technology, including remote sensing, drones and radar;
- review of the costs and benefits of using new technology and existing methods (eg spotter flights, fire towers) and designate an appropriate combination of detection methods; and
- specification of standards and procedures for operational implementation of the detection strategy.

## 5.3.4 Develop strategies to manage future bushfire risk

The implications of climate change for future bushfire risk are described in sections 2.5 and 5.2.2.2. It is important that these changing circumstances are carefully considered, and appropriate strategies developed to protect the natural and cultural values in the TWWHA as far as is practical. Some of these strategies will need implementing in the short term, while others may be anticipated for the longer term. Some strategies may be quite novel and outside

traditionally accepted views of managing wild and remote areas. In the process of changing operational practice, this stage of strategy development is a necessary link between research and the revision of guiding operational policies, plans, procedures and supporting information systems such as the Bushfire Risk Assessment Model (BRAM).

# 5.4 Recommendations relating to preparedness for fire in the TWWHA

Recommendation 5 – Research on fire and natural and cultural heritage values

An ongoing program of scientific research and monitoring should be maintained in the TWWHA that supports understanding:

- the interaction between climate change and the natural and cultural values of the TWWHA; and
- the evolving relationship between climate change and the projected impacts of fire on natural and cultural values in the TWWHA.

This research should focus, in the first instance, on those values that are expected to be most vulnerable in the short term (for example relict Gondwanan flora).

This program of research should involve a broad spectrum of the research community, as well as personnel from DPIPWE and other Tasmanian Government agencies.

The program of research should be regularly reviewed and audited. The 'DPIPWE TWWHA Bushfire Research Group' should continue to be actively engaged in the process of developing objectives for this research program.

Attachment 9 sets out a prospective list of priority research to support fire management in, and the understanding of the impacts of fire on, the World Heritage values of the TWWHA.

# Recommendation 6 – Research on fire vulnerability, fire behaviour and fire model inputs

In the short to medium-term, significant research effort should be directed to:

- *further understanding the consequential interactions of climate change with fire vulnerability, behaviour and impact;*
- understanding fire behaviour and flammability thresholds, particularly in dry conditions, of organic soils and the interaction between climate change, fire and organic soils;
- developing a comprehensive understanding of soil and fuel moisture in the various
  vegetation communities in the TWWHA; efficient methods to monitor and model soil and
  fuel moisture across the vegetation types in the TWWHA; and the development of reliable
  soil moisture indices for the TWWHA that can then be incorporated into fire behaviour
  models and fire danger indices;
- developing techniques for more accurately assessing fuel loads and mapping fuel types in different vegetation communities in the TWWHA and incorporating these into fire behaviour models; and
- developing fire behaviour models and associated fire spread simulators for peatlands, grasslands, wet eucalypt forest, coniferous rainforest, rainforest without conifers, and other vegetation communities in the TWWHA.

This research should take into account national initiatives that are currently underway in the development of bushfire indices, and modelling and fire behaviour tools. The research should concentrate on those areas, soils and vegetation communities in the TWWHA that are not currently well represented in fire behaviour models and fire danger indices.

## Recommendation 7 – Lightning detection

The Tasmanian fire agencies, in consultation with the Australian Bureau of Meteorology, should keep abreast of emerging technologies for predicting and detecting lightning strikes and ignitions.

*If and when new technologies become available, these should be incorporated into preparedness and response planning for bushfire in the TWWHA.* 

A detection strategy should be developed that details the bushfire detection arrangements for the TWWHA, based on contemporary ignition risks and detection methods.

## Recommendation 8 – Capital investment

The Tasmanian fire agencies should develop a whole-of-government program of investment in facilities and equipment that enhance fire management capabilities in the TWWHA and more generally in Tasmania.

This program should include:

- identification and evaluation of options for installing new automatic weather stations in the TWWHA and nearby areas to improve weather and data records for the region; remote area sensors for monitoring local rainfall and soil moisture; and early detection facilities such as fire-watch installations;
- *firefighting equipment available to fire agencies in different regions of Tasmania;*
- *improved communication facilities (that is for the radio network), to enable better communication between agencies, and for remote firefighting teams; and*
- investment in facilities and equipment to enhance aerial firefighting efforts.

This investment program should be developed on a whole-of government basis to maximise the benefits to all fire agencies and the Tasmanian community. Organisations such as the Bureau of Meteorology should be involved in order to ensure the fire agencies obtain the highest benefits from Tasmanian weather and climate data.

In constructing this investment program, an audit of existing weather and climate sensors in the region should be conducted and protocols developed for incorporating these data into real-time forecasts of fire weather.

## 6. **RESPONSE**

## 6.1 Current operational practice

## 6.1.1 Identifying and protecting fire-sensitive values in the TWWHA

Advice from the Tasmania Parks and Wildlife Service is that, for use in operational response, the main means of identifying fire-sensitive natural and cultural values and relevant priorities and response in the TWWHA is through the Natural Values Atlas<sup>8</sup>, the Bushfire Risk Assessment Model (BRAM), the Common Operating Platform<sup>9</sup>; staff knowledge and contact with specialists in DPIPWE's Natural and Cultural Heritage Division.

As outlined in section 4.1.2, BRAM includes (the consequence) layers of natural values and is an input to determine different levels of bushfire risk in the TWWHA. In BRAM, relative importance rankings are assigned to a diverse range of values, including natural and built assets.

Human life is afforded the highest priority in BRAM, and areas where visitors to the TWWHA are likely to be present are given the highest ranking. Typically, the highest ranking for natural values is assigned to areas that are fire-sensitive because there would be permanent and significant losses if burnt. Examples include the Mt Anne and Walls of Jerusalem areas because of the presence of extensive, unique and very fire-sensitive vegetation such as King Billy pine and pencil pine forests.

The basic principle for determining response strategies and priorities is that the highest rated values from BRAM will be protected in preference to lower rated values. When there are many ignitions, as happened in January 2016, this principle is complicated by:

- the sheer number of fires and therefore potential impacts and competing values;
- fires outside the TWWHA, particularly to the west, that have the potential to impact on the TWWHA and may have even greater potential for damage to TWWHA values than those fires already inside the TWWHA;
- practical operational limitations on suppression imposed by the weather, access, terrain and fire behaviour (both current and predicted, including smouldering organic soil);
- unknown factors, such as undetected fires and fire behaviour that could not be accurately
  predicted with the tools and data available; and
- the limited availability of firefighting resources.

Responding to fires in the TWWHA requires consideration of broader strategic fire suppression priorities after consideration of the values, operational limitations and available resources. For example, in responding to fires in the TWWHA, the Tasmania Parks and Wildlife Service needs to consider the risk of fires that could cause significant damage to natural values within and outside the TWWHA, and also threaten people's lives, damage to infrastructure and property. Often fires

<sup>&</sup>lt;sup>8</sup> A web interface allowing access to authoritative and comprehensive natural values information is available at https://www.naturalvaluesatlas.tas.gov.au/.

<sup>&</sup>lt;sup>9</sup> The Common Operating Platform (COP) provides Tasmania's emergency service organisations a single mapped view of shared information for use in critical emergency incident planning and response activities.

that can have significant potential to impact on the TWWHA can be those that originate outside the TWWHA, particularly in the extensive buttongrass moorlands on the West Coast at the western edge of the TWWHA.

In reality, not all values can be protected at all times and therefore a triage process is involved in strategic decision-making. The suppression objectives, strategies and allocation of resources are ultimately based on what can realistically be achieved to protect identified and agreed priorities.

Bushfire risk assessment is a dynamic process that recognises and adjusts to circumstances as they change. It relies on information from a range of sources and the application of appropriate fire models.

During a large bushfire event, where there are a number of fires that require suppression response, assessment can occur at both the State and regional level, using a risk assessment approach consistent with the National Emergency Risk Assessment Guidelines (NERAG) to:

- enable the timely and relevant issuing of community warnings;
- prioritise operational activities on the fireground; and
- undertake options analyses in determining suppression and control strategies.

The risk assessment process considers both the consequence and likelihood of an event and relies on the application of a spatial proximity analysis that draws on existing data resources. In relation to likelihood, this considers the location of a bushfire, proximity to flammable vegetation types, expected fire behaviour and the size of the bushfire. Consequence is assessed considering impacts to life, critical infrastructure, the environment, major tourism/public administration and social setting. For most remote fires in the TWWHA, visitor safety and natural and cultural values are the major consequences of concern.

The information needed to inform the assessment comes from a wide range of sources. These include values (ie consequence) data stored in BRAM, data stored in the Natural Value Atlas, asset management systems, satellite imagery, observations from aircraft weather observations, field assessments, information on vegetation types and fire behaviour models. Finally, knowledge held by individual people such as rangers, biologists and fire managers is used whenever possible to inform assessment of fires in the TWWHA.

#### 6.1.2 Visitor safety

Fire risk to visitors is mitigated by developing emergency response plans or actions in the Fire Action Plan to enhance visitor safety. The Tasmania Parks and Wildlife Service has a draft emergency response plan for the Mt Field National Park, which includes responding to fire with appropriate trigger points.

During the 2015-16 bushfire event, the Tasmania Parks and Wildlife Service set up a Visitor Management Team to coordinate warnings to walkers, detection and relocation of visitors at risk (those in the path of fires), closure of campgrounds, walking tracks and reserves, communication with the public, and liaison with incident management teams and the State Fire Duty Officer.

Protection of visitors is the first and highest priority of response to bushfires in the TWWHA. For example, walking tracks are searched by helicopter for at-risk bushwalkers, bushwalkers are

relocated by helicopter, campgrounds are closed and campers are evacuated. Once a fire is identified as a risk, roads, walking tracks and other facilities are closed to the public.

# 6.1.3 Comparison of firefighting techniques used in the TWWHA and other jurisdictions

The firefighting strategies, tactics and equipment used in the TWWHA are also used in other Australian jurisdictions. There are particularly strong operational similarities to parts of Victoria, New South Wales and the Australian Capital Territory, which also have mountainous, rugged forested terrain. The assistance that Tasmanian fire agencies have provided to Victoria and New South Wales, on many occasions, demonstrates the similarities in firefighting capability, particularly for firefighting in remote mountainous areas and in tall wet eucalypt forest. There are, however, some differences that are indicative of the unique physical environment of Tasmania and the smaller resource capacity of the agencies in Tasmania.

The similarities and differences between the firefighting techniques used for the TWWHA compared to Victoria and New South Wales are summarised below. These two states have been chosen because they are the most similar to Tasmania in terms of bushfire environments.

#### 6.1.3.1 Response strategies

'Strategies' (as the term is used in bushfire firefighting) describes, at a general level, what is being done in the operational theatre at the whole incident level or on various parts of an individual fire. Key examples include:

- direct attack extinguishing the perimeter of a fire, most typically with water (with or without additives);
- partial direct attack extinguishing only certain parts of the perimeter of a fire;
- indirect attack back-burning from existing control lines (eg roads) or from new control lines constructed for a specific fire;
- defensive firefighting protecting people and assets but not attempting to control a fire; and
- monitoring only monitoring the fire, but also predicting fire behaviour.

Defensive strategies used in the TWWHA, particularly for protecting people and built assets, are broadly similar to those employed in other states and territories. Notably, the public communication and warnings have tended towards standardisation across Australia since the 2009 bushfires in Victoria, and protecting people is universally the first priority. Relocation of people at risk from bushfires (eg bushwalkers) from remote areas by helicopter is regularly done in the TWWHA and also in national parks in Victoria and New South Wales.

Direct attack strategies used in the TWWHA are broadly similar to those used in the more remote areas of Victoria and New South Wales. Similarities in tactics and equipment include:

- tanker-based firefighting, that is, typically with four-wheel-drive small, medium and large water tankers;
- earthmoving equipment such as bulldozers (although used less in the TWWHA, see below); and

• water bombing with small and medium-sized helicopters.

A summary of the strategies and tactics used in firefighting in the TWWHA is provided in Table 5. In some circumstances, the firefighting response may involve only protection of people and monitoring of the fire, with no attempt to control or contain the fire.

Fire strategies and	Effectiveness	Level of use	Risks – impact on	Research
tactics			TWWHA values	opportunities
Rapid attack – helicopter inserted crews	High – if fire is <1 ha & accessible by helicopter landing; otherwise low	Used regularly by landing in open areas or hover entry-exit in low lying vegetation or rocky outcrops, but no Tasmanian crews trained in winch insertion techniques	Spread of pathogens on boots & tools	Investigation of most appropriate aircraft, techniques & coverage requirements
Aircraft (fixed- wing & rotary- wing) – water bombing	Low for well- established fires (unless guided by ground crews); high for initial attack	Used regularly throughout the TWWHA	Spread of water- borne pathogens causing contamination of water bodies; & toxicity of foam to aquatic fauna	Investigation of most appropriate aircraft, techniques & coverage requirements
Foam & gel added to water	High	Used regularly as additive to water by aircraft interstate, fire tankers & remote crews	Not well researched in Australia, but known toxicity to freshwater fauna	Research into impacts in Tasmanian environments
Retardant (long- term) added to water	High – under appropriate fire behaviour conditions and for some vegetation types	Limited use due to unknown environmental impact	Unknown	Research into impacts in Tasmanian environments
Back-burning	Moderate	Occasionally used in TWWHA	Increased size of fire; & potential for increased smouldering fire in organic soils	

Table 5: Summary of the strategies and tactics used in the TWWHA for response to bushfires

Fire strategies and	Effectiveness	Level of use	Risks – impact on	Research
tactics			TWWHA values	opportunities
Dozer & excavator control lines	High – fast containment of fires in accessible terrain; low effectiveness in rocky or boggy country	Limited use in TWWHA because of rugged terrain, boggy soils, lack of road access & potential impact on values	Damage to Aboriginal heritage; soil erosion; spread of disease ( <i>Phytophthora</i> ); damage to geoheritage (eg organic soils, glacial features); damage to biodiversity (eg loss of habitat trees); & recovery/ rehabilitation extremely slow & visible for many years	
Hose lays, sprinklers & soaker hoses	High – often the only tactic for smouldering fires, but long lead-time to establish	Used regularly throughout the TWWHA but restricted to small areas with practical water supply	Spread of pathogens	
Handline (dry firefighting)	High – in drier vegetation types; low if smouldering fire in organic soils	Infrequently used because smouldering fires are common	Spread of pathogens on boots & tools	
Closure of public access & relocation of visitors	High – visitor zones checked quickly by helicopter or vehicles	Used regularly to protect people.	None	
Partial suppression (typically partial direct attack)	High due to the restricted area attacked	Occasional use on large fires where suppression of fire in high priority areas of the fire is the only feasible option	None	

Fire strategies and tactics	Effectiveness	Level of use	Risks – impact on TWWHA values	Research opportunities
Monitoring & prediction of known fires (ie no suppression)	Moderate	Used regularly – for fires assessed as presenting no risk; or may be the only practical available tactic if fires are large or the smouldering fire perimeter is too long to enable effective suppression with available resources	Fire size escalates & impacts significant environmental & cultural values	Research to develop better fire spread models (eg rainforest, wet eucalypt forest, conifers) & soil dryness would facilitate better decision-making

Some key differences in tactics and equipment used in Tasmania compared to Victoria and New South Wales include:

- Remote firefighting crews are trained and equipped to be inserted into remote areas from helicopter by winching (New South Wales) or rappelling (Victoria). No Tasmanian fire agency currently has this capability. Tasmania does have personnel trained in remote firefighting, but they are inserted by helicopter landing or hover exit – this means that some fires cannot be accessed because firefighters cannot be inserted safely near enough to the fire to undertake suppression in a timely manner. Winch insertion was used by New South Wales firefighters in 2016 in the TWWHA, but this assistance is not available for initial attack at the critical times.
- Fixed-wing aircraft water bombing is used extensively in Victoria and New South Wales. In recent years, smaller fixed-wing water bombers have been trialled in Tasmania, but rarely used in the TWWHA. Water bombing from large helicopters (eg Erickson Air Crane) has never been done in Tasmania. Significant infrastructure is required to support larger aircraft and therefore the potential for benefit for the TWWHA, specifically for initial attack, requires investigation and costing.
- Air operations in New South Wales and Victoria are coordinated in more complex organisational systems, with personnel trained in specific aircraft and roles (eg Air Attack Supervisor) tasked with supervision roles. The typical air operations undertaken in Tasmania are smaller, with fewer aircraft, and therefore the scale of training and organisational complexity is smaller. During 2013 and 2016, attempts to utilise Air Attack Supervisors in Tasmania led to confusion and poor performance.
- Fire suppression chemicals have been used to a limited extent only in Tasmania, but they are used extensively in Victoria and New South Wales (see section 6.1.4). Foam and gel are water additives that are used in the TWWHA and other states and territories.
- Dry firefighting is a common tactic used by remote firefighters in Victoria and New South Wales, using hand tools (eg rakehoes, axes) to construct control lines in rugged country or earthmoving equipment in less rugged country. These techniques are used in Tasmania by

remote firefighters but less so in the wetter parts of the State, including most of the TWWHA, where dense vegetation and organic soils limit their effectiveness.

- Extinguishing smouldering fires in organic soils is a very big component of the fire suppression effort in the TWWHA; firefighters from other states and territories are typically not familiar with the techniques to do this. Use of long hose lays, pumps, water storage in large portable dams and water drops from helicopter buckets (targeted and directed from crews on the ground) are techniques which are used extensively in the TWWHA but rarely in other parts of Australia.
- Indirect attack is not often employed in the TWWHA because it has very few roads, tracks
  or suitable natural barriers (eg rivers) from which back-burning can be done. Building of
  new control lines with earthmoving equipment is rarely done for various reasons,
  including: the rugged and remote terrain; waterlogged soils; and the potential to harm
  environmental and cultural values. Indirect attack is more likely to be used in parts of
  Tasmania with more extensive road and track networks and is a common strategy in the
  heavily forested areas of other states and territories (where not too steep).
- Suppression on critical boundaries in the remote areas of Tasmania, firefighters will
  often focus on 'key edges' for suppression, to reduce the risk of a fire burning into fire
  sensitive areas. This technique has been used extensively in remote areas of Tasmania
  where fires may have a very large boundary, but key edges are suppressed in order to
  restrict the run of a fire into a critical area, thus protecting the natural values. This is often
  done using hose lays and aerial support.

## 6.1.3.2 Organisation

As with all other agencies responsible for bushfire suppression in Australia, the Tasmanian fire agencies use the Australasian Inter-Service Incident Management System (AIIMS), including associated structural organisation and terminology (AFAC 2013). Typically AIIMS in Tasmania is used for individual bushfires or groups of bushfires which are managed by an incident management team. The system differences that exist between jurisdictions are evident to those involved when interstate assistance is provided for major events, but sufficient similarities exist for visitors providing assistance to 'hit the ground running'.

Dispatch, the act of ordering attack crews and/or support units to respond to a fire, is a critical system component to ensure that fires are contained quickly enough to prevent them becoming major events with consequential damage and high suppression expenditure. The system of dispatch for the TWWHA used by the Tasmania Parks and Wildlife Service (see section 5.1.2), is well organised, but does not have procedures mandating minimum response times, resource types (including aircraft) and numbers that are typical for bushfires in other states and territories. For example, aircraft pre-determined dispatch (PDD) is used in Victoria, where multiple aircraft are dispatched immediately to the first report of a fire when specific conditions are met.

## 6.1.3.3 Public information

Public communication about all bushfire incidents in Tasmania is coordinated through systems and processes established and managed by the Tasmania Fire Service. The Tasmania Parks and Wildlife Service is closely consulted in the development of these communication methods.

For smaller bushfire incidents, the main conduit for information to the public is the Tasmania Fire Service web pages: Alerts List and Alerts Maps. These web pages are updated regularly to show the current status of bushfires and public warnings; they are the primary source of information for the public for all bushfires managed by the Tasmania Parks and Wildlife Service, including those in the TWWHA.

For larger bushfires, which are under the control of an incident management team, the public communication is prepared by a unit in the incident management team. The Incident Controller approves all media releases and public warnings, and media interviews are delivered only by personnel delegated by the Incident Controller. The Public Information Unit also establishes communication with local community groups and stakeholders, preparing regular updates and advice. Given the cooperative and shared arrangements for incident management teams in Tasmania (see Attachment 4), both the Incident Controller and Public Information Officer, for bushfires in the TWWHA and neighbouring areas, could be persons from any one of the three Tasmanian fire agencies: Tasmania Fire Service, Tasmania Parks and Wildlife Service or Forestry Tasmania.

The provision of information to the public about bushfires has improved dramatically in the past 20 years with the development of the Tasmania Fire Service fire alerts web pages, national standard warnings and ABC commitment as an emergency broadcaster.

However, the public information section in the incident management team concentrates on providing information required to keep people safe. This has not, to date, typically included providing information to people who are planning recreational activity in reserves, or who are concerned about the impact of fires and want to know what fire suppression actions are being undertaken. The Tasmania Parks and Wildlife Service provides some information on its public website and social media on closure of reserves, walking tracks and camping areas.

## 6.1.4 Fire suppression chemicals

Tasmanian firefighting agencies use fire suppression chemicals added to water while combating bushfires. Certain chemicals were also used during the 2015-16 bushfires in the TWWHA.

Fire suppression chemicals generally fall into two types, short-term suppressants (foams and gels) and long-term retardants.

Long-term retardants are typically based on the fertiliser monoammonium phosphate and can provide a useful chemical firebreak that lasts days to weeks. These retardants are effective even when dried out until they are washed away through rainfall or firefighting activities. To date, the only long-term retardant used in Tasmania is Phos-Chek, which was used in the 2015-16 fires and may have been used to a limited extent in the TWWHA. While these retardants can be effective at fire suppression, there are concerns about their environmental impact. Short-term suppressant chemicals are typically foams or gels that extend the efficiency of water as a fire suppression agent. Foams have been used in the TWWHA since the 1980s while gels have been developed more recently. The foams and gels have a short-term usefulness (four to six hours), but can provide an effective window for on-ground fire crews to extinguish fires, as well as protection for on-ground crews. The gel used in the 2016 TWWHA bushfires was Blazetamer 380. The foam used in Tasmania is Forexspan S, which was used in helicopter operations during the 2016 TWWHA bushfires.

The use of fire chemicals in Australia is governed by a longstanding position of the Australasian Fire and Emergency Service Authorities Council (AFAC), which provides that only products that have been approved by the United States Department of Agriculture are used. The effectiveness of these chemicals, in general, is well established. However, their effectiveness can be dependent on the state of the fire, type of vegetation, method of application, weather conditions and whether or not there is follow up by crews on the ground. Data relating to the effectiveness and impacts of the fire suppression chemicals used in the TWWHA has not yet been collected or analysed.

Firefighting foams at low concentrations are an effective tool to help extinguish fires in organic soils, as dry organic soils repel water (hydrophobic).

## **6.2** Areas for further work or research

# 6.2.1 Research to examine the impact and effectiveness of fire suppression chemicals in the TWWHA

The data relating to the effectiveness of the fire suppression chemicals used in the TWWHA have not yet been collated and analysed. Furthermore, the full potential impact of fire suppression chemicals on the flora and fauna of the TWWHA requires further investigation.

Research is currently being undertaken through this Research Project by the Department of Primary Industries, Parks, Water and the Environment to examine the impact and effectiveness of fire suppression chemicals in the TWWHA. The objectives of this research are to:

- collate data on the effectiveness of retardant use in the TWWHA during the January-March fires;
- review the literature on the impact of retardant use on biota, soils and ecosystems and identify potential risks to the TWWHA;
- design and establish a preliminary field trial using manual application of products to examine the potential impact of a range of available retardants, foams and gels on selected natural values of the TWWHA; and
- initiate the development of a decision support tool regarding fire suppression options in the TWWHA.

It is expected the results of the research will be available towards the end of 2017.

## 6.2.2 Bushfire Risk Assessment Model (BRAM) enhancement

The Bushfire Risk Assessment Model (BRAM) and the Bushfire Operational Hazard Model (BOHM) are powerful tools for bushfire response, as well as prevention and preparedness (see sections 4.1.2 and 5.2.1). Once a fire is detected, or indeed in the case of lightning events, multiple fires are detected, BRAM provides information on the following:

- What values are at risk from a particular ignition and the relative priority of those values in terms of fire-sensitivity. In the context of TWWHA natural values, BRAM contains the best available mapped information and this is updated annually.
- Which fires are likely to spread and how fast.
- Where the most useful firefighting resources to respond to a fire are located.

BRAM is a computer software system that was developed in-house by the Tasmania Parks and Wildlife Service, underpinned by a large amount of data.

An enhanced and new BRAM system is needed and should include the following specifications:

- provides service to fire operations being managed in areas where internet access is patchy or unavailable;
- provides access to all Tasmanian fire agencies;
- ensures that the best available knowledge of fire behaviour models and the most appropriate fire-spread prediction tools are used;
- ensures the best available mapping data is incorporated and updated regularly on all natural, cultural and built values; and
- has adequate oversight and management to ensure that information is not used inappropriately or as a 'black box' by unskilled persons.

## 6.2.3 Aboriginal heritage sites

Bushfires, particularly intense summer ones, have the potential to damage Aboriginal heritage sites directly or by consequent exposure of sites by removing the protective cover of vegetation and organic substrates. Aboriginal heritage sites, including Aboriginal cultural landscapes, can also be damaged by the actions taken by firefighters to control fires. For example, the mechanical disturbance of the ground surface by earthmoving machinery or vehicles can be particularly destructive. To ensure the best protection and management of these important cultural values during bushfire suppression operations, the fire managers need to know:

- where Aboriginal heritage sites of significance are located, ideally with a high level of spatial accuracy;
- the likely impact of the bushfire or suppression operations on that value; and
- appropriate strategies for minimising or preventing the impacts.

Two ways of identifying Aboriginal heritage sites during fire suppression operations can be used. Firstly, a desktop assessment can be undertaken using the Aboriginal Heritage Register, a database managed by Aboriginal Heritage Tasmania that contains information on more than 13,000 sites. Secondly, an archaeologist or appropriately trained and skilled Aboriginal Heritage Officer can undertake a field inspection of an area; for example a planned route for a control line to be constructed by a bulldozer. In order to be effective, the utilisation of trained cultural heritage practitioners during the firefighting efforts requires access to information in the Aboriginal Heritage Register. There are practical limitations at the present time for utilising either of these methods, particularly given that decisions during suppression operations may need to be made quickly. The Aboriginal Heritage Register is not publicly available and as administrator, Aboriginal Heritage Tasmania has an obligation to ensure that the data are managed sensitively, in line with Aboriginal community expectations. For field assessments, the time required to ensure that an area is inspected may be prohibitive or it may be unsafe to do so given the fire situation.

There is a need for the Tasmania Parks and Wildlife Service to work with the Aboriginal community to develop protocols for accessing data from the Aboriginal Heritage Register, in ways that facilitate the making of strategic and tactical decisions to protect known sites during fire suppression operations, while also respecting the cultural sensitivities of the information on sites. These protocols should also cover how Aboriginal Heritage Register records could be included in BRAM so that the fire risk to Aboriginal heritage can be assessed.

There is also much work to do to gain a better understanding of the potential impacts of bushfires and suppression techniques on the different kinds of Aboriginal heritage sites in the TWWHA.

## 6.2.4 Better mapping of fire-sensitive TWWHA values

While the Bushfire and Risk Assessment Model (BRAM) is updated annually with the best available data, a review of the 2016 fires identified that many fire-sensitive values are not mapped with a particularly high level of accuracy. Examples include stands of pencil pine, deciduous beech and sphagnum bogs on the Central Plateau. More accurate mapping would help prioritise bushfire response. Geoconservation values and vulnerable soils are also poorly mapped. The availability of high resolution aerial imagery has increased significantly in the past decade and therefore it is now more feasible to prepare higher resolution maps of natural values than it was when the earlier vegetation maps of the TWWHA were prepared.

Improved scale of resolution and accuracy of mapping of natural values are required to ensure that supporting systems such as BRAM provide as strong a basis as possible for determining priorities for prevention, preparedness, response and for monitoring and reporting on fire impacts. The natural values include threatened flora and fauna, vegetation communities, geomorphological values and fire-sensitive values. Additional high resolution photography is required to extend improved mapping of values beyond the Central Plateau. In some cases, a better understanding of fire impacts and responses are required to improve the identification of the natural values that are at risk from bushfires.

## 6.2.5 Operational systems and techniques

There is potential for operational systems and techniques to be introduced for the TWWHA that are used in other parts of Australia and countries such as Canada. The work required is the evaluation of the suitability of various systems, techniques and equipment, and identifying the costs and benefits for their application in the TWWHA. Important themes to consider, some of which have already been identified by AFAC (2016a), include:

- Investigate organisational options for providing additional remote firefighting capability
  for the TWWHA. The options to consider could be one or more of the following:
  permanent or seasonally employed remote firefighters in the Tasmania Parks and Wildlife
  Service and the Tasmania Fire Service; volunteer firefighters in the Parks and Wildlife
  Service or Tasmania Fire Service; or private contract firefighters. An important aspect of
  developing this capability will be ensuring that organisational and industrial arrangements
  are made to enable remote firefighters to be pre-positioned in or near the TWWHA; for
  example, camping in remote areas that are at risk prior to forecast electrical storm events
  or days of very high bushfire danger, to ensure short response times. Furthermore,
  remote firefighters need to be very fit and therefore the average age would be expected
  to reflect this, so whatever model is adopted must recognise the challenge of sourcing an
  agile, fit group on a continual basis. Some other workforce considerations for an
  enhanced remote firefighting capability include:
  - good retention of seasonal and permanent crews has distinct benefits a high degree of turnover is costly, difficult to manage and leads to loss of skill and knowledge;
  - volunteers are not available every day, so a much larger pool size would be required to provide a resource equivalent to a paid workforce; and
  - the cost and benefit of training and equipping volunteers needs to be evaluated compared to a paid workforce.
- The training and equipping of remote firefighters to be inserted by winching or rappelling from helicopters is required to provide an improved initial attack capability based in Tasmania for remote fires in the TWWHA and other areas. This is required regardless of what mix of firefighter engagement options is determined most appropriate. The development of policy and procedures appropriate for safe operations under Tasmanian forest conditions will be required; doctrine from other states or territories may not be directly transferable. It would be necessary to manage public and other stakeholder expectations because in some areas and circumstances winching operations may not be possible because of safety considerations.
- Investigate the type and size of water bombing aircraft that would be most effective for initial attack of fires in the TWWHA. This should consider both fixed-wing and rotary-wing aircraft. Airstrips that are potentially of benefit to the TWWHA (possibly with some upgrading) for dispatching rapid air attack are already present at Queenstown, Zeehan, Launceston and Maydena.
- Develop and train staff from Tasmanian fire agencies for designated air operations roles from the Australasian Inter-Service Incident Management System (AIIMS) to manage larger-scale air operations for firefighting, ensuring compatibility with systems used in either Victoria or New South Wales and alignment of training with national competencies.
- Develop appropriate dispatch protocols that provide specified response requirements for initial attack to meet key performance indicators; examples are maximum acceptable response times, minimum number and type of aircraft and remote crews. It is worth noting here that successful initial attack requires both rapid water bombing from the air and insertion of firefighters on the ground – neither alone is sufficient. The dispatch

protocol depends on the resources that are pre-determined as providing the required capability. Significantly increased investment in firefighting resources would be required before dispatch protocols could be practically developed, implemented and audited.

• Use of fire suppression chemicals (see section 6.2.1).

#### **6.2.6 Improved public information**

There is a need to improve information provided to the Tasmanian community on bushfires, so that it extends beyond the delivery of warnings and safety messages, while recognising that public safety is the highest priority. Systems that can provide regular updates to the public on bushfires could include coverage of:

- descriptions of the impacts of fires, such as estimates of the extent of fire-sensitive vegetation that has been burnt;
- impact on recreational facilities and closure of areas to the public; and
- summary of the firefighting resources (numbers and types) currently engaged in suppression and their tactics.

# 6.3 Recommendations relating to response to fire in the TWWHA

#### Recommendation 9 – Mapping of values

DPIPWE and the Tasmania Parks and Wildlife Service should continue to improve mapping, and incorporate the most up-to-date and available vegetation, soil and other natural and cultural values mapping into TASVEG and the Bushfire Risk Assessment Model (BRAM).

The availability of high-resolution aerial imagery has increased significantly in the past decade. Higher resolution mapping of natural values will significantly improve the inputs to the BRAM and enhance the fire risk assessments BRAM produces.

There is a role for the broader research community in providing both input to, and review of, natural and cultural values mapping for the TWWHA.

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## Recommendation 10 – Operational capability

The Tasmania Parks and Wildlife Service should review its immediate, medium and long-term fire suppression capabilities, including staffing.

This review should be done in consultation with other fire agencies in Tasmania as skills, demographic factors, and agency capabilities are expected to change significantly across all agencies.

This review should also take into account the spatial context of bushfire risk; emerging technological development; future fire suppression capabilities such as new fixed- and rotary-wing aircraft; and the future requirements for skilled, remote-area firefighting teams.

A review of resources and staffing arrangements should be undertaken to facilitate flexibility and responsiveness in capability to match annual variation in fire seasons (ie that impact workload).

The aim of this review is to understand what resources are required by the Tasmania Parks and Wildlife Service to manage current and future bushfire risk, and what actions need to be taken now to ensure that adequate levels of skill, staffing, equipment and decision-support tools are available for fire management in the future.

## Recommendation 11 – Use of volunteers

The Tasmania Parks and Wildlife Service, in conjunction with other Tasmanian fire agencies, should review the future potential for the use of volunteers in supporting fire management activities, including the potential to use trained remote area volunteer fire crews.

This review should be conducted in conjunction with the review of the Tasmanian Parks and Wildlife Service's fire suppression capabilities.

## Recommendation 12 – Fire suppression techniques and methods

The Tasmanian fire agencies should regularly review operational practices, fire suppression technologies and techniques used in other jurisdictions and determine their efficacy for Tasmania, including in the TWWHA.

In the TWWHA, particular attention should be paid to:

- early intervention techniques and technologies such as early detection and rapid attack; and
- continuing to investigate methods and equipment for extinguishing ground (organic soil) fires (eg spike and pump combinations).

## Recommendation 13 - Aerial fire suppression

The Tasmania Parks and Wildlife Service and the Tasmania Fire Service should review future capabilities in fixed- and rotary-wing aircraft for fire suppression in the TWWHA, and for the safe insertion of remote area firefighting teams, including where landing or hover exit is not possible.

This review of aircraft support should be carried out in conjunction with the review of staffing capabilities.

## Recommendation 14 – Research on fire suppression chemicals

The current research on the efficacy and environmental impacts of the use of fire suppression chemicals in the TWWHA should be continued in the short term.

This research should inform the development of guidelines for future use of fire suppression chemicals in the TWWHA.

## Recommendation 15 – Use of fire suppression chemicals

The Tasmania Fire Service and Parks and Wildlife Service should review the future use of fire suppression chemicals in the TWWHA following the conclusion of the research project currently being undertaken.

Research, monitoring and adaptive management should continue on the use of fire suppression chemicals from the perspective of both impacts on TWWHA values, and guidelines on the effective and efficient operational strategies and tactics of the various fire chemical classes.

If the research determines that the use of fire suppression chemicals is appropriate in the TWWHA, suitable procedures will need to be established, as well as training and equipment, to manage the use of these products in a safe and responsible manner.

*Protocols for future decisions to use fire suppression chemicals in the TWWHA should be incorporated into the TWWHA Fire Management Plan and associated operational fire guidelines.* 

As an interim measure, the use of fire suppression chemicals should be undertaken using a precautionary approach, where application is assessed and approved on a case-by-case basis.

The use of fire suppression chemicals for firefighting in the TWWHA should balance potential environmental impacts (if any) with the protection of the natural and cultural heritage values of the TWWHA.

# Recommendation 16 – Improved public information and communications

The Tasmania Parks and Wildlife Service should develop a specific communications plan on bushfires and fire management. This plan should include:

- public information on the restrictions on lighting fires in the TWWHA and the impacts of bushfire on sensitive natural and cultural assets;
- the dissemination of public information on fire danger during the fire season;
- the dissemination of public information during fire events including bushfires and management fires, including suppression activities; and
- the dissemination to the public of information on the extent and impacts of bushfire in the TWWHA.

The communications plan should also cover the provision of public information during extreme bushfire events, such as those that occurred during 2016.

Good quality public information can play an important role in building community support for fire management in the TWWHA, and for the efforts of fire agencies during extreme events.

# 7. RECOVERY

## 7.1 Current operational practice

#### 7.1.1 Bushfire Rapid Risk Assessment

Bushfire Rapid Risk Assessment was developed from the United States Burned Area Emergency Response (BAER) teams that were deployed to the Victorian bushfires in 2009 and introduced the concept of post-emergency rapid risk assessment.

Building on the Victorian approach, in 2011, New South Wales and the Australian Capital Territory developed Burned Area Assessment Teams and also invited the Tasmania Parks and Wildlife Service to participate in a cooperative arrangement across jurisdictions. These teams draw together expertise in a range of scientific disciplines and conduct a rapid risk assessment immediately following an emergency event. These assessments are used to assist managers in identifying and minimising future impacts – both immediate and longer-term – caused by the emergency event. The goal is to reduce further threat to life, property, infrastructure and the environment. The outputs of the process, which include a written report, support the transition from emergency response to recovery.

Reports are not intended to replace more detailed recovery assessments that are usually required. The reports do, however, alert government agencies to: the magnitude of potential post-fire risks (eg flooding); areas which may require further, more detailed rehabilitation or recovery planning; and the relative costs of mitigating post-fire risks compared to response operations.

The Department of Primary Industries, Parks, Water and Environment's (DPIPWE)'s Natural and Cultural Heritage Division and Tasmania Parks and Wildlife Service have supported this multijurisdiction approach, providing some input to the development of the process and may provide personnel for teams in the future. This assessment approach has been used in Tasmania by the Parks and Wildlife Service, Forestry Tasmania and the Tasmania Fire Service in 2013 and 2016, drawing on the assistance of expertise from other states.

## 7.1.2 Fire effects monitoring

Assessment of the impacts on natural values following major fire events is a function performed by Natural and Cultural Heritage staff where resources and time permit. The tasks are assigned to a small team of specialists, typically botanists, zoologists, geomorphologists, soil scientists and spatial data analysts. Brief reports are prepared that highlight:

- the area burnt of different vegetation types within the fire perimeter, based on TASVEG vegetation mapping;
- natural values that may have been affected, such as threatened species, threatened vegetation communities and fire-sensitive species or soils; and
- the context of the impacts within the broader management of fire regimes for species or ecosystems of concern.

When considered appropriate, longer-term monitoring and studies are established for targeted species or values.

## 7.2 Recent work and research

## 7.2.1 Assessment of the impacts of the 2013 Giblin River fire

As Tasmania battled fires in the South-East in January 2013, an even larger fire, started by lightning, spread to a final size of approximately 40,500 hectares in the South-West region of the TWWHA.

Very little suppression effort was undertaken on this fire – mostly the strategy consisted of monitoring, mapping and visitor safety management. An internal report was prepared by DPIPWE's Natural and Cultural Heritage Division staff that summarised the impacts of this fire on different vegetation types (Rudman et al. 2013). This report provided fire regime context for this significant fire, identified that most of the vegetation burnt was buttongrass and scrub, and described the likely impacts on fauna. The report underlined the difficulty in determining how much rainforest was burnt; current available methods cannot discern burnt areas beneath closed canopy, and vegetation mapping has limited accuracy.

Another study examined the impact of the Giblin River fire on the regeneration of shrub species in buttongrass moorland. This study highlights the impact that such high-intensity fires can have, even in the more fire-adapted buttongrass vegetation, and concludes that management burning can mitigate these impacts (French et al. 2016).

The Giblin River fire provided a rare opportunity to investigate the impacts of a major fire on river biota (fish and macroinvertebrates) and habitat structure. A number of river-monitoring sites had already been surveyed several years before the fire. The existence of a long-term river gauging station (recording flow and weather) on the lower Davey also gave an opportunity to develop a rainfall run-off model and to assess the immediate post-fire changes in hydrology of the Davey River in the late summer-autumn and winter of 2013. DPIPWE, in collaboration with the University of Tasmania and Freshwater Systems, undertook a survey of the river biota 12 months after the Giblin River fire (Davies et al. 2013). Macroinvertebrates declined in taxonomic richness; both the number of families and of Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (Caddisfly) species, as the percentage of catchment burnt increased. This response was strongly influenced by stream gradient, with differential sensitivities in low-slope and highslope streams. The macroinvertebrate response was accompanied by a number of responses in instream habitat, especially the proportion of area of fine sediments (especially sands) on the stream bottom. There were no significant relationships between the abundance or species richness of native fish and the area of catchment burnt across all sites surveyed for fish. In addition, no overall decline in fish abundance was observed between pre-fire and post-fire samples taken at six burnt main stem<sup>10</sup> sites. The hydrology component of the study revealed substantial post-fire changes in hydrology, with immediate summer-autumn increases in minimum and mean flows and increases in the magnitude and duration of high-flow events. Post-

<sup>&</sup>lt;sup>10</sup> In hydrology, a main stem is the primary downstream segment of a river, as contrasted to its tributaries.

fire winter minimum flows, by contrast, decreased in magnitude, while the duration of low-flow and high-flow events were both elevated.

Surveys of moorland soils (Storey 2013) and fluvial systems (Storey 2014) in the Giblin River fire area found no direct damage to soils from smouldering fire. This was in part attributed to the relatively low flammability of moorland organic soils, and partly to the relatively wet condition preceding the fire. However, areas of burnt soil tens of centimetres deep over areas of several square metres were common in areas of wet scrub. Within the fluvial systems, which were surveyed almost 12 months after the fire, there was little sign of a geomorphic response that could be clearly attributed to the fire. In part this reflected the lack of pre-fire data on stream form and process in these areas.

## 7.2.2 Bushfire Rapid Risk Assessment for the Mersey Forest Fire Complex

A Bushfire Rapid Risk Assessment was undertaken for the Mersey Forest Fire Complex (Lake Mackenzie Complex plus Lake Bill fires) by the Bushfire Rapid Risk Assessment Teams (BRRAT). The BRRAT report was prepared for the Tasmanian Government by the Victorian Department of Environment, Land, Water and Planning and Parks Victoria, in conjunction with the Tasmania Fire Service, DPIPWE and Forestry Tasmania. The risk identification, assessment, prioritisation and evaluation process was completed in February 2016, in six days; hence the document was not intended to be a comprehensive report.

The report provides a brief summary and categorisation of the level of potential risks identified to natural, social and economic values such as:

- fire-sensitive vegetation and erosion of organic soils;
- perception of lack of protection and restoration of TWWHA values;
- disruption of access for maintenance, tourism and businesses;
- risk to public safety from untreated hazards along roads and tracks;
- infrastructure for power supply;
- Aboriginal heritage information and values of world significance;
- loss of catchment function; and
- reduction in hydro-storage capacity due to build-up of sediment and subsequent increased fire susceptibility.

The report also recommended immediate actions including:

- Assess and map the scale and degree of impact on organic soils, fire-sensitive highland vegetation communities and species; prioritise sites requiring emergency stabilisation.
- Assess roads and infrastructure for hazards, prioritise treatments and implement stabilisation works.
- Assess damage to power infrastructure; prioritise and replace or repair; monitor and review.
- Engage with Aboriginal community and key stakeholders.
- Inspect registered Aboriginal heritage places; assess condition and prioritise mitigation.

# 7.2.3 Assessment of the impacts of the 2016 bushfires on the values of the TWWHA

Since February of this year, the Department of Primary Industries, Parks, Water and Environment's (DPIPWE) Natural and Cultural and Heritage Division has been undertaking assessments of the impacts of the 2016 bushfires on the values of the TWWHA and other reserves.

The purpose of this assessment is to report on the impact of the 2015-16 bushfires on natural, Aboriginal and historic heritage values across all tenures, but primarily reserved land, and identify potential areas for post-fire remediation works, primarily in the TWWHA and the Western Tasmanian Aboriginal Cultural Landscape. The aim of the assessment is to:

- assess the impact of the 2016 fires on the natural, Aboriginal and historic heritage values of Tasmania, with special consideration to the TWWHA and the Western Tasmanian Aboriginal Cultural Landscape<sup>11</sup>;
- identify situations where fire has initiated a threatening process, where a timely intervention has the potential to significantly reduce long-term damage to values;
- identify situations where monitoring is needed to understand fire impacts and recovery with and without rehabilitation interventions;
- provide advice to relevant land managers/owners regarding post-fire management of Aboriginal cultural values that are subject to natural or human impacts ie erosion, new vehicle tracks or recreational vehicle use, etc; and
- identify where the fire has created an opportunity for effective research to better understand the natural, Aboriginal and historic cultural values, including more effective site extent determinations and to improve their long-term management.

## 7.2.3.1 Natural Values

The surveys by the Natural and Cultural Heritage Division have involved site visits to Gordon Road, Lake Bill and areas of alpine and subalpine vegetation accessible from the Lake Mackenzie Road. Data and photographs from the areas impacted by the Lake Mackenzie Complex fire were presented to the 2016 TWWHA Bushfire Research Group workshop held on 8 June 2016 at the University of Tasmania in Hobart, where the potential and priority for rehabilitation works in the post-fire period were considered. The workshop assisted in the refinement of a qualitative decision tool for assessing post-fire rehabilitation priorities. The conclusions reached by the workshop group (DPIPWE 2016b) included agreement that:

- damage to some values was severe enough that recovery without intervention was unlikely;
- in cases where impacts were severe, the proportion of the value impacted by fire comprised a very small proportion of the total extent of the value in the TWWHA, reducing the priority/need for rehabilitation;

<sup>&</sup>lt;sup>11</sup> The Western Tasmania Aboriginal Cultural Landscape is located on the North-West Coast of Tasmania and was added to the National Heritage List on 8 February 2013.
- the fire impacts provide an opportunity to undertake targeted trials to investigate methods of rehabilitation that are cheap and effective in restoring ecosystem function; these trials are warranted given the lack of rehabilitation experience in Tasmania; they would facilitate the acquisition of data on suitable rehabilitation methods for use for in response to future bushfires; and
- there are a number of outstanding tasks and research priorities that may improve bushfire prevention in fire-sensitive areas and which may improve the effectiveness of fire suppression.

The impacts to natural values of the TWWHA have so far been the subject of one Natural and Cultural Heritage Division report, which documented the outcomes of the 2016 TWWHA fire research workshop (DPIPWE 2016b). More detailed reports documenting field survey results are scheduled for completion later in 2016 (DPIPWE unpublished data).

The majority of the areas impacted by the 2016 fires in the TWWHA were composed of vegetation types and fauna that are adapted or resilient to fire. As a result, these areas are likely to recover to something similar to their original state within a relatively short time (less than 30 years or so).

A small subset of the vegetation types impacted were composed of fire-killed (ie very firesensitive), long-lived and poorly dispersed species.

On the Central Plateau, the affected area includes vegetation and soils that are not fire-adapted. This includes wetland peats, cushion moors, organic humus soils and sphagnum bogs. In areas of fire-adapted vegetation, there is evidence of damage to organic soils, including the blanket bogs of the buttongrass moorlands (DPIPWE 2016b).

The most significant impact to natural values in the TWWHA relates to the alpine and subalpine vegetation affected by fire in the Lake Mackenzie, February Plains and Lake Bill areas (Tasmanian Government 2016a). The most significant flora value fire-affected is pencil pine (*Athrotaxis cupressoides*). This species is an iconic example of Gondwanic legacy in the TWWHA, which contributes to the property's Outstanding Universal Value. It also contributes to the aesthetic importance of the alpine landscapes of the TWWHA, which is also part of the property's Outstanding Universal Value. It also contributes to the performance of the alpine landscapes of the TWWHA, which is also part of the property's Outstanding Universal Value. The recovery of cushion moorlands, various alpine heathlands and sedgelands, and alpine sphagnum peatlands will be dependent on the fire intensity and degree of organic soil loss (DPIPWE 2016b).

The accuracy of vegetation and fire scar mapping is limited and therefore area assessments of fire impacts on vegetation can only be approximate. Higher resolution imagery captured for the Mersey Valley and Walls of Jerusalem just before the summer fires enabled a vegetation revision mapping to better assess impacts of the 2016 fires (TASVEG LIVE, unpublished DPIPWE data as at 31 October 2016).

Of the areas in the TWWHA which were within the fire boundary of the Lake Mackenzie Complex fire identified in Figure 3, 1,547 ha<sup>12</sup> were listed as Threatened Native Vegetation Communities including<sup>13</sup>:

- highland Poa grassland (218 ha);
- highland grassy sedgeland (868 ha);
- pencil pine (Athrotaxis cupressoides) forest and woodlands (85 ha);
- sphagnum peatland (63 ha); and
- cushion moorlands (none mapped but distributed in small patches (111 ha))<sup>14</sup>.

Highland *Poa* grassland and highland grassy sedgeland are classed as moderately fire-tolerant, and the grass and sedge component usual recovers by re-sprouting. However, preliminary ground surveys by DPIPWE found localised areas (<0.1 hectare patches) of grassland in which the organic component of soils, including roots and seed banks, had been completely combusted.

Remaining organic and mineral soils will be exposed to erosional forces such as wind, water and frost heave until plant regrowth can occur. Where the soil has burnt, root systems and soil-stored seed are killed, so these areas will depend on seed dispersal from surrounding areas for their re-colonisation, which may be slow. Evidence of damage from an earlier fire to this vegetation type, at Lake Bill, demonstrated increased levels of bare ground and rock pavement after more than 30 years. It is likely that some areas affected in this fire will be visible as areas of active erosion for many decades (Tasmanian Government 2016a).

The 85 hectares of pencil pine woodland and forests within the fire boundary represents less than 0.5 per cent of the presently mapped extent of these communities. Preliminary field surveys undertaken by DPIPWE revealed fire impacts on some patches of this vegetation were severe, with only a small proportion of the pencil pine trees expected to survive the fire. Recovery of fire-killed stands is unlikely without active intervention. However, other topographically protected patches inside the fire boundary escaped with comparatively minor damage.

DPIPWE field surveys found that sphagnum peatlands, which are usually too wet to burn, had burnt with variable intensity, including broad areas of severe damage where moss was killed and underlying peat burnt to a significant depth. The potential for recovery without intervention is not yet clear but is likely to be small in severely damaged areas. Initial surveys found little evidence of live moss remaining in severely burnt areas. Also, sphagnum is sensitive to exposure to wind and ultraviolet radiation, and the peatland landform is susceptible to stream incision once moss is damaged. Surviving areas of moss are therefore at risk of further degradation.

DPIPWE field surveys also observed widespread occurrence of small areas of cushion moorland, not indicated in the TASVEG 3.0 mapping. These had often been severely impacted by fire. Resprouting had begun on some scorched cushions, but many have lost substantial amounts of organic soil from within the cushion heart and around the basal edge. The capacity of severely

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<sup>&</sup>lt;sup>12</sup> Estimate provided by DPIPWE's Parks and Wildlife Service.

<sup>&</sup>lt;sup>13</sup> Note that some pockets of vegetation within the fire boundary escaped burning due to topographic protection etc.

<sup>&</sup>lt;sup>14</sup> Estimates provided by DPIPWE's Natural and Cultural Heritage Division on 31 October 2016.

damaged cushions to survive post-fire exposure to frost, wind erosion and dehydration is not known.

The fires, and subsequent high rainfall events, have also impacted soil and geomorphology in the area, including significant impacts to geoconservation values including both organic and mineral soils, karst systems, fluvial systems and slopes. The organic soils and karst systems are recognised as part of the TWWHA's Outstanding Universal Value. Preliminary post-fire surveys observed that the surface organic matter had been combusted across most of the fire-affected region, exposing surface rhizomes and roots in some instances. More serious combustion of organic soils was much more locally restricted, with the most serious losses of organic soils observed from sphagnum peatlands and in some areas of alpine sedgeland. Although not investigated in the preliminary post-fire surveys, fires in organic soils in rainforest areas were an issue during fire suppression (Tasmanian Government 2016a).

A six-week camera-trap fauna survey of burnt and unburnt vegetation near Lake Mackenzie in May-June 2016 recorded 13 species of mammal including spotted-tailed quolls, eastern quolls, Tasmanian devils and platypus. More mammal species (six) were recorded more frequently in unburnt vegetation than in burnt vegetation. Only eastern quolls were recorded more frequently in burnt vegetation. As expected, small mammals such as native rodents and antechinuses were virtually absent in burnt vegetation; these species are expected to re-colonise as vegetation recovers.

# 7.2.3.2 Aboriginal Heritage Values

The Natural and Cultural Heritage Division's Aboriginal Heritage Tasmania branch have undertaken desktop assessments and field surveys of the impacts on Aboriginal heritage values of the 2016 bushfires. Fieldwork in the TWWHA has, up until November 2016, involved approximately two on-ground person days during a site visit to remote rockshelters located in intense burn regions within the Forth River Valley15.

The assessments of the impacts of the 2016 bushfires have indicated that threats to Aboriginal cultural heritage include exposure and increased accessibility as a result of loss of vegetation which increases the threat of destruction (unwitting or deliberate), vandalism or artefact collection. While Aboriginal Heritage Tasmania has provided timely desktop risk assessment advice for the intersect of Aboriginal heritage and burn areas within the TWWHA, potential impact from soil disturbance and destabilisation through vehicle access or heavy machinery involved in rehabilitation and recovery works has not been confirmed on the ground.

The assessments have provided a rare opportunity to reassess two existing Aboriginal Heritage Register (AHR) rockshelter sites within the TWWHA, update site records using current technology, and address immediate Aboriginal cultural protection and management issues in consultation with the Tasmania Parks and Wildlife Service and the Aboriginal community.

<sup>&</sup>lt;sup>15</sup> Natural and Cultural Heritage's Aboriginal Heritage Tasmania has advised that the 2016 bushfires also impacted on aboriginal cultural values outside the TWWHA, including values in the Arthur Pieman Conservation Area, the Sundown Point State Reserve and the Western Tasmania Aboriginal Cultural Landscape.

Aboriginal Heritage Tasmania is continuing to work with the Tasmania Parks and Wildlife Service and the Aboriginal community to undertake post-fire assessments of the impacts of the 2016 bushfires on Aboriginal heritage values.

#### 7.2.4 Rehabilitation actions

No rehabilitation works have been undertaken other than standard post-fire work relating to restoration of areas impacted by firefighting activities. Much of the area burned in the TWWHA falls within biomes that naturally burn and have a natural capacity to recover from a single fire. The exception to this is the alpine and subalpine areas burnt by the Lake Mackenzie Complex and Lake Bill fires, where a range of conservation values have suffered damage that is likely to be permanent. However, given the relatively small proportion of the State's alpine zone that was burnt, the fire did not significantly reduce the security of any of the damaged conservation values. In this context, rehabilitation is not necessarily a high priority. Also, the June 2016 floods fully absorbed DPIPWE's capacity to respond to environmental events. For these reasons, no rehabilitation of natural values was planned.

# 7.3 Areas for further work or research

### 7.3.1 Role of Bushfire Rapid Risk Assessment

The Bushfire Rapid Risk Assessment report commissioned for the Mersey Forest Fire Complex (Lake Mackenzie Complex and Lake Bill fires) seems to have been under-utilised for recovery planning. The concept of rapid assessment is recognised in the Tasmanian Emergency Management Plan and the subordinate State Special Emergency Management Plan Rapid Impact Assessment, where responsibility for bushfires is allocated to the fire agencies. Such assessments are now routine in other Australian jurisdictions.

There is a need to resolve for future fires in the TWWHA and other reserved areas, whether or not a rapid risk assessment will be commissioned. If so, there needs to be policy and protocols around implementation, actions, reporting and auditing. Amendments to the Tasmanian Emergency Management Plan and the State Special Emergency Management Plan Rapid Impact Assessment would ensure consistency and a supporting mandate. Examples of other doctrine that would be useful in revised State plans are: criteria for instigating a bushfire rapid risk assessment; the scale of the assessment required; the process for initiating an assessment; and how reports are delivered and used by Government.

#### 7.3.2 Ecosystem recoverability

Historically, alpine areas and rainforests of the TWWHA have rarely been dry enough to burn, and fires in these fire-sensitive ecosystems have been relatively infrequent, compared with more flammable habitats. As the climate warms and summers become drier in the TWWHA, fire frequency in these habitats may increase. Some communities have demonstrated a relatively high resilience to bushfires but, as the climate changes, this may change. Vegetation that currently recovers quickly from the impacts of fire may not recover as quickly as the climate changes.

To help prioritise fire suppression efforts in these fire-sensitive habitats, it is now important to understand the recoverability of these communities post-fire (Gilfedder et al. 2012). Given the

importance of natural values in these ecosystems, it is also important to understand in what situations rehabilitation actions can be used to mitigate against the impacts of bushfire when suppression efforts are unsuccessful (see section 7.3.3).

## 7.3.3 Trials of rehabilitation techniques

Rehabilitation of natural areas after fire takes two forms: the rehabilitation of areas impacted by firefighting activities; and the rehabilitation of natural values. This section considers the latter. Such rehabilitation is most likely to be needed in areas where a given fire is outside the desirable range of fire frequency or intensity. In such situations, fire can cause significant changes and the natural fire response will not result in recovery of the damaged conservation values.

A rehabilitation response would be justified where some or all of the following criteria are met:

- The fire has impacted the conservation status of a significant feature.
- There is potential for successful and cost-effective rehabilitation that will significantly improve outcomes for the feature.
- There are fire-initiated degradation processes operating that will cause further damage without intervention.
- There are important conservation values associated with the damaged feature that are now vulnerable.
- There are good social, political, or economic reasons to intervene.

Areas where active rehabilitation may be justified include: alpine areas where many conservation values are highly sensitive to fire, and recovery rates are slow; organic soil horizons burnt over large areas; and aeolian (wind-deposited) landforms that may be prone to erosion when vegetation is absent. Rehabilitation may also be justified where a highly vulnerable conservation value has been damaged, such as a threatened species or vegetation community. Rehabilitation in wet eucalypt forest or dry eucalypt forest is less likely to be justified from a conservation perspective, although it may have an economic benefit.

The Lake Mackenzie Complex fire highlighted that there is relatively little Tasmanian experience with rehabilitation of natural values after fire. At the Lake Mackenzie Alpine Fire Impacts Workshop (DPIPWE 2016b), it was clear that, although there is extensive experience with alpine rehabilitation following fire in Victoria, New South Wales and the Australian Capital Territory, these techniques have largely not been applied in Tasmania. One exception is the largely unsuccessful attempts that have been made to halt soil erosion on the eastern Central Plateau initiated by the 1960-1961 fire (Storey and Comfort 2007). The recommendation of the workshop was to undertake targeted research trials aimed to determine the effectiveness of post-fire rehabilitation methods (DPIPWE 2016b). There is a need to trial techniques in Tasmania that have been successful on the mainland, and to develop and trial techniques that could be used on values such as pencil pine (*Athrotaxis cupressoides*) that are peculiar to Tasmania.

In the alpine and subalpine zones, potential targets for rehabilitation trials include:

- burnt soils (to prevent ongoing sheet erosion);
- pencil pines (to facilitate regeneration of damaged stands);
- sphagnum (to facilitate rate and areal extent of recovery); and

• water flow control (to prevent incision in damaged wetlands).

Examples of rehabilitation techniques to be trialled include: constructing barriers to surface water movement; planting of seedlings and/or spreading seeds; feral animal control (eg rabbits (*Oryctolagus cuniculus*)); and fencing exclosures to prevent grazing from marsupials and introduced mammals.

It is likely that a more thorough review of post-fire rehabilitation needs beyond the alpine zone would identify additional targets for trials.

### 7.3.4 Fire, climate change and introduced animals

Climate change and fire interactions could possibly facilitate increased spread of introduced species. Fire has the potential to facilitate the movement of the following three species because the post-fire environment provides both food and ease of movement:

- Rabbits occur widely in the Central Plateau area of the TWWHA where they can impact on native vegetation and cause soil erosion, and this risk may be exacerbated under the warmer and drier conditions projected for this area. Rabbits have been observed at higher altitudes in the Victorian Alps under warmer and drier conditions.
- The risk posed by common starlings (*Sturnus vulgaris*) may increase under climate change, as this highly invasive species has the potential to spread into disturbed areas such as alpine and coastal habitats.
- Fallow deer (*Dama dama*) are currently thought to be constrained to the eastern edge of Central Plateau Conservation Area by climatic (altitudinal) factors, but there is the potential for expansion into the TWWHA under the projected warmer and drier climate of the Central Plateau.

There is a need to monitor the spread of introduced species such as rabbits, starlings and fallow deer in the TWWHA and determine causal factors, such as the interaction between climate change and fire.

# 7.3.5 Improved techniques to attain higher resolution of fire scar mapping

Accurate mapping of fire scars is a fundamental part of fire management that informs the following:

- determination of fuel characteristics (related to time since fire) that in turn contribute to calculating the rate of spread and intensity of future bushfires (for example in the BOHM);
- selection and scheduling of future planned burns;
- monitoring of fire regimes and ecosystem responses;
- reporting on bushfire impacts on natural and cultural values (eg extent of burnt vegetation communities and losses of fire-sensitive values);
- reporting on carbon emissions; and
- future fire research projects undertaken by various organisations including universities.

The mapping of fires is becoming increasingly sophisticated and accurate as technology develops. Fires are routinely mapped in the TWWHA by GPS from aircraft, while some larger fires are mapped from aerial images and remote sensing. Research is needed, however, to improve our capacity to use remote-sensing methods to identify and map fire boundaries. A particular problem in the TWWHA is the mapping of fire scars underneath the closed canopies of forest vegetation, particularly rainforest, because the burnt ground is difficult to detect using remote sensing.

# 7.4 Recommendations relating to recovery from fire in the TWWHA

### Recommendation 17 – Role of Bushfire Rapid Risk Assessment

The Tasmania Parks and Wildlife Service and other fire agencies should establish protocols for 'rapid assessment' of the impacts of major bushfires in the TWWHA and resourcing of immediate priorities for recovery action.

Rapid assessment techniques are used in many jurisdictions in Australia and overseas to provide an initial assessment of fire impacts and priorities for recovery and rehabilitation. While these 'rapid assessments' cannot replace long-term investigation and monitoring of fire impacts, they can be useful in prioritising recovery efforts and rationalising commitment of resources to recovery.

The efficacy and usefulness of rapid assessment techniques should subsequently be evaluated, and their implementation modified if required.

## Recommendation 18 – Ecosystem rehabilitation and restoration trials

The Tasmania Parks and Wildlife Service and DPIPWE should undertake trials of post-bushfire rehabilitation techniques (eg erosion control, tree planting, seed germination and seed banks), especially for vulnerable species, communities and other significant values in the TWWHA.

This work should be integrated into a broader research strategy for the TWWHA, and incorporated into the Adaptive Management framework contained in the TWWHA Management Plan.

# 8. CONCLUSIONS

Tasmania has well-developed fire management arrangements and procedures across the areas of bushfire prevention, preparedness, response and recovery for the Tasmanian Wilderness World Heritage Area (TWWHA).

Research undertaken through this Project has shown that the TWWHA is likely to experience increasing bushfire risk in the future as a result of a changing climate. This will have significant implications for managing and protecting the globally significant natural and cultural values of this iconic region.

Increased bushfire risk will place pressure on Tasmania's firefighting capability in coming years. Protecting the natural and cultural heritage values of the TWWHA will require actions that are beyond 'business as usual' and will require decisions and investments to be made on a whole-ofgovernment basis, including in human resources.

Specialised firefighting capabilities are an important asset in protecting the TWWHA's natural and cultural heritage. This specialised capability is key to effective initial attack, containment and suppression for fires in wilderness areas. Adequate capability, including remote firefighters and aircraft, needs to be based and available in Tasmania to ensure preparedness at short notice and rapid initial attack.

Maintaining a cooperative network of national firefighting resources and capabilities will become more critical in the future to ensure Tasmania can respond to significant bushfire seasons like that seen in 2016. However, interstate firefighting resources are also likely to be stretched due to longer fire seasons and the potential for future coincident extreme natural events as the climate changes.

It is important that the lessons learned from the 2016 bushfires, and the climate projections contained in this Report, are taken into consideration in preparing for a future where fire management in the TWWHA is more challenging.

This Report sets out recommendations that can be employed by Tasmania to prepare for, and respond to, the future bushfire threat in the TWWHA. The implementation of these recommendations is required to ensure that the outstanding universal values of the TWWHA are afforded, as far as practical, protection for the future.

Tasmanian firefighting agencies have shown a clear determination to learn from the 2016 bushfires and have already implemented a number of changes ahead of the 2016-17 bushfire season.

An ongoing program of scientific research and monitoring is vital to understanding the evolving relationship between climate change and the vulnerability to fire of natural and cultural values in the TWWHA.

# **GLOSSARY AND ACRONYMS**

ACE CRC	Antarctic Climate and Ecosystems Cooperative Research Centre
AIIMS	Australasian Inter-Service Incident Management System
AFAC	Australasian Fire and Emergency Service Authorities Council
вонм	Bushfire Operational Hazard Model – a computer-based mapping system developed by Tasmania Parks and Wildlife Service that assists in the preparedness and response to bushfires
BOM	Bureau of Meteorology
BRAM	Bushfire Risk Assessment Model
Bushfire	Unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires both with and without a suppression objective.
CFFDRS	Canadian Forest Fire Danger Rating System
Clade	A clade is a group of plants or animals that includes a common ancestor and all the descendants (living and extinct) of that ancestor
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Disseminule	A reproductive plant part, such as a seed, fruit, or spore, that is modified for dispersal
DPIPWE	Department of Primary Industries, Parks, Water and Environment
EPBC	Environment Protection and Biodiversity Conservation Act 1999
FAP	Fire Action Plan
FBP	Fire Behaviour Prediction
FEDOG	Fire Equipment Development Officers Group
Fire-dependent	Natural values that persist only in the presence of fire
Fire regime	The history of fire in a particular vegetation type or area including the frequency, intensity and season of burning. It may also include proposals for the use of fire in a given area.
Fire tolerant	Natural values that are likely to persist in the presence of fire, but may be eliminated if the bounds of tolerance are exceeded
Fire-sensitive	Natural values that will be significantly damaged by any fire. In some cases, the value may survive a single fire in damaged form, but is unlikely to persist after repeated fires.
Fire suppression	The activities connected with restricting the spread of a fire following its detection and before making it safe
Fjaeldmark	A plant community characteristic of sites where plant growth is severely restricted by extremes of cold and by exposure to wind, typical of alpine tundra and subantarctic environments. Found on mountains in Tasmania.
FWI	Fire Weather Index
ha	Hectares
FFDI	Forest Fire Danger Index

Geoheritage	Globally, nationally, statewide, to local features of geology such as its igneous, metamorphic, sedimentary, stratigraphic, structural, geochemical.
	mineralogic, palaentologic, geomorphic, pedalogic, and hydrologic attributes
	at all scales, that are intrinsically important sites or culturally important sites,
	that offer information or insights into the formation and evolution of the
	or reference
Ground fire	Fire that consumes the organic material beneath the surface litter ground,
	such as a peat fire
ICOMOS	International Council on Monuments and Sites
IMT	Incident Management Team
Initial attack	The first suppression work on a fire
IUCN	International Union for Conservation of Nature
MAC	Multi-Agency Coordination Group
Mire	An area of swampy, soggy or boggy ground
MSDI	Mount Soil Dryness Index
NAFC	National Aerial Firefighting Centre
NCH	Natural and Cultural Heritage Division (Department of Primary Industries, Parks, Water and Environment)
NERAG	National Emergency Risk Assessment Guidelines
Organic soil	Soils that contain significant organic material. In the context of the TWWHA, they have potential to burn if dry enough.
Palaeoendemic	A species that has been native to a region for a very long time (ie many millions of years)
PPRR	Prevention, Preparedness, Response and Recovery
PWS	Tasmania Parks and Wildlife Service
Scleromorphic	Firm and stiff leaves
SFMC	State Fire Management Council
SFOC	State Fire Operations Centre
SFPP	State Fire Protection Plan
SOI	Southern Oscillation Index
SOUV	Statement of Outstanding Universal Value
Surface fire	Fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation
TASVEG	The Digital Vegetation Map of Tasmania
TFRF	Tasmanian Fire Research Fund
TFS	Tasmania Fire Service
TWWHA	Tasmanian Wilderness World Heritage Area
UNESCO	United Nations Educational, Scientific and Cultural Organisation

# Attachment 1 – Summary of the major fires 13 January to 24 March 2016 in Tasmania

This summary is based on AFAC (2016a). The final fire sizes provided below have been updated with information provided by the Department of Primary Industries, Parks, Water and Environment and the Tasmania Fire Service.

#### The Wuthering Heights Fire Complex

The Wuthering Heights complex impacted approximately 21,400 ha. It includes the Stephens Rivulet fire first recorded on 20 January; the Julius River fire first recorded 20 January; the Rebecca Road/Rachael Creek fire first recorded on 14 January, together with the Temma backburn on 28 January and the Arthur River back-burn on 30 January.

#### The Pipeline Road - Mawbanna Fire

The Mawbanna Fire included the Pipeline Road, Rulla Road, Sumac Road and Gahnia Road Fires and eventually burnt around 61,990 ha. It was first recorded 14 January at 1024 hours and marked as under control on 16 March. On 17 March a 'Watch and Act' message was issued for this fire, as the southern western edge of the fire had run further to the west coast since 7 March.

#### **Griffiths Creek Fire**

The Griffiths Creek Fire (2,933 ha) was first recorded on 14 January at 1601 hours. No control action other than monitoring was undertaken on this fire due to the low risk attached to this fire.

#### **Maxwell River South Fire**

The Maxwell River South Fire (1,400 ha) first recorded 18 January at 2101 hours and marked as patrol at 14 March 2016.

#### The Mersey Forest Fire Complex

This complex includes the Lake Mackenzie complex fire which was first reported on 15 January and burnt approximately 24,700 ha, the Lake Bill fire (1,400 ha) which was first recorded on 16 January and the Dove River fire (56 ha) which was also first recorded on 16 January. The Lake Mackenzie complex fire incorporated five fires that joined to become one fire: the Patons Road fire (15 January), the Mersey Forest Road fire (15 January), Lake Mackenzie Road fire (19 January), Devils Gullet fire (19 January) and the February Plains fire (17 January).

#### Gordon River Road

The Gordon River Road Fire (4,200 ha) was first recorded on 17 January at 1809 hours and marked as patrol on 14 March 2016.



# **Attachment 2 – Location of the TWWHA**

Figure 8: Location of the TWWHA (DPIPWE 2014)

# Attachment 3 – Terms of Reference for the TWWHA Bushfire and Climate Change Research Project

## **Objectives and Outcomes**

#### Objectives

- To examine how climate change will affect future fire danger and other variables that may lead to an increased risk of bushfire, and its impacts on the TWWHA.
- To provide recommendations on the most appropriate methods for monitoring and recording vegetation dryness levels within the TWWHA.
- To examine firefighting techniques, interventions and resources that can be safely and effectively employed by the Tasmania Parks and Wildlife Service and the Tasmania Fire Service to prepare for, and respond to, bushfires in the TWWHA, including the most appropriate methods to extinguish fire within the alpine areas.

#### Outcomes

- Improved understanding of how climate change will impact on bushfire risk in the TWWHA.
- Improved ability to prepare for, and respond to, bushfires in the TWWHA.

#### Outputs

#### Stage 1

#### Stage 1a – Interim report

The interim report will consider and review information that is currently available. It will include:

- a summary of research examining how future fire danger and other variables will impact on Tasmania's future bushfire risk in a changing climate;
- a summary of what is known of the impacts of climate change, particularly future fire danger and other variables, that may lead to an increased bushfire risk, in the TWWHA;
- a summary of the current approaches taken by the Tasmania Parks and Wildlife Service and the Tasmania Fire Service to respond to fires in the TWWHA, including identification of firefighting techniques, interventions and resources that are being utilised;
- based on currently available information, identification of fire-sensitive natural and cultural assets of significance in the TWWHA so that priorities for bushfire protection can be established for them; and
- a summary of relevant research and inquiries regarding the Tasmanian Government's response to the bushfires in the TWWHA that are currently underway.

The interim report is to be completed and made available to relevant agencies by the end of July 2016.

Stage 1b – Gap analysis and sub-projects to be undertaken to address identified gaps

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A gap analysis will identify areas for additional research, gaps in current approaches and additional resources and tools that are required. The gap analysis will be undertaken in parallel with the interim report so that sub-projects can commence to address the identified gaps as soon as possible.

Sub-projects to address the identified gaps will be contracted out to appropriate organisations.

### Stage 2 – Final report

The final report will:

- summarise the work undertaken in Stage 1 and provide practical information and tools for the Tasmania Parks and Wildlife Service and the Tasmania Fire Service for the management of bushfires in the TWWHA; and
- provide recommendations to the Tasmanian and Australian governments regarding future management of bushfire threat in the TWWHA.

The final report is to be provided to the Tasmanian Government by the first week in December 2016 with the intention that it could be publicly released by the end of the year.

### Governance

#### **Steering Committee**

The Steering Committee will comprise:

- Dr Tony Press, Adjunct Professor Antarctic Climate and Ecosystems Cooperative Research Centre and Institute for Marine and Antarctic Studies (Chair).
- Mr Greg Johannes, Secretary of Department of Premier and Cabinet (DPAC).
- Dr John Whittington, Secretary of DPIPWE.
- Commissioner Darren Hine, Secretary of Department of Police, Fire and Emergency Management (DPFEM).

Should the Australian Government choose to contribute to the project, a representative will be invited to join the Steering Committee.

Roles and functions

- Provide direction and general guidance to the Secretariat.
- Facilitate access to Agency resources.
- Consider input from the Technical Working Group.
- Ensure that the project achieves its objectives and that the project's outputs are delivered.

Frequency of meetings

- The Committee will meet as frequently as required but not less than four times during the contract period. Matters may also be addressed out-of-session by email or telephone.
- Minutes will be kept and maintained by the Secretariat and will be distributed to Committee members.

### Secretariat

The DPAC Tasmanian Climate Change Office (TCCO) will provide the Secretariat for the project.

The Secretariat will be responsible for:

- establishing and managing contracts with Dr Tony Press and contracts with other organisations that may be established as part of the project;
- providing assistance as required to the Steering Committee; and
- coordinating meetings with, and input from, the Technical Working Group.

## **Technical Working Group**

A Technical Working Group will be established with representation from DPIPWE, DPFEM and DPAC.

The Technical Working Group will provide advice and input to assist with achieving the project's objectives and outputs.

The Secretariat will chair meetings of the Technical Working Group.

## Budget

The total project funding is \$250,000 (exclusive of GST). Agencies will provide in-kind support to the project. The Tasmanian Government has invited the Australian Government to contribute to the project. The TCCO will manage these funds and monitor and report additional in-kind support. Project funds will be used to engage Dr Press and to establish sub-projects to address gaps identified in Stage 1 of the project.

# **Attachment 4 – Tasmania's fire management arrangements**

Tasmania's bushfire management is governed primarily by the Tasmanian *Emergency Management Act 2006* and the *Fire Service Act 1979*. The relevant elements of the framework are described in the subsequent sections of this attachment.

The Tasmania Parks and Wildlife Service is a member of the State Fire Management Council and is therefore a signatory to the State Vegetation Fire Management Policy 2012 (currently under review). It also has representation on all Fire Management Area Committees.

The Tasmania Parks and Wildlife Service has representation on the Multi-Agency Coordination Group (MAC) and it appoints Incident Management Teams for Level 1 and Level 2 fires on reserved land. Level 3 Incident Management Team positions are appointed by the Tasmania Fire Service Chief Officer based on recommendations from the MAC. The Tasmania Parks and Wildlife Service is usually represented at the State Fire Operations Centre (SFOC) and Level 3 IMTs.

# **Emergency Management**

#### **Emergency Management Act 2006**

The Tasmanian *Emergency Management Act 2006* is the primary piece of legislation underpinning emergency management in Tasmania, including bushfire emergency events.

This legislation provides for a three-tiered approach under which emergency management committees are established at State, regional and municipal levels. The primary functions of committees at each level are essentially the same, namely to institute, coordinate, and support emergency management in Tasmania, including the preparation and review of the Tasmanian Emergency Management Plan (TEMP) and Special Emergency Management Plans. These policy and planning committees are not operational.

#### State Emergency Management Committee (SEMC)

Tasmania's State Emergency Management Committee (SEMC) is a policy and planning committee. SEMC membership includes:

- State Controller (either appointed by the Minister or a default position to the Police Commissioner the current arrangement)
- Secretary, DPAC
- Secretary, Department of Health and Human Services (DHHS)
- Co-Chairs, State Emergency Management Advisory Group (SEMAG)
- Chief Officer, Tasmania Fire Service
- Chief Executive Officer, Ambulance Tasmania
- SEMC Executive Officer

SEMC is convened by the State Controller when the scope and resourcing of Tasmanian Government activity requires high level, interdepartmental coordination to provide whole-ofgovernment advice to the Tasmanian Government. The role is one of coordination; it does not extend to managing the deployment of resources or other activities carried out by operational agencies. Operational command responsibilities remain with the relevant management authority.

## Tasmanian Emergency Management Plan

The Tasmanian Emergency Management Plan (TEMP), established under the *Emergency Management Act 2006*, is the overarching framework to assist emergency services and emergency management partners to prepare for, respond to, and recover from emergency events.

The TEMP specifies the hazards (including fire) that the Tasmania Fire Service and other agencies are responsible for and outlines the arrangements for prevention and mitigation, preparedness, response and recovery. The TEMP recognises that the Tasmania Parks and Wildlife Service and Forestry Tasmania have responsibility for the administration and management of fire and fire control measures within the land tenures for which those agencies have management responsibility.

The TEMP also articulates how the components of Tasmanian emergency management work together under a single, comprehensive and flexible framework.

The TEMP sits in the background and is not actively used for most fire preparedness, response and recovery activities undertaken in the TWWHA.

# Fire management

### Fire Service Act 1979

For the purposes of the *Fire Service Act 1979,* the Tasmania Parks and Wildlife Service is a landowner and is therefore required to take reasonable measures to prevent fires leaving those lands that are managed by the Tasmania Parks and Wildlife Service.

## State Fire Management Council

The State Fire Management Council (SFMC) is established under the Fire Service Act 1979 to:

- develop a State vegetation fire management policy to be used as the basis for all fire management planning;
- advise and report regularly to the Minister (responsible for police and emergency management) on matters relating to the administration of the Act, as it applies to vegetation fire management;
- provide advice to the State Fire Commission regarding the prevention and mitigation of vegetation fires;
- perform such other functions relating to the prevention or mitigation of vegetation fires as the Minister may direct;
- establish a Fire Management Area Committee for each fire management area of Tasmania, to coordinate fire management activities within the defined fire management area; and
- consider and approve (with or without modifications) annual Regional Fire Protection Plans for each fire management area.

The SFMC is made up of the major land managers within the State along with government agencies responsible for the management of bushfires in Tasmania.

## Fire Management Area Committees

There are 10 Fire Management Area Committees established for the State. The principal aim of the Committees is to bring together the various stakeholders that manage land use across the State, to work together to effectively manage vegetation fuels for the mitigation of bushfires.

Each Committee is required to prepare a Fire Protection Plan for their Fire Management Area in accordance with the *Fire Service Act 1979*. The Plans describe the prevention and preparation arrangements to mitigate bushfire risks within the fire management area.

### State Fire Protection Plan

The purpose of the State Fire Protection Plan (SFPP), which is made under the *Fire Service Act 1979*, is to ensure that effective fire and emergency prevention and protection measures are provided throughout Tasmania. This SFPP sets the framework for these measures to be implemented by the Tasmania Fire Service, and other relevant agencies identified.

The SFPP is maintained by the Tasmania Fire Service on behalf of the State Emergency Management Committee (SEMC).

In implementing the SFPP, agencies focus on the protection of life, property and the environment from fire and other emergencies by developing appropriate prevention, preparedness, response and recovery strategies.

The Tasmania Parks and Wildlife Service provide input to the development of the SFPP but it is not influential in the day-to-day fire management of the TWWHA and sits very much in the background.

## State Bushfire Safety Policy

The State Bushfire Safety Policy is a high-level management policy providing guidance to Government, agencies and other stakeholders in the development of strategic policies and plans to:

- recognise the shared responsibility for bushfire safety between the State Government, local governments, emergency and land management agencies, communities and individuals;
- increase community knowledge of and preparedness for bushfire risk, thereby informing the development of action plans to address such risk;
- support and improve local bushfire safety planning that tailors management of risk to the needs of the individual community; and
- ensure a safe response to bushfires by households and individuals in identifying bushfire safety options to maximise the likelihood of survival.

The Policy is developed, implemented and reviewed by the Chief Officer of the Tasmania Fire Service, in consultation with others. The Chief Officer is required to review and evaluate the Policy after each bushfire season.

# **Responsible agencies**

#### Tasmania Parks and Wildlife Service

The Tasmania Parks and Wildlife Service is the land manager of the TWWHA. It is responsible for managing [the impacts of] bushfire through a combination of activities and is the lead fire agency for the TWWHA. These include mitigation activities, such as fuel reduction burning, and responding to bushfires in the TWWHA.

Subsection 30(3)(ca) of the Tasmanian *National Parks and Reserves Management Act 2002* gives authority to the Tasmania Parks and Wildlife Service to 'take any steps or undertake any activities that the managing authority considers necessary or expedient for the purposes of preventing, managing or controlling fire in reserved land'.

As an occupier of land, the Tasmania Parks and Wildlife Service is also obligated under section 64 of the *Fire Service Act 1979* to take diligent steps to extinguish fire or prevent it from spreading and to report the fire.

In addition to this obligation, the Tasmania Parks and Wildlife Service has numerous legislative responsibilities influencing its activities and fire management priorities:

- Tasmanian National Parks and Reserves Management Act 2002
- Environmental Management and Pollution Control Act 1994
- Commonwealth Environmental Protection and Biodiversity Conservation Act 1999
- Forest Practices Act 1985
- Aboriginal Relics Act 1975
- Nature Conservation Act 2002
- Threatened Species Protection Act 1995

The Tasmania Parks and Wildlife Service develops and maintains Regional Strategic Fire Management Plans for Northern, North Western and Southern Tasmania. A key objective of these plans is to develop a strategic and consistent approach to fire management planning that addresses the bushfire risk to land managed by the Tasmania Parks and Wildlife Service.

#### Tasmania Fire Service

The Tasmania Fire Service and the State Fire Commission (the Commission) are established under sections 6 and 7 of the *Fire Service Act 1979*.

The Commission is responsible for the formulation of fire service policy, the coordination and development of all fire services throughout the State, the development of effective fire prevention and protection measures and the development and promulgation of the SFPP.

The Tasmania Fire Service is the operational arm of the Commission and plays a central role in emergency management arrangements, particularly when and if a bushfire poses an imminent threat to human settlements or infrastructure primarily on private property. This arrangement is supported by formal documentation and procedures that provide the basis for response arrangements.

The Tasmania Fire Service supports and works closely with the Tasmania Parks and Wildlife Service in fire management in the TWWHA but does not take a direct operational role for

response in the TWWHA, except when very large fires occur, fire threatens human settlements, or the fire operational capacity of the Tasmania Parks and Wildlife Service is exceeded. The Tasmania Fire Service has a collaborative role in terms of preparedness and may have a support role in recovery for some bushfires in the TWWHA.

#### Forestry Tasmania

Forestry Tasmania is a Tasmanian Government business enterprise responsible for sustainably managing approximately 800,000 hectares of public production forest (Permanent Timber Production Zone land).

Forestry Tasmania manages its land consistent with its obligations under the *Forest Management Act 2013,* with fire management being one of its core activities.

As an occupier of land, Forestry Tasmania is obligated under the *Fire Service Act 1979* to take such diligent steps as necessary, during the fire permit period, to extinguish or prevent any fires burning on that land from spreading and to report the fire. Forestry Tasmania has fire management responsibility for significant tracts of public land neighbouring the TWWHA and therefore has considerable interest in preventing bushfires entering the TWWHA, and in turn expects the Tasmania Parks and Wildlife Service to (where possible) prevent fires from leaving the TWWHA. Forestry Tasmania and the Tasmania Parks and Wildlife Service work closely together on fire operations, providing mutual support.

#### Tasmania's multi-agency firefighting arrangements

A significant feature of managing bushfires in Tasmania is the Interagency Fire Management Protocol (the Protocol) between the Tasmania Fire Service, the Tasmania Parks and Wildlife Service and Forestry Tasmania. A strong spirit of cooperation exists between the three fire agencies, underpinned by the Protocol, and the agencies work closely together. The agencies recognise that this close relationship and mutual support is essential for a small state with limited firefighting resources.

The Protocol does, however, set out the responsibility for responding to any fire and arrangements for jointly dealing with fires, regardless of land tenure. Under the Protocol, the agencies are responsible as follows:

- Tasmania Fire Service: is responsible for all structural fire suppression statewide, and for fire suppression on all private lands, unallocated Crown land and in Wellington Park. Where bushfires occur under conditions and in situations where there is an imminent risk to, or actual impact upon structures and communities, the Tasmania Fire Service shall direct the response to those fires where practical.
- Tasmania Parks and Wildlife Service: for management and suppression of fire on land reserved under the *Crown Lands Act 1976* and the *Nature Conservation Act 2002*.
- Forestry Tasmania: for management and suppression of fire in State forest, or since 2013, known as Permanent Timber Production Zone land.

That said, the guiding principle is that the most able firefighting crew of any agency will respond immediately to any fire as a priority, regardless of the land tenure involved. This is consistent with

the approach taken during the 2015-2016 bushfires in the TWWHA, with the Tasmania Fire Service responding due to the large number of fires and associated threat to key infrastructure.

Under the Protocol, the Tasmania Fire Service has responsibility for the issuing of all declarations and warnings. All Incident Controllers, regardless of agency, incident tenure or complexity, are responsible for the authorisation of, and the request to release, warnings.

The Protocol also includes an agreement between the Tasmania Fire Service, the Tasmania Parks and Wildlife Service and Forestry Tasmania to coordinate the management of responses to level 3 incidents (a large bushfire carrying high risk that involves many resources and interagency operations).

When a level 3 incident occurs, a Multi-Agency Coordinating group (MAC) recommends to the Chief Officer of the Tasmania Fire Service that an Incident Management Team is established. These teams often consist of personnel from all three agencies.

The Protocol arrangements described above are not directly underpinned by legislation but have been consistently implemented for many years.

Multi-agency arrangements are also supported by a range of MAC-agreed Statements of Procedures. These include an agreement that there will be interoperability between agencies in terms of systems, terminology, training, skills, roles and functions.

Under the *Emergency Management Act 2006*, the State Fire Controller assumed overall responsibility for the management of the 2015-2016 bushfires, including those that impacted on the TWWHA. The State Fire Controller is the Chief Officer of the Tasmania Fire Service, and from time to time the Chief Officer delegated the responsibility to the Deputy Chief Officer. The decision was made to appoint the Deputy Chief Officer to the position of State Fire Controller in the days leading up to the first lightning strike events, and to stand up the State Fire Control Centre as per established trigger points for fire preparedness and response, due to the forecast weather conditions and dryness of fuels statewide.

Given the extensive resources required to manage the number of fires in the landscape, the State Fire Operations Centre and Incident Management Teams all consisted of a variety of agency representatives from within Tasmania, interstate and overseas. Tasmania Parks and Wildlife Service staff were actively engaged in key management roles and as liaison officers throughout the emergency, and in particular to coordinate the response on reserved land and in the TWWHA.

# Interjurisdictional support arrangements

The Tasmania Parks and Wildlife Service is signatory to an Arrangement between member agencies of the Forest Fire Management Group, which includes similar fire and land management agencies across Australia and New Zealand. The purposes of this Arrangement are to:

- provide continuous improvement in the management of fire within forests and on rangelands in Australia and New Zealand;
- recognise that strong working relationships, goodwill and cooperation across organisational and interstate boundaries are critical to this process;

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- promote and facilitate the exchange of bushfire management resources between the agencies; and
- provide for mutual support and aid during the fire management activities and emergency management activities.

Separately, the Tasmania Fire Service has interjurisdictional arrangements that can be called upon in times of need. The Arrangements for Interstate Assistance (AIA) provide for the timely and meaningful exchange of capability between states and territories during significant incidents.

Using these cooperative arrangements, Tasmania was able to deploy over 1,000 firefighters from other states and territories and New Zealand in response to the 2015-2016 bushfires.

Assistance from other jurisdictions is likely to be used again in the future to assist with managing significant bushfire events in the TWWHA. However, this assistance will never be on hand in time to provide adequate initial attack for the rapid containment of lightning ignitions – a strategy that is so important for protecting the fire-sensitive natural values of the TWWHA.

# Other national arrangements

The National Aerial Firefighting Centre (NAFC) provides a cooperative national arrangement for combatting bushfires by facilitating and coordinating the procurement of specialised firefighting aircraft to complement local aerial and ground based firefighting resources. Tasmania used this service during the 2015-16 bushfire season; it includes Federal funds that partially support aircraft contract costs.

The Natural Disaster Relief and Recovery Arrangements provide a safety net for jurisdictions affected by natural disasters that require a coordinated and multi-agency and community response. It is expected that Tasmania will submit a claim for the 2015-16 bushfires.

The Australian Government Disaster Response Plan outlines coordination arrangements for the provision of non-financial assistance from the Australian Government. Tasmania received assistance from the Australian Defence Force during the 2015-16 bushfires through this arrangement for the overall bushfire response. The assistance received was the use of a Royal Australian Air Force Boeing C17 to transport a mobile base camp from New South Wales to Tasmania for use at Stanley in North-West Tasmania.

# Attachment 5 – Legislation

- Tasmanian Aboriginal Relics Act 1975
- Tasmanian Crown Lands Act 1976
- Tasmanian *Emergency Management Act 2006*
- Tasmanian Environmental Management and Pollution Control Act 1994
- Tasmanian Fire Service Act 1979
- Tasmanian Forest Management Act 2013
- Tasmanian Forest Practices Act 1985
- Tasmanian National Parks and Reserves Management Act 2002
- Tasmanian Nature Conservation Act 2002
- Tasmanian Threatened Species Protection Act 1995
- Commonwealth Environment Protection and Biodiversity Conservation Act 1999



# Attachment 6 – Summarised land tenure for the TWWHA and surrounding areas

#### Figure 9: Summarised land tenure for the TWWHA and surrounding areas

(Source: information provided by the Department of Primary Industries, Parks, Water and Environment and map prepared by the Tasmania Parks and Wildlife Service)

# Attachment 7 – Natural and cultural values of the TWWHA

# Description of the values in the TWWHA

The following information has been drawn from the TWWHA Management Plan 2016 (DPIPWE 2016a), with additional commentary provided by the Department of Primary Industries, Parks, Water and Environment's Natural and Cultural Heritage Division. It is a not an assessment of values against World Heritage criteria, or intended to be a statement of local, State, national or Commonwealth heritage values in the TWWHA.

Fire-sensitive natural and cultural assets of significance in the TWWHA are a sub-set of these values (see sections 2.4 and 2.5.2).

#### Geodiversity

The TWWHA's complex and unusually complete geological history stretches back 1,300 million years, but also includes 3,000 million-year-old fragments of re-deposited rock, and is a valuable record of the earth's evolutionary history.

Geological features include two kilometre thick sequences of limestone that have extensive karst and glacio-karst landforms. Caves in karst areas contain fossil and sub-fossil deposits of extinct species including marsupial mega fauna and the thylacine.

The TWWHA contains both fossil and living evidence of the previous existence of the supercontinent Gondwana and the breakup that began about 180 million years ago. The TWWHA is also known for large intrusions of Jurassic dolerite that are not found elsewhere in Australia. These date from the breakup of Gondwana.

The TWWHA contains glacial legacies from three major periods that stretch, in total, over 850 million years. The most recent of these created the nation's most extensive glacial landscapes and include Cradle Mountain, Frenchmans Cap and the Arthur Ranges. Frenchmans Cap and a few other alpine areas in the TWWHA are now some of only a handful of areas in Australia where periglacial processes are still active.

The TWWHA has the longest undisturbed stretches of temperate, high-energy rocky and sandy coastline in South-Eastern Australia. There is a significant diversity of beach barrier (dune) systems, including bay head and river mouth, cliff-top, parallel and transgressive dunes. The oldest inter-glacial Pleistocene dunes and sand sheets in the TWWHA date back 125,000 years.

The TWWHA includes broad areas of organic soils in the blanket bogs associated with the buttongrass plains. The ongoing formation of these soils has created one of the largest organic terrains in the Southern Hemisphere. This is an important part of the characteristic TWWHA landscape of vast open plains.

Many of Australia's wild and natural rivers are located in the TWWHA, including entire catchments of the Franklin, Jane, Denison, Giblin, New, Davey and Old Rivers, where important natural processes continue to occur. These are seven of a limited number of Australian examples

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where the whole basin is protected. The TWWHA also contains Australia's deepest lake, Lake St Clair, which was formed by various glaciations over the past two million years.

#### Flora

There are globally outstanding examples of natural ecological processes that are relatively undisturbed. There is an important array of Tasmanian endemic species, including many plants and animals descended from the biota of Gondwana and some of the longest-lived trees and shrubs in the world, such as the stands of King's lomatia estimated to be at least 43,000 years old.

The TWWHA comprises a large percentage of the remaining extensive, high quality, temperate wilderness in Australia, and is one of only a few such regions in the world. This feature provides a context of integrity within which the other recognised values are presented, maintained and protected. Overall management of the integrity and quality of wilderness values is recognised as an important aspect of contemporary fire management within the TWWHA.

The TWWHA is home to a profusion of threatened, rare, primitive and endemic plants. Among the most iconic of these are the palaeo-endemic conifers, which include Huon pine (*Lagarostrobos franklinii*), King Billy pine (*Athrotaxis selaginoides*) and pencil pine (*Athrotaxis cupressoides*). These three species are extraordinarily long-lived and slow-growing species, with Huon pine reported to reach ages of 3,462 years (Carder 1994).

Within the property are extensive undisturbed stands of the world's tallest flowering plant and other giant hardwood tree species. The Styx River Valley area has the highest concentration of registered 'giant trees' in Tasmania, with many trees over 90 metres tall and some close to 100 metres. Other important areas for giant trees include the *Eucalyptus delegatensis* forests of the Beech Creek and Council Creek areas near Wayatinah and the *E. obliqua* forests of the lower Weld and lower Huon River catchments.

The TWWHA also includes a complex mosaic of vegetation, including buttongrass moorland, temperate rainforest, alpine communities, eucalypt forest and riparian communities. The buttongrass moorlands and sphagnum peatland are among the vegetation communities developed over bogs that are key parts of one of the most extensive organic soil terrains in the Southern Hemisphere. A table outlining the vegetation groups by area in the TWWHA is provided in Table 6.

Vegetation group	Area in TWWHA (ha)	Percentage of TWWHA	Percentage of total vegetation type
Moorland, sedgeland, rushland and peatland	365,900	23	61
Wet eucalypt forest and woodland	362,900	23	33
Rainforest and related scrub	326,390	21	46
Dry eucalypt forest woodland	162,540	10	10
Scrub, heathland and coastal complexes	140,050	9	27
Highland treeless vegetation	76,410	5	71
Other natural environments	67,360	4	27

#### Table 6: Vegetation groups by area in the TWWHA

Vegetation group	Area in TWWHA (ha)	Percentage of TWWHA	Percentage of total vegetation type
Non-eucalypt forest and woodland	53,840	3	25
Native grassland	15,550	1	11
Agricultural, urban and exotic			
vegetation	1,610	0	0
Saltmarsh and wetland	230	0	1
		100	

(DPIPWE 2013) Data source: TASVEG 3.0, TVMMP 2013

The TWWHA's temperate alpine ecosystem is among the most diverse in the world, with about 70 per cent of the flora endemic to Tasmania (Balmer et al. 2004). Most of Tasmania's alpine area is contained within the TWWHA. The TWWHA also contains about 20 per cent of Tasmania's rainforest and about 240 of the 320 Tasmanian endemic higher plant species, of which about half have most of their distribution within the TWWHA (Balmer et al. 2004). The TWWHA rainforests and alpine areas are a stronghold for many of Tasmania's palaeo-endemic taxa, plants which have phylogenies dating back more than 19 million years; the genus *Athrotaxis* is estimated to date back the furthest (150 million years) (Jordan et al. 2015). These species are typically highly sensitive to fire.

Twenty-three vegetation communities occurring in the TWWHA are listed as threatened under Schedule 3A of the *Nature Conservation Act 2002*. This includes several coniferous communities, alkaline pans, wetlands, seabird rookery complex, highland grasslands and cushion moorlands (Table 7). The TWWHA also contains two nationally listed threatened communities, the alpine sphagnum bogs (and their associated ferns) and lowland grasslands.

Schedule name	Area in TWWHA <sup>16</sup>	Percentage of TWWHA	Percentage of threatened community extent	Fire sensitivity <sup>17</sup>
Alkaline pans	513	0.03	98	Low
Athrotaxis cupressoides open woodland	16,269	1.03	100	Extreme
Athrotaxis cupressoides rainforest	3,514	0.22	98	Extreme
Athrotaxis cupressoides/Nothofagus gunnii short rainforest	4,257	0.27	95	Extreme
Athrotaxis selaginoides rainforest	10,565	0.67	55	Extreme
Athrotaxis selaginoides subalpine scrub	5,768	0.36	92	Extreme
Athrotaxis selaginoides/Nothofagus gunnii short rainforest	855	0.05	26	Extreme
Banksia marginata wet scrub	2,601	0.16	99	Moderate

Table 7: List of threatened vegetation communities occurring in the TWWHA

<sup>&</sup>lt;sup>16</sup> On advice from the Tasmania Parks and Wildlife Service, these are estimates only. The recent assessment of the impact of the Lake Mackenzie fire has indicated that statistics of vegetation communities are at best estimates.

<sup>&</sup>lt;sup>17</sup> Fire sensitivity categories based on Pyrke and Marsden-Smedley (2005).

Schedule name	Area in TWWHA <sup>16</sup>	Percentage of TWWHA	Percentage of threatened community	Fire sensitivity <sup>17</sup>
			extent	
Cushion moorland	3,020	0.19	95	Very High
Eucalyptus amygdalina forest and				Low
woodland on sandstone	319	0.02	1	
Eucalyptus brookeriana wet forest	724	0.05	10	High
Eucalyptus ovata forest and				Low
woodland	304	0.02	2	
Eucalyptus tenuiramis forest and				Low
woodland on sediments	75	0.00	0	
Eucalyptus viminalis wet forest	70	0.00	1	Low
Highland grassy sedgeland	8,214	0.52	44	Moderate
Highland Poa grassland	15,200	0.96	58	Moderate
Rainforest fernland	328	0.02	19	High
Seabird rookery complex	58	0.00	8	Very High
Sphagnum peatland	2,740	0.17	79	High
Spray zone coastal complex	0	0.00	0	Low
Subalpine Diplarrena latifolia				Moderate
rushland	164	0.01	13	
Subalpine Leptospermum nitidum				Moderate
woodland	3,606	0.23	96	
Wetlands	232	0.01	1	Low

(Data source: Threatened Native Vegetation Community Layer (TVMMP 2014).)

## Fauna

The TWWHA is of immense importance to native species as an undisturbed natural ecosystem where biological, ecological and evolutionary processes can occur largely free from interference by humans.

Many types of fauna in the TWWHA are closely related to species found in other land masses that were once part of Gondwana. This includes the mountain shrimp, the Tasmanian cave spider and a number of other unique species of invertebrates within the following invertebrate groups: caddisflies, dragonflies, stoneflies and isopods.

The TWWHA is a refuge, and a stronghold, for a wide range of rare and threatened species, including carnivorous marsupials such as the Tasmanian devil, the spotted-tailed quoll and the eastern quoll. Other rare and threatened species found in the TWWHA include the Lake Pedder galaxias, Pedra Branca skink and the orange-bellied parrot. The TWWHA is a stronghold for species that are threatened or now extinct on the Australian mainland, such as the ground parrot and swamp antechinus.

The TWWHA is home to two surviving species of monotreme, the most primitive mammal group in the world, the platypus and the short-beaked echidna.

There are significant breeding populations of seabirds on remote islands off the South-West Coast. They include two of only three breeding colonies of the threatened and endemic shy albatross. There are approximately five million other seabirds, dominated in number by short-

tailed shearwaters and fairy prions (DPIPWE 2016a). The islands are also important breeding sites for little penguins and two threatened species of seal.

Approximately 25 per cent of Tasmania's lakes, tarns, lagoons and wetlands are in the TWWHA. Such areas have a high degree of invertebrate endemism and several endemic, rare and threatened freshwater fish. The waters of Port Davey and Bathurst Harbour contain a globally unusual assemblage of marine invertebrates.

## Aboriginal people in the TWWHA

Aboriginal people consider the entire TWWHA landscape to be an expression of Aboriginal culture. The TWWHA is an Aboriginal landscape within which are stories, plants, animal and mineral resources, and heritage sites that connect the people with their ancestors, the Old people and the land. The cultural value of the TWWHA is therefore not limited to tangible Aboriginal cultural sites that have been identified. It is also important to recognise that the Aboriginal perception of values, in many situations, does not divide natural from cultural values; for example plants and animals are of cultural value to the Aboriginal community.

#### List of World Heritage values for the TWWHA

This list is based on the 1981 and 1989 nominations for the Tasmanian Wilderness World Heritage Area, assessments by the advisory bodies to the World Heritage Committee (IUCN and ICOMOS) and reports to the World Heritage Expert Panel. The Australian Government's Department of the Environment and Energy is updating this list to include the values in the areas added to the property in 2010, 2012 and 2013 that contribute to the property's Outstanding Universal Value under each criterion.

#### **Natural values**

# World Heritage Criterion (viii) – Outstanding examples representing the major stages of the earth's evolutionary history

The Tasmanian Wilderness is an outstanding example representing major stages of the earth's evolutionary history. The World Heritage values include:

- geological, geomorphological and physiographic features, including:
  - $\circ$  ~ rock formations including Precambrian rocks and Cambrian rocks;
  - Late Cambrian to Early Ordovician sequences of the Denison Range;
  - fossiliferous Ordovician limestone;
  - o Permian-Triassic sediments and associated Jurassic dolerite intrusions;
  - Darwin Crater and Lake Edgar fault;
  - karst systems including glacio-karstic features;
  - karst geomorphology and karst hydrology;
  - glaciation, including glacial deposits of the Late Cainozoic, Permo-Carboniferous and Precambrian;
  - extraglacial areas (eg solifluction sheets, block streams, rock glaciers, landslip deposits);
  - periglaciation (eg Mt Rufus, Frenchmans Cap);

- o soils (eg peatlands); and
- o undisturbed river systems which show particular geomorphological processes;
- relict biota which show links to ancient Gondwanan biota including:
  - endemic conifers (including the King Billy pine Athrotaxis selaginoides, the Huon pine Lagarostrobos franklinii and the genera Diselma, Microcachrys, Microstrobos);
  - o plant species in the families Cunoniaceae, Escalloniaceae and Winteraceae;
  - o the plant genera Bellendena, Agastachys and Cenarrhenes in the Proteaceae;
  - other plant genera with Gondwanan links (eg Eucryphia, Orites, Lomatia and Nothofagus);
  - monotremes (eg platypus Ornithorhynchus anatinus, short beaked echidna Tachyglossus aculeatus);
  - dasyurid species;
  - o parrots (eg orange-bellied parrot and the ground parrot);
  - indigenous families of frogs with Gondwanan origins (eg Tasmanian froglet Ranidella tasmaniensis, brown froglet Ranidella signifera, Tasmanian tree frog Litoria burrowsi, brown tree frog Litoria ewingi);
  - o invertebrate species in the genera Euperipatoides and Ooperipatellus;
  - the Tasmanian cave spider (*Hickmania troglodytes*);
  - aquatic insect groups with close affinities to groups found in South America, New Zealand and Southern Africa (eg dragonflies, chironomid midges, stoneflies, mayflies and caddisflies);
  - o crustaceans (eg Anaspidacea, Parastacidae, Phreatoicidae);
  - primitive taxa showing links to fauna more ancient than Gondwana (eg Anaspids, *Trogloneta* (a mysmenid spider), species of alpine moths in the subfamily Archiearinae, species in the genus *Sabatinca* of the primitive lepidopteran suborder Zeugloptera (Australian Government 2016c)).

World Heritage Criterion (ix) – Outstanding examples representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment

The Tasmanian Wilderness has outstanding examples representing significant ongoing geological processes and ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water and coastal ecosystems and communities, including:

- sites where processes of geomorphological and hydrological evolution are continuing in an uninterrupted natural condition (including karst formation, periglaciation which is continuing on some higher summits (eg on the Boomerang, Mount La Perouse, Mount Rufus, Frenchmans Cap), fluvial deposition, evolution of spectacular gorges, marine and aeolian deposition and erosion, and development of peat soils and blanket bogs);
- ecosystems which are relatively free of introduced plant and animal species;
- coastal plant communities free of exotic sand binding grasses which show natural processes of dune formation and erosion;
- undisturbed catchments, lakes and streams;
- alpine ecosystems with high levels of endemism;

- the unusual 'cushion plants' (bolster heaths) of the alpine ecosystems;
- ecological transitions from moorland to rainforest;
- pristine tall eucalypt forests;
- examples of active speciation in the genus *Eucalyptus*, including sites of:
  - hybridisation and introgression;
  - clinal variation (eg *E. subcrenulata*);
  - o habitat selection (eg E. gunnii); and
  - transition zones which include genetic exchanges between eucalyptus species;
- plant groups in which speciation is active (eg Gonocarpus, Ranunculus and Plantago);
- conifers of extreme longevity (including Huon pine, pencil pine and King Billy pine);
- endemic members of large Australian plant families (eg heaths such as Richea pandanifolia, Richea scoparia, Dracophyllum minimum and prionotes cerinthoides);
- endemic members of invertebrate groups;
- invertebrate species in isolated environments, especially mountain peaks, offshore islands and caves with high levels of genetic and phenotypic variation;
- invertebrates of unusually large size (eg the giant pandini moth *Proditrix sp*, several species of *Neanuridae*, the brightly coloured stonefly *Eusthenia spectabilis*);
- invertebrate groups which show extraordinary diversity (eg land flatworms, large amphipods, peripatus, stag beetles, stoneflies);
- skinks in the genus *Leiolopisma* which demonstrate adaptive radiation in alpine heaths and boulder fields on mountain ranges;
- examples of evolution in mainland mammals (eg sub-species of Bennett's wallaby Macropus rufogriseus, swamp antechinus Antechinus minimus, southern brown bandicoot Isodon obesulus, common wombat Vombatus ursinus, common ringtail possum Pseudocheirus peregrinus, common brushtail possum Trichosurus vulpecula, eastern pygmy possum Cercartetus nanus, the swamp rat Rattus lutreolus), in many birds (eg the azure kingfisher Alcedo azurea) and in island faunas;
- animal and bird species whose habitat elsewhere is under threat (eg the spotted-tail quoll *Dasyurus maculatus*, swamp antechinus *Antechinus minimus*, broad-toothed rat *Mastacomys fuscus* and the ground parrot *Pezoporus wallicus*); and
- the diversity of plant and animal species (Australian Government, 2016c).

#### World Heritage Criterion (vii) – Superlative natural phenomena, formations or features

The landscape of the Tasmanian Wilderness has exceptional natural beauty and aesthetic importance and contains superlative natural phenomena including:

- viewfields and sites of exceptional natural beauty associated with:
  - o flowering heaths of the coastline;
  - the South and South-West Coasts comprising steep headlands interspersed with sweeping beaches, rocky coves and secluded inlets;
  - eucalypt tall open forests including *Eucalyptus regnans*, the tallest flowering plant species in the world;
  - rainforests framing undisturbed rivers;
  - o buttongrass, heath and moorland extending over vast plains;

- wind-pruned alpine vegetation;
- sheer quartzite or dolerite capped mountains (including Cradle Mountain, Frenchmans Cap, Federation Peak and Precipitous Bluff);
- o deep, glacial lakes, tarns, cirques and pools throughout the ranges;
- the relatively undisturbed nature of the property;
- the scale of the undisturbed landscapes;
- the juxtaposition of different landscapes;
- the presence of unusual natural formations (eg particular types of karst features) and superlative examples of glacial landforms and other types of geomorphic features; and
- rare or unusual flora and fauna (Australian Government 2016c).

<u>World Heritage Criterion (x) – Important and significant habitats where threatened species of</u> plants and animals of outstanding universal value still survive

The ecosystems of the TWWHA contain important and significant natural habitats where threatened species of animals and plants of outstanding universal value from the point of view of science and conservation still survive, including:

- habitats important for endemic plant and animal taxa and taxa of conservation significance, including:
  - rainforest communities;
  - alpine communities;
  - moorlands (eg in the far South-West);
  - riparian and lacustrine communities (including meromictic lakes);
  - habitats which are relatively undisturbed and of sufficient size to enable survival of taxa of conservation significance including endemic taxa;
  - plant species of conservation significance; and
  - animal species of conservation significance, such as:
    - spotted-tail quoll Dasyurus maculatus;
    - swamp antechinus Antechinus minimus
    - broad-toothed rat Mastacomys fuscus
    - ground parrot Pezoporus wallicus
    - orange-bellied parrot Neophema chrysogaster
    - Lake Pedder galaxias Galaxias pedderensis
    - Pedra Branka skink *Niveoscincus palfreymani* (Australian Government 2016c).

#### **Cultural values**

# World Heritage Criterion (iii) – Bear a unique or at least exceptional testimony to a civilisation which has disappeared

The Tasmanian Wilderness bears a unique and exceptional testimony to an ancient, ice age society, represented by:

• Pleistocene archaeological sites that are unique, of great antiquity and exceptional in nature, demonstrating the sequence of human occupation at high southern latitudes during the last ice age (Australian Government 2016c).

World Heritage Criterion (v) – To be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change<sup>18</sup>

The Tasmanian Wilderness provides outstanding examples of a significant, traditional human settlement that has become vulnerable under the impact of irreversible socio-cultural or economic change. The World Heritage values include:

• archaeological sites which provide important examples of the hunting and gathering way of life, showing how people practised this way of life over long time periods, during often extreme climatic conditions and in contexts where it came under the impact of irreversible socio-cultural and economic change (Australian Government 2016c).

<u>World Heritage Criterion (vi) – Directly or tangibly associated with events or with ideas or beliefs</u> of outstanding universal significance

The Tasmanian Wilderness is directly associated with events of outstanding universal significance linked to the adaptation and survival of human societies to glacial climatic cycles. The World Heritage values include:

 archaeological sites including Pleistocene sites, which demonstrate the adaptation and survival of human societies to glacial climatic cycles and periods of long isolation from other communities (eg the human societies in this region were the most southerly known peoples on earth during the last ice age) (Australian Government 2016c).

<sup>&</sup>lt;sup>18</sup> Based on the 1981/1989 nominations for the TWWHA, assessments by World Heritage Committee advisory bodies and reports to the World Heritage Expert Panel. The TWWHA was listed under cultural criteria (iv) in 1982. The 1989 nomination to extend the property referred to criterion (v). The 2015 UNESCO Reactive Monitoring Mission clarified that criterion (iv) is acceptable and will be reflected in the final SOUV. The Department of the Environment and Energy is updating this list accordingly.



# Attachment 8 – Regional boundaries of the Tasmania Parks and Wildlife Service

#### Figure 10: Regional boundaries of the Tasmania Parks and Wildlife Service

(Source: information provided by the Department of Primary Industries, Parks, Water and Environment and map prepared by the Tasmania Parks and Wildlife Service)

# Attachment 9 – Prospective list of priority research to support fire management in, and the understanding of the impacts of fire on, the World Heritage values of the TWWHA

 Table 8: Prospective list of priority research to support fire management in, and the understanding of the impacts of fire on, the World Heritage values of the TWWHA

#### Prevention

#### Aboriginal fire regimes

Develop as complete an understanding as possible of Aboriginal burning practices, drawing on all lines of evidence including cultural, historical and scientific sources.

#### Improved bushfire risk modelling

Undertake further analysis using a landscape fire-spread modelling tool with improved input data and models to test specific hypotheses and planned burning scenarios, particularly under future climates.

#### Impacts from planned burning

Undertake research to better understand the tolerance of species and landforms to fire frequency and intensity and the other fire regime requirements of fauna, flora and landforms, such as fire size and patchiness. Specific areas for further research should include: Organic soils, Fire regions, mapping of buttongrass fuels and organic soils, orange-bellied parrot, Invertebrate fauna and Montane grasslands.

#### Organic soil dryness field testing method

Develop a quantitative method for measuring organic soil dryness in the field, to verify the assumed soil moisture.

#### Managing fire-sensitive values in flammable landscapes

Investigate techniques and strategies to manage fire in areas in the TWWHA with fire-sensitive natural values that paradoxically occur in flammable parts of the landscape.

#### Fire refugia prediction

Identify areas that are both fire refugia, and direct climate change refugia, to help to determine priorities for fire prevention, preparedness and response.

#### Preparedness

#### Fuel dryness and fire behaviour

Undertake the following activities to improve understanding of fuel dryness and fire behaviour:

- quantifying fuel and soil moisture thresholds of flammability for most vegetation types;
- quantifying soil moisture thresholds that control organic soil flammability;
- designing and installing an adequate network of weather data observation stations across the TWWHA;
- validating and customizing systems (eg soil moisture models) for the Western Tasmanian environment; and
- developing new fire spread models for those vegetation types that need it (ie peat, wet forest, rainforest, alpine communities and other vegetation unique communities in the TWWHA) and for organic soils.

#### Strategies to manage future bushfire risk

Taking into account the research undertaken through the Research Project on the impacts of climate change on future bushfire risk in the TWWHA (and associated impacts on fire behaviour and natural and cultural values), strategies should be developed to protect the natural and cultural values in the TWWHA as far as is practical.

#### Response

#### Aboriginal heritage sites

Undertake work with the Aboriginal community to:

- develop protocols for accessing data from the Aboriginal Heritage Register to facilitate the making of strategic and tactical decisions to protect known sites during fire suppression operations, while also respecting the cultural sensitivities of the information on sites. These protocols should also cover how Aboriginal Heritage Register records could be included in BRAM so that the fire risk to Aboriginal heritage can be assessed; and
- gain a better understanding of the potential impacts of bushfires and suppression techniques on the different kinds of Aboriginal heritage sites in the TWWHA.

#### Better mapping of fire-sensitive TWWHA values

Undertake the following work to improve mapping of fire-sensitive TWWHA values:

- Improve the scale of resolution and accuracy of mapping of natural values to ensure that supporting systems such as BRAM provide as strong a basis as possible for determining priorities for prevention, preparedness, response, and for monitoring and reporting on fire impacts. The natural values include threatened flora and fauna, vegetation communities, geomorphological values and fire-sensitive values.
- Invest in additional high resolution photography to extend improved mapping of values beyond the Central Plateau. In some cases, a better understanding of fire impacts and responses are required to improve the identification of the natural values that are at risk from bushfires.

#### Recovery

#### **Ecosystem Recoverability**

Undertake research to understand the recoverability post-fire of communities such as alpine areas and rainforests of the TWWHA that have historically rarely been dry enough to burn.

#### Trials of rehabilitation techniques

Undertake trials of rehabilitation techniques of natural values, particularly in alpine and subalpine zones. Such techniques to be considered include: constructing barriers to surface water movement; planting of seedlings and/or spreading seeds; feral animal control (eg rabbits); and fencing exclosures to prevent grazing from marsupials and introduced mammals.

#### Fire, climate change and introduced animals

Monitor the spread of introduced species such as rabbits, starlings and fallow deer in the TWWHA and determine causal factors, such as the interaction between climate change and fire.

**Improved techniques to attain higher resolution of fire scar mapping** Undertake research to improve capacity to use remote-sensing methods to identify and map fire boundaries in the TWWHA.

NOTE: Some of the areas referred to in this table are addressed as separate recommendations in relevant sections of this Report.
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# MEMORANDUM OF UNDERSTANDING

### Between

### **CENTRAL HIGHLANDS COUNCIL**

and

# The Salvation Army (Tasmania) Property Trust





#### **Document Control**

#### Versions

Version	Sign-off Date	Author	Section Changes
Version 1.0		State Coordinator	New Document
9 Sept 2020		Emergency Services	

#### Amended Authorisations

Name	Position	Organisation	Signature	Date
Gary Armstrong	State Coordinator Emergency Services	The Salvation Army		

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### 1 – Overview

#### 1.1 Glossary

Acronym, Key Words	Definition
Activate	Deploy resources to commence an allocated role and proceed with required duties
Council	A Tasmanian Local Government Authority
DHHS/THS	Department of Health and Human Services / Tasmanian Health Service
Emergency Relief	The provision of life support and essential needs to persons affected by an emergency
EEC	Emergency Evacuation Centre – a building or place established to provide life support and essential needs to persons affected by an emergency (including evacuees)
ERC	Evacuation or Recovery Centre. A building or place -established to provide essential needs and information on external assistance available to persons affected by an emergency (no temporary accommodation on site)
Escalation	Relates to a request for assistance or additional resources at the EEC due to an increase in service demands or complexity of an emergency event
Incident	An unplanned event requiring emergency intervention
Personnel	A generic term used to describe people who perform defined functions for an organisation or system (synonym: staff)
RSRC	Regional Social Recovery Coordinator
Recovery	The process of dealing with the impacts of an emergency, with the aim of returning social, economic, infrastructure and natural environments to an effective level of functioning.
Stand-by	Involves the identification of personnel to enable a prompt response in the event an EEC is activated. Council staff or agency personnel may be placed 'on stand-by'.
Stand-down	De-activation of deployed resources

#### 1.2 Acronyms

СНС	Central Highlands Council
EEC	Emergency Evacuation Centre
ERC	Emergency or Recovery Centre
DHHS	Department of Health and Human Services
MECC	Municipal Emergency Coordination Centre
MOU	Memorandum of Understanding
MRC	Municipal Recovery Coordinator
MRP	Municipal Recovery Plan
SRSRC	Southern Regional Social Recovery Committee
PSA	Personal Support Agency
RECC	Regional Emergency Coordination Centre
RSRC	Regional Social Recovery Coordinator
TSA	The Salvation Army

### 2. Parties

This Memorandum of Understanding is made on .....between:

• Central Highlands Council

AND

• The Salvation Army (Tasmania) Property Trust (The Salvation Army)

### 3. Purpose

The purpose of this Memorandum of Understanding is to establish a formalised working relationship and outline operational arrangements to respond to situations of emergency within the Central Highlands municipality. This agreement:

- outlines the role parameters of each partner in an emergency and
- identifies their key capacities as an emergency transitions from response to relief to recovery.

### 4. Background

Local Government has a defined role within the *Emergency Management Act 1986* outlined in the Tasmanian State Recovery Plan. This includes the provision and operation of Emergency Evacuation Centres (EECs) and Recovery Centres (ERCs), and the co-ordination of support agencies that deliver services such as food and water, material needs, emergency shelter, grants, emergency accommodation and personal support.

Emergency events over recent years have exacted a significant toll on communities around the state. A critical activity for local government during these events has been the establishment of Emergency Evacuation Centres (EECs) which are safe places especially set up to welcome affected people. Lessons have included the need to respond quickly and the need for consistent messaging, management, staffing and delivery of EECs' associated services.

The MOU will formalise arrangements to ensure the availability of the services The Salvation Army can provide in Evacuation Centres.

 Co-ordination of food & beverage for affected individuals and agencies/organisations attending the EEC

# 5. Definition Emergency Food and Beverage in an Emergency Evacuation Centre (EEC)

EECs in Southern Tasmania provide basic level needs for community members evacuating or relocating as a result of a direct threat to life and property prior to or during an emergency. Managing the provision of food and beverage on site is an important service provided in these instances.

For the purposes of the Brighton Council arrangements, attendees presenting at an EEC facility are to have available food and drinks on 24 hours, 7 days a week basis.

Food/beverage suits the immediate needs of the people affected:

- It provides for any time of day meals i.e. breakfast, lunch and/or dinner, as well as all-day snacks/sandwiches
- It provides for hot food and/or cool food to suit the weather conditions and practicality
- It provides options for personal dietary needs such as allergy to nuts, gluten, vegetarian diets, low-in-salt/sugar, etc
- Beverages include water, tea, coffee with milk/ soy/ lactose free/sugar and sweetener (or the provision of other beverages as requested by Council)

The Salvation Army agrees to, when activated, not only provide food and beverage, but a suitable number of volunteers and staff able to oversee the safe provision of food and beverage in the EEC. (Note: TSA volunteers may not be at the ECC all night)

### 6. Stand-by, Activation, Escalation and Standdown

#### Standby

In the event of an emergency which requires activation of the Food and Beverage or other secondary function, the Municipal Recovery Coordinator (MRC) or Emergency Evacuation Centre (EEC) Manager will advise The Salvation Army Management as soon as practical of the projected immediate need so that The Salvation Army personnel may be contacted in readiness.

Advice will be directed to The Salvation Army Operations Manager (or nominee) as listed in the contact directory of the Regional Recovery Plan and Municipal Recovery Plans, who will then advise other personnel as required.

#### **Activation and Response**

The request for food and beverage will come from the MRC or EEC Manager directly to The Salvation Army Operations Manager (or other Salvation Army Contacts as outlined in Appendix 12.2).

When requesting food and beverage, the request should attempt to provide as much detail as practicable, including the following:

- Details of the event
- Location of the ERC (or relevant site)
- Details of the facility relevant to provision of food and beverage
- Numbers of evacuees and agencies/organisations predicted to attend and amount of food initially required
- Time at which it is anticipated that evacuees may start arriving at the EEC
- Anticipated/possible length of time that the EEC will be operating
- Method of delivery (with consideration given to the type of emergency and access to EEC)
- Contact details of the staff member that The Salvation Army personnel are to report to on arrival at the EEC (or site), and
- Contact details for person making request (e.g. MRC or EEC Manager and contact number)

Requests will be made by the MRC (or EEC Manager) as soon as practical recognising that it will take time for The Salvation Army to identify available personnel. The Salvation Army will endeavour to respond to the request within two hours of it being made, confirming delivery personnel details (number, names, role and contact details) and estimated time of arrival at the EEC or nominated delivery point.

The EEC Manager, in consultation with The Salvation Army Operations Manager, will determined food and beverage delivery and pick-up times that will be structured to cover the period of operation and functions required.

#### **Escalation of services**

Escalation may involve the need to request additional food and beverages to be delivered to the site or the activation of one of its secondary functions, this task will be undertaken in consultation with the TSA Operations Manager.

- The MRC reserves the right to activate complementary or alternative food and beverage providers to support the EEC needs.
- Where the nature of the emergency event requires additional food and beverage to be deployed to the site (in quantity or type); and that need can be met by The Salvation Army, The Salvation Army Operations Manager will liaise with the EEC Manager and/or the SRSRC around priorities and other support options.
- Where the need is not able to be met by The Salvation Army the ERC Manager will activate other providers or advise the RSRC who will seek additional support.

#### Stand down

Decisions about standing down the EEC will be undertaken at the MECC or RECC in consultation with all relevant parties. Consultation regarding the standing down of their services will be undertaken with The Salvation Army Operations Manager, who retains responsibility for notifying their volunteers and personnel.

### 7. Management and Reporting

Effective management, communication and timely reporting within and between the EEC Team and the MRC at the MECC or RECC is critical to the provision of appropriate services to affected people. It is important that an appropriate organisation structure is established, and all parties understand and adhere to these arrangements.

The relationships within the facility will be as follows:

- The Salvation Army staff and volunteers on site at an EEC report to the EEC Manager
- The Salvation Army Operations' Manager liaises first directly with the EEC Manager. If unavailable, with the Municipal Recovery Coordinator (MRC).
- The Salvation Army Operations' Manager relates to the Southern Regional Social Recovery Coordinator directly if the emergency event has been elevated from municipal to regional level.

### 8. Personnel and Resources

The Salvation Army is responsible for the deployment of suitably qualified and experienced personnel (TSA trained volunteers) to manage and co-ordinate the food and beverage area at the EEC. The size of the team will largely be determined by the nature of the event and informed by the EEC Manager or MRC.

Food and beverage personnel are required to ensure safe food handling practices are conducted in accordance with the *Food Act 2003* and *Food Standards Code Australia*.

Staff and volunteers provided to support other EEC functions are trained to operate in an Evacuation Centre and their skills are matched to their functions.

All personnel engaged are required to be approved and authorised with an organisation that is party to this MOU. Unapproved staff or volunteers will not be permitted into the EEC facility, to ensure a duty of care to community members in a vulnerable situation is maintained to the highest level.

### 9. Resolution of Difficulties

In the first instance, any difficulties encountered in the EEC should be addressed at the EEC by the EEC Manager.

The MRC must be notified of issues through the EEC Manager as part of regular reporting to the MECC, and may be called upon to provide support in the resolution of difficulties when required.

In the event that safety concerns are raised regarding the site and/or its operation, the MRC, and if necessary, The Salvation Army will visit the site together to jointly address any concerns.

TAS - MoU Salvation Army Emergency Catering Central Highlands Council 9 September 2020

### 10. Financial Considerations

Costs associated with the use of The Salvation Army will be discussed between the requesting MRC and/or SRSRC (if regional scale event) prior to deployment.

Agreed costs incurred by The Salvation Army in the provision of requested services at the EEC will be claimed from the Council that operated/hosted the EEC (COL). Claims for these expenses should be received no later than thirty (30) days after the closure of the EEC.

To assist the EEC in understanding and selection of services to be provided by TSA, an indicative cost for services table is attached at Appendix 13.3.

### 11. Process for update

This Memorandum of Understanding shall be effective on the date of execution and shall continue for a period of 3 years at which time it will be reviewed. In addition, the MOU will be reviewed after any significant activation.

The Salvation Army may update their details in Municipal Recovery Plan contact directories at any time by contacting their local MRC.

The MOU may be terminated by any party at any time by giving two (2) months written notice to the other parties of its intention to do so.

### 12. Signatories of Parties

Γ

This Memorandum of Understanding is entered into in good faith by all parties who agree to mutual cooperation to achieve its intent.

SIGNED for an on behalf of <b>Central Highlands Council</b>
Name (signed):
Name (print):
Title:
Date:
SIGNED for an on behalf of The Salvation Army (Tasmania) Property Trust
Name (signed):
Name (print): Major Topher Holland
Title: General Manager, Strategic Emergency and Disaster Management
Date:

### 13. Appendices

#### 13.1 Emergency Salvation Army Support Service Contacts

Organisation	First	Surname	Phone 1	Phone 2	Email
/title	name				
The Salvation	Mike	West	0437 986102	6228 8404	michael.west@salvationarmy.org.au
Army –					
Southern					
Coordinator					
The Salvation	Gary	Armstrong	0419 519 682	62288429	gary.armstrong@salvationarmy.org.au
Army - State					
Emergency					
Coordinator					
Central	Graham	Rogers	0429 018308	6259 5503	grogers@centralhighlands.tas.gov.au
Highlands					
Council					
Municipal					
Coordinator					
Central	Jason	Branch	0428 725198		jbranch@centralhighlands.tas.gov.au
Highlands					
Council					
Deputy					
Municipal					
Coordinator					

#### 3.2 Activation prompt - template

# EMERGENCY Food & Beverage REQUIREMENTS - Information provision checklist

 $\Box$  Fill in the form below.

□ At time of activation, provide the information to The Salvation Army (as listed on municipal Social Recovery Contact list)

□ Archive document at Evacuation Centre

EVENT DETAILS - information to provide The Salvation Army with		
<b>Location of the Evacuation centre (or relevant site):</b> <i>i.e.</i> Street address/direction/access		
Details of the facility relevant to provision of food		
Food to be prepared at Elizabeth St or on site? Urn? Microwaves? BBQ Trailer required?		
Numbers of evacuees predicted to attend		
Number of organisation staff predicted to attend		
Description of food required		
<b>Description of secondary support required from the</b> <b>Salvation Army</b> (chaplaincy service/ emergency relief)		
Time at which it is anticipated that evacuees may start arriving at the evacuation centre		
Anticipated /possible length of time that the Evacuation Centre will be operating		
Method of delivery suggested (give consideration of the type of emergency and access available to EEC)		
Contact details of the person at the EEC The		
Salvation Army personnel (volunteers) is to report to on arrival at the Evacuation centre		
Date and time this information was provided to The Salvation Army:		
Information provided by: (name/role)		
Information provided at: (time) By: (email/phone, etc)		

#### 13.3 Costs of Service & Order Form

Current TSA meal & price list document (attached)

*Note, food prices are valid until the 30<sup>th</sup> June each year.* 

#### **Emergency Services Tasmania Catering Order Form (attached)**



### Emergency Services Tasmania Catering Order Form

#### **IMPORTANT INFORMATION**

Contact Name:				
Agency/Council:				
Mobile:				
Email:				
Date/Time Required:	Day:	Date:	Time:	
Incident/Event Address:				

#### **CATERING REQUIREMENTS**

Code	Meal Description	Price	Quantity	Total \$	Please Specify Your Required Food or Replacement Item
RA	Refreshments A Coffee/Tea, Biscuit etc	\$5			
RB	Refreshments B As Above Plus Cake/Fresh Fruit	\$10			
BA	Breakfast A Continental Breakfast	\$10			
BB	Breakfast B Hot Breakfast – Egg& Bacon etc	\$14			
LC	Lunch – Cold Salad Rolls / Sandwiches etc	\$16			
LH	Lunch – Hot Steak Sandwich / Hamburger etc	\$16			
DC	Dinner – Cold Salad/ Cold Meat Selection etc	\$16			
DH	Dinner – Hot Hot Dishes/ Vegetables etc	\$20			
SP	Snack Packs (Takeaway)	\$12			
AF	Additional Food Soup/Fried Rice etc	Price List			
VM	Vegetarian Meals Vegetable Lasagne/Spinach Quiche	Price List			

Please Email Gary or Mike with Requirements

Gary Armstrong: 0419 519 682 gary.armstrong@salvationarmy.org.au Michael West: 0437 986 102 michael.west@salvationarmy.org.au



#### **Emergency Services Tasmania**



Meals & Price List - 1 July 2020 to 30 June 2021 Code Price Code Price RA **Refreshements A** \$5.00 RB **Refreshements B** \$10.00 Coffee - Tea - Hot Chocolate Coffee - Tea - Hot Chocolate Water 600 ml Water 600 ml Cereal Bar Cereal Bar Biscuits **Biscuits** Fresh Fruit - Apple & Banana Cake BA **Breakfast A** \$10.00 BB **Breakfast B** \$14.00 Coffee - Tea - Hot Chocolate Coffee - Tea - Hot Chocolate Water 600 ml Water 600 ml 100% Fruit Juice (Tetra 250ml) 100% Fruit Juice (Tetra 250ml) Cereal - variety Eggs & Bacon - Tomatoe - Hash Brown Toast Toast Jams - Variety/Butter Jams - Variety/Butter LC Lunch - Cold \$16.00 LH Lunch - Hot \$16.00 Coffee - Tea - Hot Chocolate Coffee - Tea - Hot Chocolate Water 600 ml Water 600 ml BBQ - Steak Sandwich or Hamburger & Sausages (also Chicken) Mixed sandwiches or Rolls (1 roll/1 Sandwiches Fresh Fruit Salad 100% Fruit Juice (Tetra 250ml) 100% Fruit Juice (Tetra 250ml) Cereal Bar DC **Dinner - Cold** \$16.00 DH **Dinner Hot** \$20.00 Coffee - Tea - Hot Chocolate Coffee - Tea - Hot Chocolate Water 600 ml Water 600 ml Sliced Meat - Beef or Pork or Ham or Silver side or Lasagne or Stew or Stir fry or Steak or Snite chicken (2 choices) or Curried Sausages (2choices) Salad - Potato Salad/Coleslaw Mashed Potato or Steamed Rice Slices of Bread or Dinner Rolls Slices of Bread or Dinner Rolls Fresh fruit Vegetables and Gravy Desert - Cheesecake or Apple Pie or Trille or Desert - Cheesecake of Apple Pie of Trifle of Panna Cotta or Mouse Panna Cotta or Mouse 100% Fruit Juice (Tetra 250ml) SP **Snack Packs to Takeaway** \$12.00 **Additional or Replacement Food Items** Soup - Minestrone or Chicken & Corn or Pumpkin Water 600 ml \$2.00 Piece of Fruit (options - apple/orange/banana) Chicken & Pasta \$3.50 Goulburn Valley 220gram Fruit pack Sweet & Sour Pork \$3.50 Fruit Bar or Cereal Bar Coleslaw - Dressed \$1.00 Cheese and Cracker Le Snack Pack Fried Rice \$2.00 **Rice Crackers Toasted Ham & Cheese** \$2.50 Enquiries Vegetarian (various meals available) Gary Armstrong: 0419 519 682 Vegetable Lasagne \$3.00 Michael West: 0437 986 102 \$3.00 Spinach Quiche

Vegetable Quiche

Macaroni Cheese

\$3.00

\$1.50

Mark & Henriette Rowland 22 Franklin Place, Hamilton, Tas., 7140. Mob: 0412451233

17<sup>th</sup> August 2020

Your Ref: 9818790

Central Highlands Council Tarleton Street, Hamilton, Tas., 7140.

#### Re: Commercial garbage collection

Attn: General Manager,

Please be advised at this moment in time the above property is not being used as a commercial site, this is due to current pandemic.

We are asking that current commercial charge for garbage be reduced to domestic rate, how long this will be for my partner and myself is uncertain.

However, if any changes to the current circumstances, we will of course inform you to reinstate appropriate charges.

Yours sincerely

Mark Rowland

## Review of Tasmania's Local Government Legislation Framework





# Recommencement of the Review

The Minister for Local Government, the Hon Mark Shelton MP, announced in April that timeframes for the completion of the Review of Tasmania's Local Government Legislation Framework would be impacted due to the emergency response to the COVID-19 pandemic. The attention of all levels of government has, appropriately, been upon the COVID-19 response. This period has required significant agility from councils to adapt physical operations to meet distancing requirements. Notices issued under the COVID-19 Disease Emergency (Miscellaneous Provisions) Act have enabled councils to conduct meetings remotely and altered other provisions of the Local Government Act and associated regulations to facilitate physical distancing.

We are now able to provide an update on the revised timeframes.

### **Timing and Implementation**

As announced in our last newsletter, the Government has agreed to the development of a new Local Government Bill and stand-alone Local Government (Elections) Bill to implement the 48 approved reforms (available to view here).

To ensure adequate time for consultation and implementation, the Bills will be consulted on and introduced into Parliament separately. A draft Local Government Bill will be released for consultation in early 2021, with the Bill to be introduced to Parliament later in 2021. The draft new Local Government (Elections) Bill will be released for public consultation following the passage of the Local Government Bill. Further details of the revised timeframes are available on the Review's website at <u>www.dpac.tas.gov.au/lgreview</u>.

As a newsletter subscriber, you will be notified directly when the draft Local Government Bill is released for public consultation. The release of the draft Bill will be publicly advertised and available on the Review website.

### Work Underway

A draft Local Government Bill is currently being developed to give effect to the reforms approved in Phase 2. Technical Working Groups comprising experienced local government sector employees from across the State are being engaged for advice to ensure that details are practical and achievable at an operational level. We appreciate the valuable contributions these members play through their collaboration with the Project Team to develop a legislative framework that is practical and fit-for-purpose.

Contact Us				
	lgreview@dpac.tas.gov.au			
	www.dpac.tas.gov.au/lgreview			
0	03 6232 7022			
	GPO Box 123 HOBART TAS 7001			



#### - APPROVED REFORMS -

### REVIEW OF THE LOCAL GOVERNMENT LEGISLATIVE FRAMEWORK

Part A – A flexible,	innovative and futu	re-focused legislative
framework		

Reform	Description
#I – Principles Based Legislation	Create principles-based legislation that sets the principles of good governance, community engagement and financial management for the governance and operations of local government. Provide supporting detail in regulations where appropriate to provide clarity and flexibility.
#2 – Accessible, easy-to-read legislation	The new Act will be structured logically and be easy to read and understand, while still being legally effective.
#3 – A new Act for electoral provisions	Local government electoral provisions will be separated into a stand-alone Act, to make it easier to understand and administer these provisions.
#4 – Consolidate related local government legislation	Related local government legislation will be examined (such as the Local Government (Building and Miscellaneous Provisions) Act 1993) to identify where provisions intersect and overlap with the current Act, and to remove duplication and consolidate provisions where possible.

Reform	Description
#5 - Reform eligibility for the General Manager's Roll	<ul> <li>The following criteria will apply to the General Manager's Roll:</li> <li>Criteria 1 – A person must be an Australian citizen to be eligible to be enrolled to vote in local government elections.</li> <li>Criteria 2 – Individuals who are Australian citizens and own or occupy property in a municipal area where they are not residents should be eligible to enrol to vote in that area.</li> <li>Criteria 3 – A person is eligible for enrol to vote if they are the sole nominated representative of a business operating from a property in the municipal area, provided that person is an Australian citizen and is not already on the Roll in that municipal area under any other entitlement.</li> <li>No changes are proposed with regard to eligibility to vote based on enrolment on the House of Assembly roll.</li> </ul>
#6 – Reform the voting franchise to reflect 'one person, one vote' principle in any one municipality	No individual owner, occupier or corporation or their delegate will get more than one vote per municipality. Owners of corporations will no longer be entitled to a potential second vote within the same municipal area elections.
#7 – Simplify the election process for the positions of mayor and deputy mayor (Not Proceeding)	The current voting process for mayors and deputy mayors will be retained.
#8 – Make alternative voting methods available	Alternative voting methods such as electronic voting will be enabled, in addition to postal voting. The most appropriate voting method will be chosen by the Minister at least 12 months prior to the local government elections.

### Part B – Representative and Democratic Councils

<b>#9 – Simplify the voting</b> process to reduce informal voting rates	The voting process will be amended to only require boxes to be numbered I to 5 to constitute a formal vote. This will remove the requirement for (but will still enable) voters to mark a preference for every available councillor position and/or candidate.
#10 – Introduce caretaker provisions	Caretaker provisions will apply to all councils from the time candidate nominations open, to limit councils making major policy or contractual decisions during an election period. The operational business of councils will still continue and caretaker provisions will provide for this (including where councils have to meet statutory timeframes and obligations).Caretaker provisions will also limit the use of council resources to promote or support candidates.
#11 – Move administration of the General Manager's Roll from councils to the Tasmanian Electoral Commission	The administration of the General Manager's Roll will be moved from councils to the Tasmanian Electoral Commission.
#12 – Introduce a pre- nomination training package	Potential electoral candidates will be required to complete a training package in order to nominate as a candidate. The training packages would be completed in a simple online format and will provide information about the roles and responsibilities of councillors, rather than testing a potential candidate's knowledge.
#13 – Introduce a candidate nomination fee (Not proceeding)	This proposal will not proceed. A candidate fee will not be introduced.
#14 – Require the disclosure of gifts and donations received by local government candidates during the electoral period	All electoral candidates will be required to declare gifts and donations received during the electoral period
#15 – Align eligibility requirements to nominate as a candidate with State eligibility requirements	Eligibility requirements for local government candidates will be more closely aligned with the current requirements for members of the House of Assembly and Legislative Council, as per the requirements of the <i>Electoral Act 2004</i> and <i>Constitution</i> <i>Act 1934</i> , where appropriate.
#16 – Remove the title of 'Alderman'	The title of 'Alderman', which is currently available to city councillors, will be removed.

Part C -	Councils	Connected	to	their	<b>Communities</b>
					•••••

Deferme	Description
Reiorm	Description
#17 – All councils will develop and adopt a community engagement strategy	Councils will develop a Community Engagement Strategy after each election, in collaboration with their communities. The Community Engagement Strategy will inform how councils will engage, involve, consult and inform their communities on plans, projects and policies. Councils will be required to follow their Community Engagement Strategy when engaging communities on their Strategic Plan, in determining their service delivery priorities and when setting their budget (including rating decisions).
#18 – Removing prescriptive consultation requirements	Councils will have broadened capacity to engage with their communities in accordance with their Community Engagement Strategy. Wherever possible, prescriptive requirements to provide reports and information in a specified way, such as by post, will be removed. Some specific consultation requirements will be maintained where necessary to protect the rights of the community and councils.
#19 – Remove requirements for public meetings and elector polls (Amended)	In recognition of strong community views about this Reform Direction, community-initiated elector polls and public meetings will be retained in the new Act. However, the threshold to trigger an elector poll will be increased to 20% of electors (currently the threshold is 10%). It will also be a condition that any elector polls or public meetings must relate to an issue over which local government has decision- making authority. Councils will retain the power to initiate elector polls and a new power will be provided for the Minister to initiate a state-wide elector poll on a particular issue if required.

Reform	Description
#20 – Legislate the eight good governance principles	The principles from the Local Government <i>Good</i> <i>Governance Guide</i> will be legislated and linked to the behaviours in the Code of Conduct.
#21 – Set high-level financial management principles that encourage efficiency and value for money in council service delivery	High-level financial management principles will be established to provide a clear expectation for councils when developing their strategic plans and budgets that focus upon transparency, accountability and sound financial management.
#22 – Establish core capability requirements for elected members (Amended)	Core competency requirements for elected members will be outlined with general managers needing to develop and deliver an induction plan for elected members following each council election. It will also be a requirement for councillors to complete training about their role as a Planning Authority.
#23 – Require councils to publicly report the core capability training that each elected member has completed annually (Amended)	Reporting of training completed by elected members will not be required to be reported publicly, rather general managers will be required to develop induction plans for elected members, with meeting procedures training to be completed prior to the first meeting.
#24 – Establish principles for all council staff that set minimum standards of behaviour	Local government employment principles will be set, aligning with the principles applying to employees under the <i>Tasmanian State Service Act 2000</i> . The consequences for a breach of these minimum staff standards of behaviour would be a matter for each council to determine.
#25 – Prescribe minimum standards for general manage recruitment, contracts, performance management and termination	Minimum standards will be set for general manager recruitment, contracts, performance management and termination. The current power to issue a Ministerial Order on the appointment and performance of general managers will remain.
#26 – Include principles on complaints management in legislation	Stronger provisions around complaints handling by councils will be included in the Act, to improve the independence of internal reviews of complaints.

### Part D – Responsible and Effective Councils

#27 – Ensure council rating policies consider taxation principles and align with their budget and financial planning documents	The Act will require councils to consider the principles of taxation such as efficiency, simplicity, equity, capacity to pay, benefit, sustainability, cross- border competitiveness and competitive neutrality when determining how to distribute the rating burden. Councils should reflect outcomes of consultation with the community on council budget and financial planning when developing rates and charges policies, as per the overarching Community Engagement Strategy.
#28 – Introduce more flexibility for councils to easily transition from one rating approach to another, to manage rating impacts on ratepayers	The Act will provide improved tools to councils to manage changes in rating approaches and the resulting impacts on individual ratepayers through transitional arrangements.
#29 – Establish an independent rates oversight mechanism (Amended)	Rather than the proposed oversight of rates increases by the Tasmanian Economic Regulator, council Audit Panel chairs will be required to review any proposed rate changes that deviate from a council's Long-Term Financial Plan, and/or any changes to a council's Long- Term Financial Plan. Audit Panel Chairs will continue to be independent of their councils and the Panels must have a majority of independent members.
#30 – Set principles or guidelines for setting fees and charges	The principles or guidelines will promote greater consistency in the approach to setting fees and charges without prescription of the amounts themselves. Fees and charges should be reflective of the cost of the service being delivered as they are not a tax to raise general revenue.
<b>#31 – Provide for a more</b> autonomous and less prescriptive budget process	Councils will have greater flexibility to allocate resources as required. Councils will continue to set the budget and priorities, however general managers will have flexibility to move resources around within the overall budget allocation to achieve priorities.
#32 – Clarify significant business activities	What is a 'significant business activity' will be better defined so that the commercial operations of councils are transparently reported. Councils will be required to publish reports on the operations and performance of significant business activities.
#33 – Require electronic recording of council meetings to be made publicly available	Electronic recording and publication of council meetings will be mandatory to improve public confidence in the integrity, transparency and accountability of council decision-making.

#34 – Simplify what is a conflict of interest	This reform will remove overlap and confusion in the approach to declaring what are currently termed 'pecuniary' and 'non-pecuniary' interests at council meetings. Legislative provisions will be supported by clear, easy-to-read and understand guidelines to assist councillors.
#35 – Enhance the integrity of council decisions made when exercising statutory powers	Councils will be required to manage perceived conflicts of interest when exercising their statutory powers, for example, when a council is submitting and assessing its own development applications under the Land Use Planning and Approvals Act 1993.
#36 – Strengthen the information gathering powers of the Director of Local Government	Stronger powers will be provided to the Director of Local Government to require Audit Panels to provide their reports upon request.
#37 – Create a power for the Director of Local Government to require an undertaking from a council as a measure to address compliance issues	The Director of Local Government will have the power to accept an undertaking by a council, councillor or general manager to either correct an act of non-compliance with the Act, or to ensure that there is no recurrence.
#38 – Establish a Monitor/Advisor role (Amended)	To be renamed 'Advisor'. The Director of Local Government will have the power to require the appointment of an Advisor to enter a council to review its operations, request information from the council administration (and the Audit Panel), provide guidance to elected members and senior staff, and make recommendations to the council. Councils may also decide that an Advisor be engaged as an early intervention to assist a council before issues result in more serious outcomes.
#39 – Establish the power to appoint a Financial Controller (Amended)	To be renamed 'Financial Supervisor'. Similar to Reform Direction #38, the Director of Local Government may appoint a Financial Supervisor to a council to manage serious, demonstrated financial challenges, similar to powers that exist in New South Wales.
#40 – Continue to conduct formal investigations by the Director of Local Government	The Director of Local Government will continue to have the power to investigate breaches of legislation. Possible outcomes of an investigation will be strengthened to enable the Director to make findings and provide recommendations to the Minister that the council or an individual councillor be dismissed. To support the Director's investigative role, the Director will be able to appoint appropriately skilled
	and qualified persons to support them, including persons external to the Director's staff.
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#41 – Provide for the Minister to dismiss a council or individual councillor	The Minister will have the ability to dismiss a council or councillor on recommendation of the Director. The Minister will retain the power to establish a Board of Inquiry and, in response to findings, recommend the Governor dismiss a council or councillor.
#42 – Create offences for mismanagement and to address poor governance (maladministration)	An offence of maladministration will be created for systemic failures or a major consequence resulting from a single act of impropriety, incompetence or neglect. The offence will be directed to all councillors, individual councillors and general managers but not other senior executive council staff.
#43 – Simplify the complaints framework	This direction will reduce the current overlap between the oversight and regulatory roles of various bodies. The main focus is reducing the overlap in the complaint process between the Director of Local Government and the Integrity Commission to give clarity for complainants, increase efficiency and ensure prompt intervention in serious issues.
#44 – Introduce a local government performance reporting framework	A clearer performance reporting framework will be set to consolidate and make better use of existing data and information relating to councils. Existing key performance indicators will be used as the basis for reporting, but with capacity to have additional key performance indictors over time.
#45 – Require councils to publish a compliance statement in the Annual Report (Amended)	Compliance statements would only be completed for 'material' or 'significant' matters. General managers will be required to sign-off and account for the council's material compliance obligations under the Act and some associated legislation, and report to the community a formal attestation that material compliance obligations have been met.
#46 – Remove prescription around Annual Report	Reforms will reduce the level of prescription about the content of a council's Annual Report with content to be determined by the council through its Community Engagement Strategy.

Reform	Description
#47 – Introduce provisions that support efficient and high-quality council operations and collaborative shared service opportunities	Legal and administrative barriers to collaboration across councils will be removed, giving greater flexibility for councils to collaborate. This will include clarification about the extent that delegations can be given and exercised and will enable two or more councils to be serviced by one administrative organisation.
#48 – Introduce the option to create Regional Councils (Not proceeding)	This proposal will not proceed. The option to create Regional Councils will not be introduced.
#49 – Create model by-laws for common issues, with streamlined administrative processes	The Act will reduce the administrative process councils must go through to develop and adopt model by-laws, creating greater State-wide consistency. A model by-law will be subject to a rigorous assessment process and, once approved, any council could adopt the model by-law without the need to go through the assessment process again. Councils will simply need to consult with the community on any municipality-specific issues before adopting the by-law.

Part E – Adaptable Councils

# Part F – Strategic Reviews

Reform	Description
#50 – Strategic reviews of councils	The Local Government Board will be retained and will undertake strategic reviews of local government at the direction of the Minister. At a minimum, the Board will be required to undertake regular reviews of councillor numbers and allowances and 'State of the Sector' reviews. It will no longer be able to review the operations of a council, with these being carried out by the Director of Local Government.
#51 – Voluntary amalgamations	Voluntary amalgamations of two or more councils will be able to occur, without the need for a Local Government Board review. Councils will need to develop a business case to explore amalgamations but will no longer require a report from the Local Government Board, which is time and resource intensive.

## WELLINGTON SKI AND OUTDOOR CLUB INC

GPO Box 1197 HOBART 7001 TASMANIA

23 August 2020

The General Manager Central Highlands Council Tarleton Street Hamilton Tas 7140

Dear Sir/Madam

#### RE: RATES FOR JOE SLATTER and GINGERBREAD HUTS ( Property ID 5475494 / DTX 9529572)

I write to you in relation to the rates notices for the above properties received for the two shelter huts leased by Wellington and Outdoor Ski Club Inc.

We would ask that you please revoke the rates notices for the following reasons:

- 1. The two huts are used by the general public as shelter huts during all seasons.
- 2. There are no roads or other services provided by the Council to the area.
- 3. We are a family based club and not a commercially run organisation.
- 4. Our members volunteer their time and funds to assist with the maintenance of these facilities used by the general public

We would appreciate your consideration to the above and your reply in due course.

Yours faithfully

andrew Poole

Andrew Poole Treasurer <u>atpoole@hotmail.com</u> Ph. 0428 280 223





National Bushfire Recovery Agency

# Regional Tourism Bushfire Recovery Grants

# **Program Guidelines**

Opening date:	17 February 2020
Closing date and time:	5.00pm Australian Eastern Daylight Time
	Stream 1: Friday 20 November 2020
	Stream 2: Friday 20 March 2020
	Please take account of time zone differences when submitting your application.
Commonwealth policy entity:	Australian Trade and Investment Commission (Austrade)
Administering entity	Austrade
Enquiries:	If you have any questions, contact us on 1800 048 155 RTBR@austrade.gov.au
Date guidelines released:	17 February 2020
Type of grant opportunity:	Targeted

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# 1. Regional Tourism Bushfire Recovery Grants processes

#### The Regional Tourism Bushfire Recovery Grants Program is designed to achieve Australian Government objectives

Under this program, \$10 million will be provided for bespoke events, concerts, festivals and/or other visitor attractions (such as art installations and tourist walks) in fire affected regions to assist the recovery effort. The aim is to support initiatives in fire affected areas that celebrate what's unique about that local community to give international and/or domestic visitors a reason to visit and return, bringing the economic benefits of tourism, but also providing the community with a positive focus in the wake of the fires. Austrade has worked with stakeholders to plan and design the grant program according to the <u>Commonwealth Grants Rules and Guidelines</u>.

#### The grant opportunity opens

Austrade will invite applicants to apply and provide application details.

#### $\mathbf{\Psi}$

#### You complete and submit a grant application

You complete the application form, addressing all the eligibility and assessment criteria in order for your application to be considered.

#### $\mathbf{\Psi}$

#### We assess all grant applications

Austrade reviews the applications against eligibility criteria and notifies you if you are not eligible.

Assisted by an expert advisory panel, Austrade may come back to applicants seeking further information regarding their proposals and provide advice to applicants to enhance their proposals.

Austrade assesses eligible applications against the assessment criteria including an overall consideration of value for money and for Stream 2, compares it to other eligible applications and considers need and impact in different areas.

#### $\mathbf{\Psi}$

#### We make grant recommendations

Austrade provides advice to the decision maker (Austrade's CEO) on the merits of each application.

#### $\mathbf{\Psi}$

#### Grant decisions are made

The decision maker decides which applications are successful based on the advice of Austrade.

#### ₩ We notify you of the outcome

Austrade will advise you of the outcome of your application.

#### $\mathbf{\Psi}$

#### We enter into a grant agreement

Austrade will enter into a grant agreement with successful applicants. The type of grant agreement is based on the nature of the grant and proportional to the risks involved.

#### $\mathbf{\Psi}$

#### **Delivery of grant**

You undertake the grant activity as set out in your grant agreement. Austrade manages the grant by working with you, monitoring your progress and making payments.

#### $\mathbf{\Psi}$

#### Evaluation of the program

Austrade evaluates the specific grant activity and grant opportunity as a whole. We base this on information you provide to us and that we collect from various sources.

# 2. About the grant program

Regional Tourism Bushfire Recovery Grants (the program) will run over approximately 17 months from February 2020 to 30 June 2021. The program was announced as part of the Australian Government's \$76 million Rebuilding Australian Tourism Package.

The objectives of the program are to:

- Restore visitor levels to areas impacted by bushfires by supporting events, concerts, festivals and/or other visitor attractions (such as art installations and tourist walks) and other tourism initiatives in those areas.
- Promote the uniqueness of affected local communities.
- Assist with the recovery of regional tourism.
- Attract overseas, interstate and intrastate visitors as a direct result of the project.

The intended outcomes of the grant opportunity are:

- Revive local communities with revitalised ability to attract international and/ or domestic visitation.
- Direct visitor spend in bushfire affected areas.

This document sets out:

- the eligibility and assessment criteria
- the invitation process
- how we consider and assess grant applications
- how we notify applicants and enter into grant agreements with grantees
- how we monitor and evaluate grantees' performance
- responsibilities and expectations in relation to the opportunity.

The Australian Trade and Investment Commission (Austrade) is responsible for administering this grant opportunity. An Expert Panel, appointed by the Minister for Trade, Tourism and Investment, will provide advice to Austrade and to eligible applicants.

We administer the program according to the <u>Commonwealth Grants Rules and Guidelines</u> (CGRGs)<sup>1</sup>.

We have defined key terms used in these guidelines in the glossary at section 14.

You should read this document carefully before you fill out an application.

# 3. Grant streams, available funding and grant period

The Australian Government has announced a total of \$10 million for this program, with \$7 million available in 2019-20 and \$3 million in 2020-21.

There are two Streams available within this program.

- All eligible applicants will be invited to apply for grants in Stream1.
- Eligible applicants in the worst affected areas will be invited to apply for Stream 2.

Eligible applicants for each stream are listed at **Annexure A** (Stream 1) and **Annexure B** (Stream 2). See section 4 for more information about eligibility.

<sup>&</sup>lt;sup>1</sup> https://www.finance.gov.au/government/commonwealth-grants/commonwealth-grants-rules-guidelines

For Stream 2, the worst affected areas will be those disaster-declared Local Government Areas activated by the State or Territory Government for DFRA assistance during the 2019-20 bushfire season and which are declared Category D.

Over the life of the program, \$2 million has been allocated to Stream 1 and \$7.5 million to Stream 2. The balance will be used to top up either stream as required. In conjunction with the Expert Panel, review of the funding allocation between Stream 1 and Stream 2 may be undertaken, subject to demand upon each stream.

Eligible applicants will receive an invitation to apply from Austrade.

#### Stream 1

Stream 1 will support smaller scale events and applicants may apply for more than one grant in this stream up to a total value of \$30,000. Steam 1 applications are assessed as they are received.

Recognising potential applicants may seek to hold larger events as early as March/April 2020, by exception, applications for grants in excess of \$30,000 will be considered (see assessment criteria at 6.1 below). This recognises that Stream 2 applications, including for larger events, will not begin to be assessed until applications close on 20 March 2020.

Stream 1 applications can be made from 17 February 2020 and close on 20 November 2020. However, should the allocation for this stream be exhausted before 20 November 2020, no further applications will be accepted. Potential applicants will be advised by Austrade of any changes.

At the time of publishing these Guidelines there were 120 Local Government Areas and Regional Tourism Organisations (RTOs) eligible to apply for Steam 1.

#### Stream 2

Stream 2 will support larger events and initiatives and/or other visitor attractions such as art installations and tourist walks.

The total funding for this stream is \$7.5 million. Applicants are advised to make their proposals scalable as they may not be awarded the full amount they are seeking.

Applications for Stream 2 will open on 17 February 2020 and close on 20 March 2020.

Should funding remain available after all applications have been assessed, a further round of invitations may be issued, including to eligible applicants in bushfire disaster-declared Local Government Area activated by a State or Territory Government for Disaster Recovery Funding Arrangements (DFRA) assistance for the 2019-20 bushfire season and which have been declared Category C.

For both streams

- Eligible applicants are encouraged to lodge joint applications, particularly for Stream 2, and where relevant, to also partner with community groups, not for profit organisations, and/ or industry associations in the same region.
- Eligible applicants may seek funding from this program and other Commonwealth or state programs, provided the portion of the project that is funded by each is different and/or additional.
- Projects should be scalable, noting you may not receive the full amount of funding requested in your application.

#### 3.1. Project period

For Stream 1, your event must be held by 30 May 2021.

For Stream 2 and any other Stream 1 projects, you must complete your project by 30 June 2021.

# 4. Eligibility criteria

We cannot consider your application if you do not satisfy all eligibility criteria.

#### 4.1. Who is eligible?

Eligible applicants will be selected through the following criteria:

- For Stream 1, be one of the following types of organisations:
  - a Local Government Authority (LGA); or
  - a Regional Tourism Organisation (RTO)

in a bushfire disaster-declared Local Government Area activated by a State or Territory Government for Disaster Recovery Funding Arrangements (DFRA) assistance for the 2019-20 bushfire season. Eligible applicants for Stream 1 are listed in Annexure A.

- For Stream 2, be one of the following types of organisations:
  - o a Local Government Authority (LGA); or
  - a Regional Tourism Organisation (RTO)

in a bushfire disaster-declared Local Government Area activated by a State or Territory Government for **Disaster Recovery Funding Arrangements** (DFRA) assistance for the 2019-20 bushfire season and which has been declared Category D.

- An RTO must be one of the following entities:
  - an entity, incorporated in Australia
  - a company limited by guarantee
  - an incorporated trustee on behalf of a trust
  - an incorporated association
  - an incorporated not for profit organisation.

Joint applications are acceptable and encouraged, particularly for Stream 2, provided you have a lead organisation who will act as the main driver of the project and is eligible to apply. For example, a local government authority may partner with a RTO, another LGA or a not-for-profit community group. For further information on joint applications, refer to section 7.1.

Eligible applicants will be invited to apply in the week beginning 17 February 2020 by the Austrade CEO or her delegate.

#### 4.2. Additional eligibility requirements

We can only accept applications:

 Where you can provide evidence from your board (or chief executive officer or equivalent if there is no board) that the project is supported, and that you can complete the project and meet the costs of the project not covered by grant funding.

We cannot waive the eligibility criteria under any circumstances.

#### 4.3. Who is not eligible?

You are not eligible to apply if you are:

- an individual
- a partnership
- an unincorporated association

- any organisation not included in section 4.1
- a trust (however, an incorporated trustee may apply on behalf of a trust).

Notwithstanding the above, partners who are not otherwise eligible are able to partner with eligible applicants.

# 5. What the grant money can be used for

#### 5.1. Eligible activities

To be eligible your project must:

 Be aimed at assisting with recovery of regional tourism in bushfire affected regions by supporting existing impacted events, creating new tourism events or attractions like art installations or tourist walks, and promoting those events or the uniqueness of the region to bring international and/ or domestic visitors back to the region and increase visitation.

Eligible activities may include

- Funding for bespoke events, concerts, festivals and/or other permanent visitor attractions (such as art installations and tourist walks).
- Business events, such as conferences.
- Social media and/or other promotional and public relations activities including visitor guides, video, photography and other media to support the eligible activities or community or region itself.
- Applications for one-off events will need to demonstrate the benefit to the community, e.g. media exposure, promotion of local businesses and international and/ or domestic visitors from outside the region.
- Should your event be ongoing (e.g. annual), where practicable, you will demonstrate the long term benefits (as above) and clearly outline your strategy to fund the event in future years without Australian Government funding.

We may also approve other activities, including existing events. For expanding existing events, the benefits will require clear demonstration.

#### 5.2. Eligible locations

Your project can include activities at different locations, as long as they are all in bushfire disaster declared Local Government Areas described in paragraph 4.1 above.

For visitor attractions like tourist walks, your attraction can span more than one Local Government Area, including those not in bushfire disaster declared Local Government Areas described in paragraph 4.1 above, provided some of the attraction is in one of those declared areas.

#### 5.3. Eligible expenditure

You can only spend grant funds on eligible expenditure you have incurred on an agreed project as defined in your grant agreement

Eligible expenditure items are:

Direct labour costs of employees you directly employ on the core elements of the project. We
consider a person an employee when you pay them a regular salary or wage, out of which you
make regular tax instalment deductions.

- Up to 30 per cent labour on costs to cover employer paid superannuation, payroll tax, workers compensation insurance, and overheads such as office rent and the provision of computers for staff directly working on the project.
- Contract expenditure is the cost of any agreed project activities that you contract to others.
- Domestic travel including accommodation limited to the reasonable cost of accommodation and transportation required to conduct agreed project activities in Australia.
- Staff training that directly supports the achievement of project outcomes.
- The cost of an independent audit of project expenditure (where we request one) up to a maximum of 1 per cent of total eligible project expenditure.
- Reasonable insurance costs directly related to the project (participants must effect and maintain adequate insurance or similar coverage for any liability arising as a result of its participation in funded activities).
- Reasonable marketing and promotion costs directly related to the project.
- Leasing of equipment directly related to the project (for example, temporary equipment needed to hold an event).
- Other eligible expenditure as approved by the program delegate.

Not all expenditure on your project may be eligible for grant funding. The Program Delegate (who is a senior manager within the Australian Trade and Investment Commission (Austrade) with responsibility for the program) makes the final decision on what is eligible expenditure and may give additional guidance on eligible expenditure if required.

If your application is successful, we may ask you to verify project costs that you provided in your application. You may need to provide evidence such as quotes for major costs.

To be eligible, expenditure must:

- be a direct cost of the project
- be incurred by you for required project audit activities.

You must incur the project expenditure between the project start and end date for it to be eligible unless stated otherwise.

You may elect to commence your project from the date we notify you that your application is successful. We are not responsible for any expenditure you incur until a grant agreement is executed. The Commonwealth will not be liable, and should not be held out as being liable, for any activities undertaken before the grant agreement is executed.

#### 5.4. What you cannot use the grant for

Examples of ineligible expenditure include:

- Activities, equipment or supplies that are already being supported through other sources.
- Costs incurred prior to us notifying you that your application has been successful.
- Any in-kind contributions.
- Financing costs, including interest.
- Capital expenditure for the purchase of assets such as office furniture and equipment, motor vehicles, computers, printers or photocopiers and the construction, renovation or extension of facilities such as buildings and laboratories.
- Costs involved in the purchase or upgrade/hire of software (including user licences) and ICT hardware (unless it directly relates to the project).

- Non-project-related staff training and development costs.
- Debt financing.
- Costs related to obtaining resources used on the project, including interest on loans, job advertising and recruiting, and contract negotiations.
- Maintenance costs.
- Costs of purchasing, leasing, depreciation of, or development of land.
- Infrastructure development costs, including development of road, rail, port or fuel delivery networks beyond the project site(s).
- Site preparation activities which are not directly related to, or for, the main purpose of the project.
- Routine operational expenses, including communications, accommodation, office computing facilities, printing and stationery, postage, legal and accounting fees and bank charges.
- Costs related to preparing the grant application, preparing any project reports (except costs of independent audit reports we require) and preparing any project variation requests.
- Travel costs that exceed 10 per cent of total project costs except where otherwise approved by the Program Delegate.

This list is not exhaustive and applies only to the expenditure of the grant funds. Other costs may be ineligible where we decide that they do not directly support the achievement of the planned outcomes for the project or that they are contrary to the objective of the program.

The Program Delegate may impose limitations or exclude expenditure, or further include some ineligible expenditure listed in these guidelines or in a grant agreement or otherwise by notice to you.

You must ensure you have adequate funds to meet the costs of any ineligible expenditure associated with the project.

# 6. The assessment criteria

You must address all assessment criteria in your application/s. We will assess your application based on the weighting given to each criterion.

The application form asks questions that relate to the assessment criteria below. The amount of detail and supporting evidence you provide in your application should be relative to the project size, complexity and grant amount requested. You should provide evidence to support your answers. The application form displays size limits for answers.

We will only consider funding applications that score at least 30 points against each assessment criterion, as these represent best value for money.

#### 6.1. Assessment criterion 1

#### Project alignment with program objectives and outcomes (50 points)

You should demonstrate how:

- your project will meet the program objectives and outcomes outlined in section 6.2, including:
  - a. Expected increase in international and/ or domestic visitor numbers as a direct result of the project.
  - b. Expected increase in accommodation bookings as a direct result of the project.

- c. Expected visitor spend generated by the project.
- d. Expected number of jobs (temporary and ongoing) generated by the project.
- e. For Stream 1 applications above \$30,000 the timing of the event.

#### 6.2. Assessment criterion 2

#### Capacity, capability and resources to deliver the project (50 points)

You should demonstrate:

- a. Your track record, or the track record of organisations you will partner with or contract to, in managing similar projects.
- b. Your access to personnel with the right skills and experience to execute the project.
- c. Your plan to manage the project including any risks.
- d. Your strategy to maintain momentum for the project beyond the term of grant funding.

# 7. How to apply

Before applying, you should read and understand these guidelines, review the material included in your invitation to apply and follow the instructions included in the invitation.

You should retain a copy of your application for your own records. You can view and print a copy of your submitted application on the portal for your own records. The portal details will be supplied with your invitation.

You are responsible for making sure your application is complete and accurate. Giving false or misleading information is a serious offence under the *Criminal Code Act 1995* (Cth). If we consider that you have provided false or misleading information we may not progress your application. If you find an error in your application after submitting it, you should call us immediately on 1800 048 155.

If we find an error or information that is missing, we may ask for clarification or additional information from you that will not change the nature of your application. However, we can refuse to accept any additional information from you that would change your submission after the application closing time.

If you need further guidance around the application process, or if you are unable to submit an application online, contact Austrade by phone 1800 048 155 or by email RTBR@austrade.gov.au

#### 7.1. Attachments to the application

You must provide the following documents with your application:

- Evidence of support from the board, CEO or equivalent. Where the CEO or equivalent submits the application, we will accept this as evidence of support.
- Trust deed (where applicable).

You must attach supporting documentation to the application form in line with the instructions provided within the form. You should only attach requested documents. We will not consider information in attachments that we do not request.

#### 7.2. Joint applications

We encourage eligible organisations to join together as a group to deliver a project. In these circumstances, you must appoint a lead eligible organisation. You may also partner with non-eligible organisations but they cannot be the lead organisation.

Only the lead eligible organisation can submit the application form and enter into the grant agreement with the Commonwealth. The application should identify all other members of the proposed group and include a letter of support from each of the project partners. Each letter of support should include:

- Details of the project partner.
- An overview of how the project partner will work with the lead organisation and any other project partners in the group to successfully complete the project.
- An outline of the relevant experience and/or expertise the project partner will bring to the group.
- The roles/responsibilities the project partner will undertake, and the resources it will contribute (if any).
- Details of a nominated management level contact officer.

You must have a formal arrangement in place with all parties prior to execution of the grant agreement.

#### 7.3. Timing of grant opportunity

You can only submit an application between the published opening and closing dates for the relevant stream (Stream 1 or Stream 2). We cannot accept late applications.

If you are successful we expect you will be able to commence your project in accordance with the Grant Agreement.

Activity	Timeframe
Assessment of applications (Stream 1)	1-2 weeks
Assessment of applications (Stream 2)	4-6 weeks
Negotiations and award of grant agreements	1-3 weeks
Notification to unsuccessful applicants	2 weeks
Earliest start date of project	As agreed with Austrade
End date of grant commitment	20 June 2021

Table 1: Expected timing for this grant opportunity

# 8. The grant selection process

Austrade first reviews your application against the eligibility criteria. If eligible, we will then assess it against the assessment criteria. Only eligible applications will proceed to the assessment stage. The Minister for Trade, Tourism and Investment has appointed an Expert Panel. Panel members are:

- Ms Sandra Chipchase former Chief Executive Officer of Destination NSW, and Executive Producer, Vivid Sydney Festival. Ms Chipchase will chair the panel.
- Mr Michael Luchich South Australian State Director, Optus, and Chairman of Country Arts South Australia
- Ms Sarah Quon Chief Executive Officer of Sovereign Hill Museums Association, Board Member of Visit Victoria and the Committee for Ballarat.

Austrade may also refer your application to the Expert Panel. The Expert Panel may also seek additional advice from independent technical experts.

Austrade will consider your application against the assessment criteria, including taking advice from the Expert Panel and other relevant sources.

The Expert Panel (through Austrade) may come back to you seeking further information regarding your proposal and provide advice to enhance your proposal.

Austrade will consider your application on its merits, based on:

- How well it meets the criteria.
- For Stream 2 how it compares to other applications, including those in the same area. The comparison will take place after lodgements close for Stream 2.
- Stream 1 applications are not subject to a comparative assessment. They will be assessed as they are received.
- Whether it provides value for money.

When assessing whether the application represents value for money, Austrade will have regard to:

- The overall objectives of the grant program.
- The evidence provided to demonstrate how your project contributes to meeting those objectives.
- The relative value of the grant sought.

#### 8.1. Who will approve grants?

Austrade's CEO/delegate, decides which grants to approve taking into account the advice of Austrade, the Expert Panel and the availability of grant funds.

The Austrade CEO/ delegate's decision is final in all matters, including:

- The grant approval.
- The grant funding to be awarded.
- Any conditions attached to the offer of grant funding.

Austrade's CEO, or her delegate, will not approve funding if there is insufficient program funds available across relevant financial years for the program.

## 9. Notification of application outcomes

We will advise you of the outcome of your application in writing. If you are successful, we advise you of any specific conditions attached to the grant.

If you are unsuccessful, we will give you an opportunity to discuss the outcome with us.

## **10.** Successful grant applications

#### 10.1. Grant agreement

You must enter into a legally binding grant agreement with the Commonwealth. The grant agreement has general terms and conditions that cannot be changed.

We must execute a grant agreement with you before we can make any payments. Execute means both you and the Commonwealth have signed the agreement. We are not responsible for any expenditure you incur until a grant agreement is executed.

The approval of your grant may have specific conditions determined by the assessment process or other considerations made by the Austrade CEO or her delegate. We will identify these in the offer of grant funding.

Projects may seek funding from this program and other commonwealth or state or programs as long as the portion of the project that is funded by each is different and additional.

The Commonwealth may recover grant funds if there is a breach of the grant agreement.

We will use a standard grant agreement for Stream 2. Stream 1 will use a simple grant agreement.

You will have 30 days from the date of a written offer to execute this grant agreement with the Commonwealth. During this time, we will work with you to finalise details.

The offer may lapse if both parties do not sign the grant agreement within this time. Under certain circumstances, we may extend this period. We base the approval of your grant on the information you provide in your application. We will review any required changes to these details to ensure they do not impact the project as approved by Austrade's CEO/ delegate.

#### 10.2. Project specific legislation, policies and industry standards

You must comply with all relevant laws and regulations in undertaking your project. You must also comply with the specific legislation/policies/industry standards that follow. It is a condition of the grant funding that you meet these requirements. We will include these requirements in your grant agreement.

In particular, you will be required to comply with State/Territory legislation in relation to working with children.

#### 10.2.1. Child safety requirements

You must comply with all relevant legislation relating to the employment or engagement of anyone working on the project that may interact with children, including all necessary working with children checks.

You must implement the <u>National Principles for Child Safe Organisations</u><sup>2</sup> endorsed by the Commonwealth.

You will need to complete a risk assessment to identify the level of responsibility for children and the level of risk of harm or abuse, and put appropriate strategies in place to manage those risks. You must update this risk assessment at least annually.

You will also need to establish a training and compliance regime to ensure personnel are aware of, and comply with, the risk assessment requirements, relevant legislation including mandatory reporting requirements and the National Principles for Child Safe Organisations.

You will be required to provide an annual statement of compliance with these requirements in relation to working with children.

#### 10.3. How we pay the grant

The grant agreement will state the:

- Maximum grant amount we will pay.
- Proportion of eligible expenditure covered by the grant (grant percentage).

<sup>&</sup>lt;sup>2</sup> <u>https://www.humanrights.gov.au/our-work/childrens-rights/national-principles-child-safe-organisations</u>

We will not exceed the maximum grant amount under any circumstances. If you incur extra costs, you must meet them yourself.

We will make payments according to an agreed schedule set out in the grant agreement. Payments are subject to satisfactory progress on the project.

For both Stream 1 and 2, we will pay a minimum of 50 per cent of the value of the grant up front on signing of the grant agreement.

#### 10.4. Tax obligations

If you are registered for the Goods and Services Tax (GST), where applicable we will add GST to your grant payment and provide you with a recipient created tax invoice. You are required to notify us if your GST registration status changes during the project period. GST does not apply to grant payments to government related entities<sup>3</sup>.

Grants are assessable income for taxation purposes, unless exempted by a taxation law. We recommend you seek independent professional advice on your taxation obligations or seek assistance from the <u>Australian Taxation Office</u>. We do not provide advice on tax.

# 11. Announcement of grants

We will publish non-sensitive details of successful projects on GrantConnect. We are required to do this by the <u>Commonwealth Grants Rules and Guidelines</u> unless otherwise prohibited by law. We may also publish this information on business.gov.au. This information may include:

- Name of your organisation
- Title of the project
- Description of the project and its aims
- Amount of grant funding awarded
- Australian Business Number
- Business location
- Your organisation's industry sector.

# 12. How we monitor your grant activity

#### 12.1. Keeping us informed

You should let us know if anything is likely to affect your project or organisation.

We need to know of any key changes to your organisation or its business activities, particularly if they affect your ability to complete your project, carry on business and pay debts due.

You must also inform us of any changes to your:

- Name
- Addresses
- Nominated contact details
- Bank account details.

<sup>&</sup>lt;sup>3</sup> See Australian Taxation Office ruling GSTR 2012/2 available at ato.gov.au

If you become aware of a breach of terms and conditions under the grant agreement you must contact us immediately.

You must notify us of events relating to your project and provide an opportunity for the Minister or their representative to attend.

#### 12.2. Reporting

You must submit reports in line with the grant agreement. We will provide the requirements for these reports as appendices in the grant agreement. We will remind you of your reporting obligations before a report is due. We will expect you to report on:

- Progress against agreed project milestones
- Project expenditure, including expenditure of grant funds
- Contributions of participants directly related to the project.

The amount of detail you provide in your reports should be relative to the project size, complexity and grant amount.

We will monitor the progress of your project by assessing reports you submit and may conduct site visits to confirm details of your reports if necessary. Occasionally we may need to re-examine claims, seek further information or request an independent audit of claims and payments.

#### 12.2.1. Progress reports

Progress reports must:

- Include details of your progress towards completion of agreed project activities.
- Show the total eligible expenditure incurred to date.
- Photos and videos are encouraged.
- Include evidence of expenditure.
- Be submitted by the report due date (you can submit reports ahead of time if you have completed relevant project activities).

We will only make grant payments when we receive satisfactory progress reports.

You must discuss any project or milestone reporting delays with us as soon as you become aware of them.

#### 12.2.2. End of project report

When you complete the project, you must submit an end of project report.

End of project reports must:

- Include the agreed evidence as specified in the grant agreement.
- Identify the total eligible expenditure incurred for the project.
- Include a declaration that the grant money was spent in accordance with the grant agreement and to report on any underspends of the grant money.
- Be submitted by the report due date.

#### 12.3. Independent audits

We may ask you to provide an independent audit report. An audit report will verify that you spent the grant in accordance with the grant agreement. The audit report requires you to prepare a statement of grant income and expenditure.

#### 12.4. Compliance visits

We may visit you during the project period, to review your compliance with the grant agreement. We may also inspect the records you are required to keep under the grant agreement. We will provide you with reasonable notice of any compliance visit.

#### 12.5. Grant agreement variations

We recognise that unexpected events may affect project progress. In these circumstances, you can request a variation to your grant agreement, including:

- Changing project milestones.
- Extending the timeframe for completing the project but within the time period allowed in these
  program guidelines.
- Changing project activities.
- Increasing grant funds.

The program does not allow for an increase of grant funds.

If you want to propose changes to the grant agreement, you must put them in writing before the grant agreement end date. We can provide you with a variation request template.

If a delay in the project causes milestone achievement and payment dates to move to a different financial year, you will need a variation to the grant agreement. We can only move funds between financial years if there is enough program funding in the relevant year to allow for the revised payment schedule. If we cannot move the funds, you may lose some grant funding.

You should not assume that a variation request will be successful. We will consider your request based on factors such as:

- How it affects the project outcome.
- Consistency with the program policy objective, grant opportunity guidelines and any relevant policies of Austrade.
- Changes to the timing of grant payments.
- Availability of program funds.

#### 12.6. Evaluation

We will evaluate the grant program to measure how well the outcomes and objectives have been achieved. We may use information from your application and project reports for this purpose. We may also interview you, or ask you for more information to help us understand how the grant impacted you and to evaluate how effective the program was in achieving its outcomes.

We may contact you up to two years after you finish your project for more information to assist with this evaluation.

#### 12.7. Grant acknowledgement

If you make a public statement about a project funded under the program, including in a brochure, publication or social media, you must acknowledge the grant by using the following:

'This project received grant funding from the Australian Government.'

Appropriate Commonwealth representatives must be invited to participate in opening ceremonies, product launches or similar events.

If you erect signage in relation to the project, the signage must contain an acknowledgement of the grant.

# 13. Probity

We will make sure that the grant opportunity process is fair, according to the published guidelines, incorporates appropriate safeguards against fraud, unlawful activities and other inappropriate conduct and is consistent with the CGRGs.

#### 13.1. Conflicts of interest

Any conflicts of interest could affect the performance of the grant opportunity or program. There may be a conflict of interest, or perceived conflict of interest, if our staff, any member of a committee or advisor and/or you or any of your personnel:

- Has a professional, commercial or prior personal relationship with a party who is able to influence the application selection process, such as an Australian Government officer, or member of the Expert Panel.
- Has a relationship with or interest in, an organisation, which is likely to interfere with or restrict the applicants from carrying out the proposed activities fairly and independently; or
- Has a relationship with, or interest in, an organisation from which they will receive personal gain because the organisation receives a grant under the grant program/ grant opportunity.

As part of your application, we will ask you to declare any perceived or existing conflicts of interests or confirm that, to the best of your knowledge, there is no conflict of interest.

If you later identify an actual, apparent, or perceived conflict of interest, you must inform us in writing immediately.

Conflicts of interest for Australian Government staff are handled as set out in the Australian <u>Public</u> <u>Service Code of Conduct (Section 13(7))</u><sup>4</sup> of the <u>Public Service Act 1999</u> (Cth)<sup>5</sup>. Committee members and other officials including the decision maker must also declare any conflicts of interest.

#### 13.2. How we use your information

Unless the information you provide to us is:

- Confidential information as per 13.2.1, or
- Personal information as per 13.2.3,

We may share the information with other government agencies for a relevant Commonwealth purpose such as:

- To improve the effective administration, monitoring and evaluation of Australian Government programs
- For research
- To announce the awarding of grants.

<sup>&</sup>lt;sup>4</sup> <u>https://www.legislation.gov.au/Details/C2017C00270/Html/Text#\_Toc491767030</u>

<sup>&</sup>lt;sup>5</sup> <u>https://www.legislation.gov.au/Details/C2017C00270</u>

#### 13.2.1. How we handle your confidential information

We will treat the information you give us as sensitive and therefore confidential if it meets all of the following conditions:

- You clearly identify the information as confidential and explain why we should treat it as confidential
- The information is commercially sensitive
- Disclosing the information would cause unreasonable harm to you or someone else
- You provide the information with an understanding that it will stay confidential.

#### 13.2.2. When we may disclose confidential information

We may disclose confidential information:

- To the Expert Panel and our employees and contractors, to help us manage the program effectively
- To the Auditor-General, Ombudsman or Privacy Commissioner
- To the responsible Minister or Assistant Minister
- To a House or a Committee of the Australian Parliament.

We may also disclose confidential information if

- We are required or authorised by law to disclose it
- You agree to the information being disclosed, or
- Someone other than us has made the confidential information public.

#### 13.2.3. How we use your personal information

We must treat your personal information according to the Australian Privacy Principles (APPs) and the *Privacy Act 1988* (Cth). This includes letting you know:

- What personal information we collect
- Why we collect your personal information
- To whom we give your personal information.

We may give the personal information we collect from you to our employees and contractors, the Expert Panel, and other Commonwealth employees and contractors, so we can:

- Manage the program
- Research, assess, monitor and analyse our programs and activities.

We, or the Minister, may:

- Announce the names of successful applicants to the public
- Publish personal information on the Austrade websites.

Austrade will collect, use, disclose and store your personal information in accordance with the Austrade Privacy Policy. Please read <u>Austrade's policy policy</u> <sup>6</sup> for more information on:

- What is personal information
- How we collect, use, disclose and store your personal information

<sup>&</sup>lt;sup>6</sup> <u>https://www.austrade.gov.au/about-austrade/site-information/privacy-disclaimer/austrades-australian-privacy-principles-policy</u>

How you can access and correct your personal information.

#### 13.2.4. Freedom of information

All documents in the possession of the Australian Government, including those about the program, are subject to the *Freedom of Information Act 1982* (Cth) (FOI Act).

The purpose of the FOI Act is to give members of the public rights of access to information held by the Australian Government and its entities. Under the FOI Act, members of the public can seek access to documents held by the Australian Government. This right of access is limited only by the exceptions and exemptions necessary to protect essential public interests and private and business affairs of persons in respect of whom the information relates.

If someone requests a document under the FOI Act, we will release it (though we may need to consult with you and/or other parties first) unless it meets one of the exemptions set out in the FOI Act.

#### 13.3. Enquiries and feedback

For further information or complaint, you can contact us by phone on 1800 048 155 or by email at RTBR@austrade.gov.au

We may publish answers to your questions on our website as Frequently Asked Questions.

You can also contact the <u>Commonwealth Ombudsman<sup>Z</sup></u> with a complaint (call 1300 362 072). There is no fee for making a complaint, and the Ombudsman may conduct an independent investigation.

Term	Definition
Application form	The document issued by the Program Delegate that applicants use to apply for funding under the program.
Eligible activities	The activities undertaken by a grantee in relation to a project that are eligible for funding support as set out in 5.1.
Eligible application	An application or proposal for [services or grant funding] under the program that the Program Delegate has determined is eligible for assessment in accordance with these guidelines.
Eligible expenditure	The expenditure incurred by a grantee on a project and which is eligible for funding support as set out in 5.3.

# 14. Glossary

<sup>&</sup>lt;sup>7</sup> http://www.ombudsman.gov.au/

Term	Definition
Expert Panel	The panel appointed by the Minister to advise on program design and delivery, promote the program, assist applicants with application development and encourage partnerships both between eligible applicants, and with eligible applicants and other organisations. The Expert Panel will also provide expert advice to Austrade's CEO/ delegate regarding eligible applications.
Grant agreement	A legally binding contract between the Commonwealth and a grantee for the grant funding.
Grant funding or grant funds	The funding made available by the Commonwealth to grantees under the program.
<u>GrantConnect</u>	The Australian Government's whole-of-government grants information system, which centralises the publication and reporting of Commonwealth grants in accordance with the CGRGs.
Grantee	The recipient of grant funding under a grant agreement.
Guidelines	Guidelines that the Minister gives to Austrade to provide the framework for the administration of the program, as in force from time to time.
Local Government Authority (LGA)	Means a Local Government Authority whose substantial purpose is providing local government over a specific area, and that is recognised by the community as a Local Government Authority.
Minister	The Commonwealth Minister for Trade, Tourism and Investment
Personal information	Has the same meaning as in the <i>Privacy Act 1988</i> (Cth) which is:
	Information or an opinion about an identified individual, or an individual who is reasonably identifiable:
	a. whether the information or opinion is true or not;
	<ul> <li>b. whether the information or opinion is recorded in a material form or not.</li> </ul>
Program Delegate	A senior manager within Austrade with responsibility for the program.
Program funding or Program funds	The funding made available by the Commonwealth for the program.
Project	A project described in an application for grant funding under the program.

Term	Definition
Regional Tourism Organisation	Means
(	<ul> <li>an entity, incorporated in Australia; or</li> <li>a company limited by guarantee; or</li> </ul>
	<ul> <li>an incorporated trustee on behalf of a trust; or</li> </ul>
	<ul> <li>an incorporated association; or</li> </ul>
	<ul> <li>an incorporated not for profit organisation; and</li> </ul>
	whose substantial purpose is the co-ordination or promotion of tourism, including international and domestic, to a specific region, and that is recognised by the community as an RTO.

#### Annexure A

# **Eligible applicants for Stream 1 grants**

#### **Regional Tourism Organisations**

- 1. Adelaide Hills Tourism
- 2. Brisbane Marketing
- 3. Bundaberg Tourism
- 4. Capricorn Enterprise
- 5. Destination Country and Outback NSW
- 6. Destination Gippsland
- 7. Destination Gold Coast
- 8. Destination North Coast NSW
- 9. Destination Riverina Murray
- 10. Destination Southern NSW
- 11. Destination Southern Tasmania
- 12. East Coast Tourism
- 13. Grampians Tourism
- 14. Great Ocean Road Regional Tourism Ltd
- 15. Kangaroo Island Tourism Food Wine and Beverage Association
- 16. Limestone Coast Local Government Association
- 17. Murray Regional Tourism
- Murray River, Lakes and Coorong Tourism Alliance
- 19. Southern Queensland Country Tourism
- 20. Sydney Surrounds North
- 21. Sydney Surrounds South
- 22. Tourism North East
- 23. Visit Sunshine Coast
- 24. Yorke Peninsula Tourism

#### Local Government NSW

- 25. Armidale Regional Council
- 26. Ballina Shire Council
- 27. Bega Valley Shire Council
- 28. Bellingen Shire Council
- 29. Blue Mountains City Council
- 30. Byron Shire Council
- 31. Central Coast Council
- 32. Cessnock City Council
- 33. City of Wagga Wagga
- 34. Clarence Valley Council
- 35. Coffs Harbour City Council
- 36. Cootamundra-Gundagai Regional Council

- 37. Eurobodalla Shire Council
- 38. Glen Innes Severn Council
- 39. Greater Hume Council
- 40. Goulburn Mulwaree Council
- 41. Gwydir Shire Council
- 42. Hawkesbury City Council
- 43. Inverell Shire Council
- 44. Kempsey Shire Council
- 45. Ku-ring-gai Council
- 46. Kyogle Council
- 47. Lake Macquarie City Council
- 48. Lismore City Council
- 49. Lithgow City Council
- 50. Mid Coast Council
- 51. Mid-Western Regional Council
- 52. Muswellbrook Shire Council
- 53. Nambucca Shire Council
- 54. Narrabri Shire Council
- 55. Oberon Council
- 56. Penrith City Council
- 57. Port Macquarie-Hastings Council
- 58. Queanbeyan-Palerang Regional Council
- 59. Richmond Valley Council
- 60. Shoalhaven City Council
- 61. Singleton Council
- 62. Snowy Monaro Regional Council
- 63. Snowy Valleys Council
- 64. Sutherland Shire Council
- 65. Tamworth Regional Council
- 66. Tenterfield Shire Council
- 67. Tweed Shire Council
- 68. Upper Hunter Shire Council
- 69. Upper Lachlan Shire Council
- 70. Uralla Shire Council
- 71. Walcha Council
- 72. Wingecarribee Shire Council
- 73. Wollondilly Shire Council

#### Local Government SA

- 74. Adelaide Hills Council
- 75. City of Playford

February 2020

- 76. Coorong District Council
- 77. District Council of Lower Eyre Peninsula

- 78. Kangaroo Island Council
- 79. Kingston District Council
- 80. Mid Murray Council
- 81. Mount Barker District Council
- 82. Southern Mallee District Council
- 83. The Rural City of Murray Bridge
- 84. Yorke Peninsula Council

#### Local Government VIC

- 85. Alpine Shire Council
- 86. Ararat Rural City Council
- 87. City of Ballarat
- 88. East Gippsland Shire Council
- 89. Glenelg Shire Council
- 90. Golden Plains Shire Council
- 91. City of Greater Bendigo
- 92. Indigo Shire Council
- 93. Mansfield Shire Council
- 94. Moyne Shire Council
- 95. Northern Grampians Shire Council
- 96. Pyrenees Shire Council
- 97. Southern Grampians Shire Council
- 98. Shire of Strathbogie
- 99. Towong Shire Council
- 100. Wangaratta Rural City Council
- 101. Wellington Shire Council
- 102. Wodonga City Council

#### Local Government QLD

- 103. Bundaberg Regional Council
- 104. City of Gold Coast
- 105. Gladstone Regional Council
- 106. Gympie Regional Council
- 107. Ipswich City Council
- 108. Livingstone Shire Council
- 109. Lockyer Valley Regional Council
- 110. Noosa Council
- 111. Redland City Council
- 112. Scenic Rim Regional Council
- 113. Somerset Regional Council
- 114. Southern Downs Regional Council
- 115. Sunshine Coast Regional Council
- 116. Toowoomba Regional Council

#### Local Government TAS

- 117. Break O'Day Council
- 118. Central Highlands Council

119. Southern Midlands Council

#### Annexure B

# **Eligible applicants for Stream 2 grants**

#### **Regional Tourism Organisations**

- 1. Adelaide Hills Tourism
- 2. Brisbane Marketing
- 3. Capricorn Enterprise
- 4. Destination Country and Outback NSW
- 5. Destination Gippsland
- 6. Destination North Coast NSW
- 7. Destination Riverina Murray
- 8. Destination Southern NSW
- 9. Kangaroo Island Tourism Food Wine and Beverage Association
- 10. Southern Queensland Country Tourism
- 11. Sydney Surrounds North
- 12. Sydney Surrounds South
- 13. Tourism North East
- 14. Visit Sunshine Coast

#### Local Government NSW

- 15. Armidale Regional Council
- 16. Ballina Shire Council
- 17. Bega Valley Shire Council
- 18. Bellingen Shire Council
- 19. Blue Mountains City Council
- 20. Byron Shire Council
- 21. Central Coast Council
- 22. Cessnock City Council
- 23. Clarence Valley Council
- 24. Coffs Harbour City Council
- 25. Eurobodalla Shire Council
- 26. Glen Innes Severn Council
- 27. Hawkesbury City Council
- 28. Inverell Shire Council
- 29. Kempsey Shire Council
- 30. Kyogle Council
- 31. Lismore City Council
- 32. Lithgow City Council
- 33. Mid Coast Council
- 34. Mid-Western Regional Council
- 35. Nambucca Shire Council
- 36. Port Macquarie-Hastings Council
- 37. Queanbeyan-Palerang Regional Council
- 38. Richmond Valley Council
- 39. Shoalhaven City Council
- 40. Singleton Council
- 41. Snowy Monaro Regional Council

- 42. Snowy Valleys Council
- 43. Tenterfield Shire Council
- 44. Tweed Shire Council
- 45. Walcha Council
- 46. Wingecarribee Shire Council
- 47. Wollondilly Shire Council

#### Local Government SA

- 48. Adelaide Hills Council
- 49. Kangaroo Island Council

#### Local Government VIC

- 50. Alpine Shire Council
- 51. East Gippsland Shire Council
- 52. Towong Shire Council

#### Local Government QLD

- 53. Livingstone Shire Council
- 54. Noosa Council
- 55. Scenic Rim Regional Council
- 56. Southern Downs Regional Council
- 57. Sunshine Coast Regional Council



Senator the Hon Simon Birmingham Minister for Trade, Tourism and Investment Deputy Leader of the Government in the Senate Senator for South Australia

Senator the Hon Jonathon Duniam Assistant Minister for Forestry and Fisheries Assistant Minister for Regional Tourism Deputy Manager of Government Business in the Senate Senator for Tasmania

Ref: MS20-000031

### Important message re Regional Tourism Bushfire Recovery grant program

As Australia faces the global coronavirus challenge, the Morrison Government is delivering a plan to slow the spread of the virus, to help save lives. Measures such as social distancing, and limits on mass and social gatherings, are impacting the way Australians live and work. But they are necessary to help slow the spread of the virus and ensure our health system can respond to the health needs of Australians, particularly our most vulnerable citizens. As the Prime Minister has said, the health battle is the main battle we face, and it is a battle in which all Australians must play their part in order to fight the virus.

The limits on events and gatherings mean the \$10 million Regional Tourism Bushfire Recovery Grants, to which your organisation is eligible to apply, cannot proceed as planned. Austrade has been working with eligible organisations to understand the impacts this will have on any proposed events being considered under the grants program.

Following this consultation, we have extended the deadline for applications for Stream 1 to 18 December 2020 and the deadline for applications for Stream 2 to 8 May 2020. The deadline for all events and projects to be completed will be extended to 28 February 2022. In addition, the guidelines for Stream 1 will be amended to enable funding for projects such as art installations and tourist walks.

This means Austrade will assess the applications and make grant decisions to provide you with certainty that funding will be available for approved events and activities, at a time when communities are ready and able to hold them. More information about these changes is available at <a href="http://www.austrade.gov.au/bushfirerecovery">www.austrade.gov.au/bushfirerecovery</a> or by contacting Austrade on 1800 048 155 or email: <a href="http://www.austrade.gov.au">rtbr@austrade.gov.au</a>/bushfirerecovery or by contacting Austrade on 1800 048 155 or email:

The Australian tourism sector, and the communities which rely on tourism, are facing their biggest challenge in living memory. The double effect of the bushfire crisis and coronavirus outbreak make for unprecedented and extremely difficult times.

We know there will be many hardships and sacrifices that Australians will face in the weeks and months ahead. We will not be able to save all jobs, nor all businesses. But we have announced a \$320 billion package of support to help cushion the impacts of coronavirus and to provide a financial bridge to the recovery on the other side.

This package includes support for individuals and households, and for business operators, including through the Government's historic wage subsidy to around six million workers who will receive a flat payment of \$1,500 per fortnight through their employer, temporary relief for financially distressed businesses, increasing the instant asset write-off and supporting apprentices and trainees. The Australian Tax Office will also provide relief, on a case-by-case basis, including the ability to defer payment of certain taxes.

The package also includes an initial \$1 billion Relief and Recovery Fund, to support those regions, communities and industries that have been disproportionately affected by the economic impacts of the coronavirus, including those heavily reliant on tourism and agriculture.

More information on the Government's Economic Response is available at <u>https://treasury.gov.au/coronavirus.</u> Businesses impacted by the coronavirus can also contact the expanded business.gov.au helpline on 13 28 46, seven days a week, from 7am to 11pm AEST.

Our tourism industry is incredibly resilient and has bounced back in the past from other crises. We will continue to work closely with tourism operators, states and territories, and communities across Australia, to ensure it can recover once again, even stronger than before.

Yours sincerely

Jouthon Juian

Simon Birmingham

Jonathon Duniam

22 APR 2020

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Due to the continued challenges facing the Tasmanian tourism industry during the Covid pandemic, we will be extending our special Tourism Relief package until 30th September 2020.

At News Corp Tasmania we remain committed to assisting the many wonderful Tasmanian tourism organisations and tourism operators in our great state and to amplifying Tourism Tasmania's message to "make yourself at home".

News Corp Tasmania, is delighted to extend a **massive 90% discount off advertising rates**\* for full and half pages in the Mercury and Sunday Tasmanian as well as Escape and, returning in August, TasWeekend (very limited spaces available for TasWeekend).





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News Corp Tasmania

# FEASIBILITY STUDY INTO AN

# ADVENTURE TRAIL AROUND TASMANIA'S YINGINA/GREAT LAKE
### The Central Highlands Story

Living in the Central Highlands is hard. And that is its gift to us.

This place creates toughness and unmatched resourcefulness. It's these traits that have seen us proudly build industries, towns and communities. And these same traits have steadied us as we watched industries rationalise and leave, towns shrink and empty, and our communities dissolve from being the region's lifeblood that they once were.

Things might be different today, but we're not daunted.

Living here asks us to dig in and double down, which we do not because we're stubborn – which, by the way we proudly are, but because living here is a commitment. To a solid day's work. To our environment which defines so much of how we work and live. And to each other, now more than ever.

In a changing world, we have the privilege of living at a different pace. One that allows us to see things and say things with clarity and honesty. To not be distracted by the things that don't matter.

Here, your character means more than your money. Because being a Central Highlander is a simple determination to stay true.

## INTRODUCTION

This feasibility study into the proposed yingina/Great Lake Trail has been created and managed by The20. In commissioning it, Johns Group Tasmania has remained completely at arms-length throughout the entire process.

Many feasibility studies are often done through a templated approach, with community consultation occurring through soulless surveys. While this creates data, it doesn't allow us to hear the voices of the people themselves. It's not the 'Tasmanian' way of doing things, and we were never going to do this.

Instead we've held ourselves to account to achieve something much deeper, and ultimately, something much more useful.

MAREho

Matt Fishburn Managing Director, The20

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"There's so much to offer in this whole greater area, development could give so many more opportunities to people. I am very happy with proper, sensible and thought out development."

CENTRAL HIGHLANDS RESIDENT



### EXECUTIVE SUMMARY

This proposal outlines the plan to develop the Great Lake Trail. Based on rigorous research and an in-depth community consultation process, the business case for a multi-purpose Adventure Trail in Tasmania's wild and spectacular Central Highlands is unquestionably positive.

In researching this proposal, much care has been taken to consult with key stakeholders, including landowners and with the community members who live, work and play in the district – many having lived there for generations.

The cultural and environmental sensitivities of a development in the area have been carefully considered, as well as the economic opportunities.

Not only will the Great Lake Trail provide a unique tourism asset for the Great Lake, the much-needed flow on effects for the wider region provide a compelling argument for the ongoing and sustainable success of the development.

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## NTRODUCTION



According to Tourism Research Australia 2019 statistics, the tourism industry in Tasmania is a significant contributor to the Tasmanian economy, with a direct and indirect contribution of about \$3.2 billion, or 10.3% of GDP. This includes a direct contribution of \$1.49 billion or 4.9% of GDP, which is the highest of any state or territory in the country.

These statistics also show that the tourism industry directly supported 21,600 jobs, and directly and indirectly supported 42,800 jobs, or about 17.2% of Tasmania's employment.

Tourism Tasmania's research shows that the state's nature, wilderness and nature-based activities are the key drivers for visitation to Tasmania. Tourism Tasmania's complementary strategy includes an emphasis on dispersing visitors into the state's regions.

The latest Tasmanian Visitor Survey (TVS) shows that over 1.3 million visitors undertook an outdoor activity while in Tasmania. This included over 690,000 who participated in a walk and almost 520,000 who visited a national park. These figures include almost 50,000 people who went fishing, 24,000 who cycled and over 26,000 who went mountain biking

These people are the Adventure Seekers, the fastest growing tourism segment internationally, in Australia and in Tasmania. The Adventure Seeker participates in either 'hard' or 'soft' experiences. The hard Adventure Seeker usually have their own equipment and are less reliant on others to provide goods and services, while the soft Adventure Seeker looks to hire equipment and are reliant on others – they spend more and spread their spending around a number of businesses.

Activities include backpacking, bird watching, rock climbing, canoeing, kayaking, cycling, fishing, hiking, horseback riding, hunting, orienteering, trekking and walking.

All these activities can be found in Tasmania's next iconic adventure hub – the Great Lake area, and the Great Lake Trail.

A BRIEF HISTORY

"To live here you've got to have some guts about you and a bit of brains."

CENTRAL HIGHLANDS RESIDENT

Tasmania's yingina/Great Lake is a natural lake and man-made reservoir located in the central northern region of Tasmania.

Fed by the Pine Rivulet and Breton Rivulet, the original natural freshwater lake, much smaller in size than its current 176-square-kilometre surface area, was expanded as a result of the 1922 construction of Miena Dam at its southern outflow into the Shannon River. The dam is considered to be of high heritage value by Engineers Australia.

The lake's water catchment area is managed by Hydro Tasmania, with water from the lake flowing into the Poatina Power Station to generate hydro-electric power.

The lake is surrounded by Crown land, Hydro Tasmania land and land that is in the Central Plateau and the Great Lake conservation areas, which is part of the Tasmanian Wilderness World Heritage Area. Hydro Tasmania owns some of the area around the edge of the lake.

## THE GREAT LAKE TRAIL



This proposal is centred around the creation of a new wilderness experience in the heart of Tasmania – the Great Lake Trail.

Glen Jacobs of World Trail will develop the proposed Great Lake Trial in four stages, from the Miena Dam Wall along land currently owned by Hydro Tasmania, Crown land and land in the Central Plateau and Great Western Tiers Conservation Areas.

The point-to-point adventure trail around the Great Lake will be between 95 to 105 kilometres in length, with four to five areas where the elevation will rise to a height of 150 meters. In most areas it will be protected from the prevailing winds, however those who ride or walk it will at some points have to endure not only cold winds but also seasonal elements such as snow and ice.

The Great Lake Trail will be unique from any other point-to-point trail. Visitors will experience various eco-tones of trees, shrubs, grasslands, water, hills, and in the background mountaintops. Around the lake there will be several strategically placed huts where adventure seekers can have a rest or stay a night.

A similar trail nearing completion in North Queensland is called the Wangetti Trail, running from Palm Cove to Port Douglas for a distance of about 95 kilometres. The Queensland state government and developers expect that at least 10,000 to 15,000 people a year will experience this trail. Their plan includes the emerging e-bike market as a 'game changer' in a point-to-point trail experience.

In early discussions with Hydro Tasmania, there is also an opportunity to develop a walk from the proposed trail that begins at Tods Corner and follows the former canal route to Arthurs Lake and along the former canal route from Shannon Lagoon to Penstock Lagoon.



"The point-to-point trail will be completely different to any existing or planned product in Tasmania. It will complement the north-east trails by providing a different experience in terms of weather, scenery, and overall experience. It is well suited to the emerging e-bike market which will be a 'game changer' for point-to-point trails of this length."

GLEN JACOBS, WORLD TRAIL

### TRAIL EXPERIENCES

aspect of attracting visitors to experience the Great Lake Trail. For the cycling tourist, the Trail will be a completely different but complementary product to the existing north east trails at Derby and St Helens. While these trails attract mountain bike event specialists and experienced riders, some of this audience will also want to experience the Great Lake Trail.

The cycling market in particular represents a unique

However, the product will also attract a different and much wider market. The Great Lake Trail will be more attractive to the 'soft' Adventure Seeker who include mountain biking as one of a number of activities that they like to undertake, as well as to the families and partners of the mountain biker who do not have the same motivation for cycling. They will be able to experience the Trail by walking or with a less energetic option of an e-bike.

The emerging and fast-growing e-bike market opens up a point-to-point trail to a wider range of people including those who are younger, older, and not as physically fit as those who choose to ride a conventional bike.

Other adventures such as walking and trekking, trout fishing, bird watching, canoeing, kayaking, hunting and horseback riding will provide additional experiences and broaden the market, keeping visitors in the area for longer.

"Tourism is important, bloody oath it is. There's so much potential in the Lakes."

CENTRAL HIGHLANDS RESIDENT

THE CENTRAL PLATEAU AND GREAT LAKE CONSERVATION AREAS

"It can't take away from the natural beauty of what's going on. They'd really have to do it carefully."

CENTRAL HIGHLANDS RESIDENT

A portion of the Great Lake Trail is within the Tasmanian Wilderness World Heritage Area (TWWHA) and will need approval by the managers of the TWWHA and Tasmanian Parks and Wildlife Service (PWS).

The current TWWHA Management Plan that applies to this land has the 'protection and conservation of the Outstanding Universal Value' as one of its principal objectives.

The management of specific types of activities in the TWWHA is controlled through the application of four management zones:

- Visitor Services Zone
- Recreation Zone
- Self-Reliant Recreation Zone
- Wilderness Zone

The areas that would be impacted by the proposed Great Lake Trail are in the Self-Reliant Recreation Zone, in which walking tracks, mountain bike riding and bushwalking are allowable uses.

The Management Plan also identifies five primary streams for visitors to the area to experience the TWWHA:

- Virtual: technology and print related experiences.
- **Drive-through:** largely applicable to the Lyall Highway, Gordon River, and peripheral areas.
- Experience from the edge: visitors experience the TWWHA from key visitor nodes, such as Dove Lake and Lake St Clair, as well as peripheral facilities, such as lookouts, picnic shelters and short nature walks.
- In from the edge: visitors conduct day-long and shorter experiences away from the TWHWA entrance points. This group includes visitors who use on-reserve or off-reserve accommodation for one or more nights and are more likely to engage in commercial experiences.
- **Back country:** self-reliant visitors who conduct long and challenging walks or multi-day trips including journeys to remote areas. Some participate in commercially guided experiences such as walking the Overland Track or rafting the Franklin River.

The experience proposed at the Great Lake Trail would be an **in from the edge** presentation of the TWHWA.

Matters of National Environmental Significance are also to be considered. This includes the need to enhance, conserve and protect World Heritage Values in relation to the listed threatened species and migratory species within the TWWHA. All commercial tourism proposals need to be considered against the requirements of the Environmental Protection and Biodiversity Act.

The following area shown in red is owned by Hydro Tasmania.



Land owned by Hydro CA / TWW

Land owned by Central Plateau CA TWW



### FORMAL RESERVE ACTIVITY ASSESSMENT

"My feeling is that you want to preserve as much as you can in this day and age of the natural environment because that is what's getting scarcer, worldwide, and it is becoming unique."

CENTRAL HIGHLANDS RESIDENT

As the two major landowners, Hydro Tasmania and PWS (as managers of the Crown Land and TWWHA Conservation Areas) have encouraged the necessary work to be undertaken to enable a formal Reserve Activity Assessment.

To obtain approval for the Great Lake Trail to go through the TWWHA Conservation Areas, a formal Reserve Activity Assessment will be required for assessment by PWS. Preliminary discussions with PWS and Hydro Tasmania indicate that they do not see any major 'show-stoppers' in obtaining the necessary approval.

Part of the Reserve Activity Assessment will include formal Aboriginal Heritage Assessment. An initial desktop assessment has been undertaken, with indications that there are possible aboriginal heritage sites around the lake that will be required to be managed during the construction and the ongoing use of the Trail. Once the actual route is determined, a formal application will be required, at which time a management plan will need to be developed for use during construction and once the Trail is completed and being used.

Another part of the Reserve Activity Assessment will be developing a management plan for flora and fauna in the area. An initial assessment indicates that this will also be required during construction, and once the Trail is completed and being used, particularly in relation to some birdlife, the Liawenee orchid and the Miena jewel beetle.

As part of the management plan, awareness of aboriginal heritage, and flora and fauna can be embedded into the information provided to users of the Trail during their information gathering online, and at the time of their physical journey around the Trail, including appropriate signage. For example, providing information and education about the Liawenee orchid during the flowering season of December and January would assist in the location of new areas for preservation.



"It's an advantage, a privilege to live here. The whole region is beautiful. You kick yourself to be living in such a beautiful place." The coronavirus outbreak has and will continue to impact visitation to Tasmania. However, the impact of the virus will increase the number of Tasmanians who travel within Tasmania, and particularly to experience the TWWHA. With restrictions and a broad reluctance for international and cruise ship travel due to the virus, many Australians will want an adventure within their own country. We should see this increased activity from early 2021 and continue into the next cycle of 3 to 4 years.

According to forecast and commentary from IBIS World, the Tourism industry will recover from the COVID-19 pandemic with activity in 2021/22 slightly higher than the pre-pandemic activity. It forecasts that interstate and intrastate activity will recover much quicker than international travel.

"Australians will look to discover parts of their country that they have not seen and will go off the beaten track." *IBIS World Commentary* 

Up until this year, visitation to Tasmania had been growing at 5.4% compound since 2015. This was preceded by growth of 4.2% between 2008 and 2018. Visitation by Adventure Seekers is projected to be along similar lines as visitation to TWWHA which comes from three sources overseas, interstate and intrastate. The Tasmanian Visitor Survey (TVS) only includes overseas and interstate figures. Intrastate travel is collected by Tourism Australia research. PWS collects information about visitors to reserves and parks in Tasmania through surveys, walker and visitor counts and National Park Pass registrations. It cannot count all visitors to TWWHA because there are so many entry points, and many are not monitored. Given this, PWS estimate there are between 800,000 and 1,000,000 visitors to TWWHA sites a year, with over 800,000 taken from 14 reference sites and an additional 200,000 at other sites. This includes both visitors to Tasmania and intrastate visitation. Growth between 2011/12 and 2017/18 has almost doubled.

CENTRAL HIGHLANDS RESIDENT

### NATURE-BASED TOURISM

"...it's extremely important to keep some areas of the planet as close as they can be to its natural state."

**CENTRAL HIGHLANDS RESIDENT** 

One of the ways that the Tasmanian government supports the growth of tourism is to drive demand for the state's nature, wilderness and nature-based activities. A significant part of this tourism strategy is an increasing emphasis on dispersing visitors into regions, which is facilitated through the Tasmanian Journeys project – a suite of five self-drive journeys through regional Tasmania to ensure the economic, cultural and social benefits of the visitor economy are shared across the state. Currently in development is an as-yet un-named journey through Tasmania's Central Highlands, including the Great Lake area.

Nature-based tourism is an ever-evolving and evergrowing global phenomenon. Part of this growth is due to Adventure Tourism.

# ADVENTURE TOURIST

"...when they come here, they become normal. They become ordinary."

CENTRAL HIGHLANDS RESIDEN

The Adventure Tourist, or Adventure Seeker, is looking for authentic experiences. Adventure Tourism is resilient, attracts high value visitors, supports local economies, and encourages sustainable practices. It's also a vibrant and dynamic category, subject to constant change as more experiences are added; experiences that are both physically demanding as well as those that are less so, but open the natural environment to enjoyment.

Their demographic is comprised of young singles, young couples, families where children are capable of inclusion in the experience, and older empty nesters who want to get outdoors and enjoy something that was not available to them when they were younger. They are physically fit, have a desire to try something different and have the disposable income to do it. They travel either by themselves, or in small groups with other couples. They are motivated by nature and spectacular and different scenery, exercise, the thrill and risk associated with adventure and relaxation, and quality food and beverage after a day's exploration. They are also prepared to travel outside the peak tourism season.

Their purchasing journey commences with the dreaming phase – 'I'd like to do something different' – through the consideration phase – 'Where will I go' and 'what will I do' – to planning and booking, mostly online, and through to the actual experience which they expect to meet or exceed their dreaming. They then look to share that experience with others – 'Look at what I did'. The Adventure Seeker is an attention seeker and makes a great advocate.

Adventure Seekers mainly come from capital cities where they earn an above average income as a professional, or they're in employment that requires higher education. Families will have higher disposable income and the empty nesters are almost or already retired and want to spend their children's inheritance by experiencing something that is authentic and different. They'll take a long weekend (2 to 3 nights) or a longer break (up to 10 days) to get out of the routine of city life.

Some of these experiences, such as skiing, are considered as 'mature' products, while cycling, trekking and rock climbing are in the growth phase. New experiences such as e-bikes are constantly being developed that open areas to more and more Adventure Seekers.

The reasons people engage in Adventure Travel are diverse, but the most often cited motivations are relaxation, exploration and the need for people to test themselves against the elements. Adventure Travellers are more likely to use professional services such as guides, tour operators and boutique service providers, when compared with non-Adventure Travellers.

## ECONOMIC VALUE

In developing the economic value of the proposed Great Lake Trail, the following assumptions are made:

- There will be suitable accommodation available for visitors and that local businesses will respond positively to the market opportunity through provision of accommodation and suitable food and beverage. Part of this will be the proposed Miena Village development at the current Great Lake Hotel site for which a Development Application was accepted in May 2020.
- Construction of the Great Lake Trail will take three years and will be completed in mid-2025.
- For every \$1 million in direct expenditure, 11.4 jobs are created. This figure is based on Tourism Australia Research findings.
- For every \$1 in direct expenditure, \$0.9 in additional indirect expenditure is created through supply chain effects. This again is in line with Tourism Australia Research findings.
- According to Roy Morgan Single Source Data for Tasmania (March 2020), in the last year 59,000 Tasmanians over 14 years of age participated in cycling as a regular activity. Of this number, 43,000 were in the south, 11,000 in Launceston/north east and 5,000 in Burnie/western area. Almost twothirds have also undertaken bushwalking, while 25,000 went mountain biking.
- According to the March 2020 TVS, over 40,000 tourists visited Bothwell and over 120,000 visited Derwent Bridge. There are no specific figures for Miena or the Great Lake. A total of over 180,000 tourists visited the west coast driving though either Derwent Bridge, Cradle Mountain or Burnie.
- Once the Trail is completed and given appropriate awareness, it is forecast that at least 5% of the Tasmanian population would have a desire to visit the Great Lake area – that is, 26,400 people each year. The reasons to visit the area include:
  - To experience the Trail visually, or for walking or cycling
  - Traveling across the state as opposed to using the Bass and Midlands Highways
  - To undertake other activities including fishing
  - To visit friends and relatives



"Why not put something in the middle of the state that encourages more business? We need employment opportunities in those more remote areas. The kids up there can see what a business opportunity in the area can do. We need diversification..." ADVENTURE TRAIL AROUND TASMANIA'S YINGINA/GREAT LAKE

- 80% of these would be day or passing through trips, with 20% (about 5,000 people) staying a night.
- By 2024 there will be about 25,000 visitors to Tasmania who will undertake MTB or cycling in addition to the 59,000 Tasmanians who participate regularly in cycling.
- In 2025 a total of 15,000 people will spend at least one day on the Great Lake Trail. This will increase in line with population growth and visitor numbers.
- One third of these will be single day visitors, with 10,000 staying at least one night.
- Overnight visits will be an average of 2.5 days in total duration or 1.5 overnight stays in local accommodation.
- With the new Trail as an attraction it is reasonable to forecast that 100,000 people per year will visit the Great Lake area by the end of 2025.

During 2019 there were 1.35 million visitors to Tasmania who spent \$2.54 billion spending 2.54 million nights – an average spend of \$233 per night.

Day visitors spend an average of \$100 per day while those who stop while passing through spend an average of \$25.

Based on the assumptions above it is estimated that in 2025 there will be:

•	Day/passing through visits to	
	Great Lake Area	70,000 people
•	One day Trail users	15,000 people
•	Overnight visitors who will not	
	use the Trail	5,000 people
•	Overnight Trail users	10,000 people
•	Additional number of nights	
	in the region	15,000 people

The overnight visitors will spend \$4.2 million and result in an additional daily average of 48 people staying in paid accommodation in the region. Day visitors and those who stop while passing through will spend \$3.2 million, making a total spend of \$7.4 million.

CENTRAL HIGHLANDS RESIDENT

#### Construction

The estimated cost of the construction of the Great Lake Trail is \$7 million. Depending on weather, construction will take between 6 to 9 months and will employ 45 FTE construction workers.

The construction of the Miena Village project with a new hotel, general store, 6 x 8-room lodges, 14 x 2-bedroom huts, 10 powered caravan sites and camping area will be completed by mid-2024 to coincide with the opening of the Great Lake Trail. This development will cost an estimated \$25 million, employ 40 people during construction and create up to 35 FTE jobs once completed.

#### Job Creation

Based on the assumption that for every \$1 million spent, 11.4 jobs will be created, the trail will generate about 74 additional FTE jobs. There will also be an indirect benefit of \$6.5 million created through supply chain effects.

#### **Total Economic Value**

The total economic impact of the Great Lake Trail is forecast at over \$13.9 million a year.

Once both projects are completed at least an additional 50 FTE jobs will be created in the Central Highlands.

"The more there is, the more people will come. It (the Trail) might be the difference between going and not."

CENTRAL HIGHLANDS RESIDENT

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### THE BUSINESS CASE

"As long as the hotel doesn't turn into a 5-star luxury boutique place. I'm all for development but there needs to be the facilities for locals to have a beer on a Friday night."

**CENTRAL HIGHLANDS RESIDENT** 

There is a very strong business case to support the Great Lake Trail development:

- The number of interstate visitors who bushwalked while in Tasmania has grown from about 480,000 in 2015 to over 605,000 in 2018 (TVS) while the number of visitors who undertook some form of walking reached 690,936.
- Tasmania's iconic walks the Bay of Fires walk, the Overland Track and the Three Capes Track are full for most of the year, proving a need for additional walking tracks in Tasmania's wilderness areas.
- The number of interstate visitors who mountain biked while in Tasmania has almost doubled from just over 13,000 in 2015 to 26,258 in 2018. This is expected to keep growing by double digit percentage rates (TVS).
- Tasmania's mountain bike sites of Derby, St Helens, the Hobart Hub (Maydena) and other smaller sites are becoming congested at peak times.
- The Great Lake Trail, and any extensions through to Arthurs Lake and Penstock Lagoon, will provide access to different scenery, landscape and weather conditions, and provide a new multi-day experience for fly fishing.
- Because the Great Lake Trail will be open 365 days a year, walkers and riders will be able to plan with confidence and engage in differing experiences.
- The Great Lake area is easily accessible by car and bus.
- The Great Lake Hotel developers plan to develop (and encourage development of) other outdoor experiences.
- There are plenty of things to look at in the Central Highlands region, but not much to do.

### OPENING UP THE REGION

"Change for the better is good. It's a way to help each other out. To work together. People need to realise change is a good thing. You've got to change and embrace new things." The development of infrastructure for Adventure Tourism will open up the Central Highlands area, as well as offer opportunities for associated products and services to be provided as well as potential new experiences. These include:

- Assisting the growth of visitor numbers through the regional towns of Bothwell, Hamilton and Ouse to the south and Poatina, Cressy and Deloraine to the north
- Assisting the development and growth of the proposed Central Journey drive
- Expanded bus services through the Central Highlands
- Mountain bike, e-bike hire and services
- Rafting, kayak hire and water activities on the Great Lake
- Additional accommodation of various styles and price points
- Overflow accommodation opportunities for businesses located within an hour of the Trail
- A much-needed boost to the local economy

CENTRAL HIGHLANDS RESIDEN

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## COMMUNITY ENGAGEMENT

"I think it's great to be honest. It would open up the area so people could appreciate the sights, the sounds and god, maybe it would even get me out of the house."

**CENTRAL HIGHLANDS RESIDEN** 

Three interviewers from The20 undertook phone interviews with 58 Central Highlands residents between 23 March and 21 April 2020. Normally conducted face-toface, covid-19 made phone calls the necessary interview method. With an almost 50-50 gender split (31 male, 27 female), residents were dispersed across 14 different towns and suburbs, with a significant number (14) from Bothwell. The age profile of the interviewees was skewed towards an older demographic, which anecdotally is a true reflection of the Central Highlands, as opposed to a flaw in the recruitment of participants. There was a mix of permanent residents, shack owners and business owners, with an interesting mix of people born in Tasmania (36) and born elsewhere (22). Level of education, household make-up, employment status, household income, Aboriginal or Torres Strait Islander descent, and language spoken other than English was also ascertained during the recruitment phase.

The general format of the interviews was to open with a broad discussion about life in the Central Highlands, with questions toward attitudes, opportunities and differences flowing on organically. It was only towards the end of the interview that the Great Lake Trail proposal was specifically raised, ensuring that the conversations documented came from an unbiased premise.

From these interviews, overall support for the proposed Great Lake Trail was positive. Development in general was seen as favourable because of a desire for more economic and employment opportunities in the area. The main consideration was that any development had to not be intrusive, and remain sympathetic with the environment. The notion of the "right kind of development" was commonly expressed.

A key output from these community interviews was the creation of 'themes' – a bringing together of threads of conversations that shared a similar sentiment. These themes provide a cross-section of what the community believes in, which can then be used as a valuable reference point of sentiment to measure decisions against. Designed to be colourful and engaging, some of the more relevant themes are included here as examples.

## THEMES

### N.I.M.B.Y

(Not In My Backyard) It's a trait of small-town thinking. Development is fine, so long as it doesn't affect me. Someone might complain — it won't be me though.

#### What you see is what you get

We say what we mean, and we mean what we say. No bullshit, no pretention. We're honest here – if you owe a dollar, you pay a dollar.

#### FIFOs can F.O.

Locals need to be heard. You can't come here twice a year and have a say — you haven't earned it.



#### The more, the merrier

There's no problem with more people here. We need more employment. If you work in tourism, you want to see more of it: it's not competition, it's support and growth. There's no new blood coming in. The people here are ageing and they're dying – and they're taking their sense of community with them.

#### This place levels you out and heals you

The isolation here makes the difference. It's how you get better. When people come here, they become normal. They become ordinary. You don't need a million dollars to be happy here. There's a raw, tranquil beauty to this place. This place is quiet. This place is special.

### Ch-Ch-Changes...

There will always be someone who'll whinge about development of any kind. Development is inevitable, but the right kind of development is desirable. Development is good, but it needs to be controlled. People here just don't see the need for change – and they're the ones who'll get left behind. It hasn't really changed much in 10 or 20 years (except for everything that's changed...) Things need to change so we can get back to how we once were.



#### Nature is an asset (so don't f@ck it up...)

Nature is a finite resource – there's very little of it in the world and we're lucky to have a lot of it. It's extremely important to keep some areas of the planet as close as they can be to its natural state. You don't have to visit it – the value of World Heritage is the knowledge that it exists. Development versus environment is a delicate balance. We've got nature smarts here – we know nature.

#### Don't forget us

You can't cater for locals and tourists in the same place. You don't want to turn into a yuppie tourist town. I'm all for development but there needs to be the facilities for locals to have a beer on a Friday night.



## COMMUNITY FEEDBACK

If we were to apply our understanding of the themes to the proposed Great Lake Trail, from the evidence given across the interviews with residents we can see that there is broad support for the development, but with the important caveat that the development be done sensitively to the environment and the community. To be a Central Highlander means being independent, resourceful and honest. However it doesn't mean being taken for granted. They want to be included in the decision-making through consultation, and they want the outcome of the development to be equally inclusive. If the development results in associated hospitality assets becoming too 'gourmet' and only catering to an elite visitor, then you won't have their support. They also believe very strongly in protecting the assets intrinsic to where they live: the serenity, the peacefulness, the wildlife. These are assets that they're happy to share, as long as it doesn't require them to change how they live.

We have also used direct quotes from the interviews throughout this proposal. Due to the tight-knit nature of the Central Highlands community, we have deliberately kept these quotes 'anonymous', but they provide an insight of peoples' individual thoughts and sentiments when prompted specifically on the proposed Great Lake Trail development.

## CONCLUSION

"The Great Lake Trail is a good utilisation of a resource we already have. There's little wilderness left in the world – we don't want to undermine the values of that, and the Great Lake Trail wouldn't." The development of the Great Lake Trail is both environmentally and economically feasible.

The economic benefit to Tasmania and to the Central Highlands is significant, creating a direct spend of \$7.4 million per year in the region by 2025 and 74 new direct FTE jobs once completed and operational. It will also provide an indirect benefit to the economy of \$6.5 million a year – a total economic impact of \$13.9 million.

Construction of the necessary infrastructure to service the Great Lake Trail, including the redevelopment of the Great Lake Hotel site, will provide initial economic value in the construction and ongoing value for the Central Highlands area. This is achieved by tapping into the growing Adventure Seeker market, a high spending segment of the tourism market.

Many Tasmanians are unaware of the Central Highlands area, with many seeing it only as a means of travelling to the west coast from Hobart, or from the north west to Hobart. With the creation of awareness of the developments, many will have a desire to visit and experience the Central Highlands area.

The two major landowners, Hydro Tasmania and PWS (as managers of the Crown Land and of the TWWHA Conservation Areas) have encouraged the necessary work to be undertaken to enable a formal Environmental Impact Assessment.

That next piece of work to undertake is the development of a master plan for the proposed Trail which will detail the route and construction specifications. This needs to be undertaken by World Trail in conjunction with PWS and Hydro Tasmania to ensure that the final route facilitates and enhances their objectives in managing the Tasmanian Wilderness World Heritage Area and opening the area to sustainable tourism visitation.

CENTRAL HIGHLANDS RESIDENT

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### What we have done in the development of this plan

- Presented the overall proposal to the Central Midlands Council and received encouragement to undertake this plan
- Discussed the proposal with Senator Duniam, Assistant Minister for Regional Tourism and Senator Chandler, and received encouragement to continue the process
- Discussed the proposal with Minister Guy Barnett and his staff
- Undertaken consultation with Ian Jones and Meegan Spurr of Hydro Tasmania in their role as Iandowners and manager of the part of the TWWHA on which the trail will be constructed
- Undertaken discussions with PWS staff Andrew Crowden, Regional Planner North and Robert Buck, Parks and Reserves Manager, Great Western Tiers
- Undertaken a formal desktop review by Tasmanian Aboriginal Heritage with regard to aboriginal heritage sites
- Undertaken a formal NVA search of Tasmanian flora and fauna which provided a list of flora and fauna that will be subject to the development
- Undertaken a preliminary site review with World Trail
- Reviewed relevant national and state tourism research
- Obtained data from Roy Morgan Single Source Data for Tasmania
- Reviewed the *Towards a Tourism Master Plan* for the TWHWA published by PWS in December 2019
- Undertaken discussion with Inland Fisheries Services
- Discussed the proposal with the secretary of the Tasmanian Trail
- Discussed the proposal with private landowners
- Talked to 58 Central Highlands ratepayers, one-on-one, each for an hour
- Generated 33,000 words of interview notes, over nearly 100 pages

#### **Royal Commission**



into National Natural Disaster Arrangements



The Royal Commission into National Natural Disaster Arrangements was established on 20 February 2020 in response to the extreme bushfire season of 2019-20 which resulted in devastating loss of life, property and wildlife, and environmental destruction across the nation.

The Letters Patent for the Royal Commission set out the terms of reference and formally appoint Air Chief Marshal Mark Binskin AC (Retd), the Honourable Dr Annabelle Bennett AC SC and Professor Andrew Macintosh as Royal Commissioners.

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Photos taken by staff of the Office of the Royal Commission: cover photo taken at Kangaroo Island, 4 March 2020; photo on last page taken in East Gippsland on 11 June 2020.

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#### Introduction

- 1. These are our interim observations from the Royal Commission into National Natural Disaster Arrangements. Our observations relate to some, but not all, of the more pressing issues that we expect to address in our report, which we will present to His Excellency, the Governor-General of the Commonwealth of Australia, and Their Excellencies the Governors of New South Wales, Victoria, Queensland, Western Australia, South Australia and Tasmania, by 28 October 2020.
- 2. This extended reporting date recognises the impact of the global COVID-19 pandemic, as a result of which, interested parties have prioritised their response to the global health emergency.
- 3. This is not our final report, nor does it contain draft recommendations. We set out preliminary views to guide those interested in the Commission's work as we approach the final stages of our inquiry including receiving submissions from parties with leave to appear. We continue to consider the extensive evidence before us, including from 290 witness appearances and in well over 2,000 documents, comprising over 50,000 pages, which have been provided to the Commission. We have received over 1,700 submissions, many of which provided invaluable insights into the lived experience of Australians directly affected by the devastating 2019-2020 bushfires.
- 4. We are also considering the valuable work of past and current inquiries related to natural disasters, while seeking not to duplicate their efforts. A number of reports of state and territory operational inquiries into the recent bushfires have been released this year, and others are expected shortly. Many agencies are also conducting internal reviews of their own response to these bushfires, and appropriately making changes now to better prepare themselves for the next disaster season. We also acknowledge the work of other Royal Commissions now considering the suitability of emergency management arrangements for people in aged care and people with disability.

#### 2019-20 bushfires

- 5. The 2019-2020 bushfires are still fresh in the minds of many Australians, and were the focus of most submissions to our inquiry. We launched the *Bushfire History Project*<sup>1</sup> to encourage people to record their personal experience, and to share their photos and videos from the bushfires and the ongoing recovery, so that these stories are not forgotten.
- 6. The 2019-2020 bushfires and the conditions leading up to them were unprecedented. They are no longer unprecedented.
- 7. The bushfires started in Australia's hottest and driest year on record. Much of the country that later burned had been in drought since January 2018. The Forest Fire Danger Index in 2019 was the highest since national records began. The first of the

<sup>&</sup>lt;sup>1</sup> Available on the Royal Commission's website, <u>www.naturaldisaster.royalcommission.gov.au/2019-20-bushfire-history-project</u>

season's deadly bushfires started in July. Over the following months, fire burned through millions of hectares of land, variously reported as between 24 and 40 million hectares, threatening and displacing hundreds of communities. While there have been large fire seasons in the past, the 2019-2020 season set a new benchmark for an extreme fire season in Australia's temperate forests. Many communities also suffered hailstorms or flooding.

- 8. Tragically, 33 people died, and smoke may well have caused many other deaths. Others suffered serious physical and emotional/psychological injuries. It is estimated that nearly 3 billion animals were killed or displaced by the bushfires, and many threatened species and other ecological communities were extensively damaged. Over 3,000 homes and many other buildings were destroyed. For many people, it will take years to recover and rebuild.
- 9. Estimates suggest the bushfires caused over \$2 billion in insured losses alone. The economic impact on tourism, hospitality, agriculture and forestry has been estimated to be around \$3.6 billion. There may have been a further \$2 billion in health costs, arising, in part, from respiratory illnesses caused by the smoke. These figures are likely to underestimate the true cost of the bushfires.
- 10. Government agencies and non-government organisations have struggled to provide a full and clear picture of the devastating impact of these bushfires, in part because of inconsistencies in how data about natural disasters are collected, collated and shared across the nation.

#### Natural disaster risk

- 11. Our inquiry is not only about bushfires, but also about natural disasters more generally—that is, naturally occurring, rapid onset events that cause serious disruption to a community or region, such as floods, bushfires, earthquakes, storms, cyclones, storm surges, tornados, landslides and tsunami.<sup>2</sup>
- 12. Australia has a long history of natural disasters. The causes of natural disasters have been shown to be many and complex. Australia's weather and climate agencies have told us that changes to the climate are projected to increase the frequency and intensity of natural disasters in Australia. Further warming over the next 20 years appears to be inevitable. Sea-levels are projected to continue to rise. Tropical cyclones are projected to decrease in number, but increase in intensity. Floods and bushfires are expected to become more frequent and more intense.
- 13. Additionally, as the 2019-2020 bushfire season demonstrated, bushfire behaviour has become more extreme and less predictable. Catastrophic fire conditions may become more common, rendering traditional bushfire prediction models and firefighting techniques less effective.
- 14. Natural disaster risk is complex and dynamic, as it is a product of the nature of the relevant hazard, the extent to which communities and other assets are exposed, and the ability of the relevant communities and other systems to cope with and recover from impacts—often referred to as vulnerability. The extent of the damage and harm

<sup>&</sup>lt;sup>2</sup> Productivity Commission, *Natural Disaster Funding Arrangements* (Inquiry Report No 74, 17 December 2014) xiv.

caused by natural disasters depends on a wide range of factors—such as the intensity and severity of the disaster, where people choose to live, how they build their homes, how both public and private land is managed, and how well people and communities are prepared, supported and cared for during and after disasters. We have heard of the importance of an inclusive, integrated, risk-based national approach to managing natural disasters.

#### A shared responsibility

- 15. The central task of our Commission is to inquire into, and report on, *national* natural disaster arrangements. 'National' arrangements are not confined to arrangements involving the Australian Government; it encompasses all levels of government, the private and not-for-profit sectors, communities, families, and individuals.
- 16. Even the most well-resourced government agencies cannot entirely protect the public from the risks of natural disasters. Some bushfires, for example, will be too large and too widespread; some Australians will live too remotely; and there are only so many firefighters, aircraft and trucks that can be deployed at the same time.
- 17. All Australians, and particularly those in high-risk areas, must take steps to prepare themselves and their families for natural disasters. It is for this reason that preparation for, response to, and recovery from, natural disasters has been called a 'shared responsibility'— shared between individuals, private enterprise, not-for-profit organisations, and all levels of government.
- 18. Providing clear and compelling information about the risks people face is one important way in which governments can help individuals protect themselves and their families. We have heard impressive accounts of the diligence and hard work of people preparing well in advance for disasters, and benefiting from their efforts. Others have not been well prepared, and some in the recent bushfires thought they were prepared, but were soon surprised and overwhelmed by the severity of the bushfires. Educating the community about how best to prepare for, and respond to, natural disasters (for example, about how to prepare their homes and land, how and where to evacuate and how to understand emergency warnings) is crucial, and could save lives, livelihoods, and homes.
- 19. State and territory governments have primary responsibility for managing natural disasters—that is, for preparation, mitigation, response and recovery—for their respective jurisdictions. 'Combat agencies', such as rural fire services and state emergency services, lead the response to natural disasters. It is for state and territory governments to request Australian Government assistance in support of these responsibilities. State and territory governments also have a number of other responsibilities, including managing most public lands within their jurisdictions, such as national parks and state forests.
- 20. All states have delegated to local governments significant responsibilities for aspects of managing natural disasters. However, the capability and capacity of local governments to do this work appears to depend on their relative size and the resources available to them and varies across Australia. Notwithstanding this delegation, we would expect state governments to ensure that they retain oversight

and understanding of the capabilities and capacity of local government to perform these responsibilities, and to provide support as necessary.

- 21. Coordination and resource sharing between local governments often rely on regional arrangements and, in some cases, informal understandings. Current processes to facilitate sharing resources between local governments during natural disasters appear beneficial, and warrant greater support.
- 22. The Australian Government has an important role to play. For example, while state and territory governments can, and do, cooperate among themselves, the Australian Government can play an important national coordination role. We have conducted our inquiry during the COVID-19 pandemic, which has highlighted to us the importance and feasibility of, and public expectation for, national coordination in response to a national crisis.
- 23. The Australian Government also has capability and capacity not available to the states and territories. Disasters too great for one state or territory to manage alone may become more common. Existing disaster plans, including the National Catastrophic Natural Disaster Plan (NATCATDISPLAN) and the Australian Government Disaster Response Plan (COMDISPLAN), recognise that the Australian Government can assist when a state or territory government becomes significantly incapacitated or its resources are exhausted. Nonetheless, there is clearly an opportunity to refresh and strengthen national disaster planning.
- 24. The Australian Government can also encourage and facilitate consistency across jurisdictions—for example, by leading the development of national standards. The Australian Government plays an important role in providing information through agencies such as the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Bureau of Meteorology, Geoscience Australia and research bodies.

#### National coordination and accountability arrangements

- 25. Cooperation and collaboration between Australian, state, territory and local governments is vital in national natural disasters, particularly in disasters that affect multiple communities and multiple jurisdictions concurrently. Clarity about the roles and responsibilities of various levels of government is therefore necessary to ensure services are delivered effectively and efficiently, and to ensure appropriate levels of accountability.
- 26. Over the coming decades, Australia is likely to experience more frequent and intense natural disasters. This will require all jurisdictions to work together to coordinate strategic decision making and share resources across the jurisdictions and the Australian Government.
- 27. During this inquiry, we heard how a number of forums have evolved to fill gaps in national coordination arrangements between state and territory bushfire and emergency response agencies.
- 28. At the centre of the Australian Government's coordination of natural disasters is Emergency Management Australia (EMA). Its mission spans disaster risk reduction, disaster preparedness and capability development, critical incident planning, crisis
and security management and disaster recovery. It was first established in 1974, within the Department of Defence. Today, it sits within the Department of Home Affairs.

- 29. The Australasian Fire and Emergency Service Authorities Council (AFAC) was established in 1993 as a non-government, not-for-profit company—whose 31 members include Australian and New Zealand Fire and Emergency Services agencies. It was formed by its industry to be a national facilitator of common standards, doctrine and resource sharing. In 2003, AFAC established the National Aerial Firefighting Centre (NAFC) to provide a national collaborative arrangement for the provision of aerial firefighting resources for combating bushfires. NAFC's role includes coordinating contract leasing and facilitating the sharing of aerial firefighting resources on behalf of state and territory fire agencies.
- 30. In May 2013, the Australian New Zealand Emergency Management Committee (ANZEMC), the peak government committee responsible for emergency management, rejected a proposal originating from EMA to establish a representative group of operational emergency management leaders at a national level. By December 2013 AFAC had, in effect, established a group that operated collegially to perform this function, called the Commissioners and Chief Officers Strategic Committee (CCOSC). CCOSC was created by AFAC to provide jurisdictional consideration and representation on behalf of AFAC to the Australian Government. The functions of this group included consideration of strategic issues, progressing national initiatives, and developing fire and emergency services capability.
- 31. Following the 2014-15 bushfire season, CCOSC took ownership of the Arrangement for Interstate Assistance (AIA), the policy and doctrine underpinning interstate and New Zealand fire and emergency service resource sharing, which had first been developed by EMA. The AIA provides that agencies control the resources being shared, but CCOSC makes 'preliminary decisions' about the fulfilment of requests. However, CCOSC, as a body, cannot direct any jurisdiction. Rather, it is a cross-agency forum for information sharing and collective deliberation. Nevertheless, we have heard different accounts from CCOSC members about CCOSC's authority and capacity to make decisions, and not necessarily limited to those under the AIA.
- 32. In 2016, AFAC established the National Resource Sharing Centre (NRSC) to implement the resource sharing decisions of CCOSC members and to develop and maintain the AIA, and develop arrangements for international assistance with Canada and the United States of America. These had grown organically over time. Following its establishment, NRSC then coordinated outbound deployments to Canada in 2017, and the USA and Canada in 2018, and resource sharing for Tropical Cyclone Debbie in 2018, the Queensland fires of 2018, and the Tasmanian fires of early 2019.
- 33. CCOSC's membership, and more importantly its functions, have grown to include a more operational role. Its functions now include coordinating national deployments during significant events, and providing oversight and direction to the NRSC in relation to facilitating interstate and international sharing of resources.
- 34. CCOSC attendees, including Australian, state and territory officials, have told us of the valuable functions performed by CCOSC, NAFC and NRSC. While AFAC members suggest that CCOSC represents the broader fire and emergency services sector,

CCOSC members emphasised that their primary responsibility was to their own agencies and jurisdictions.

- 35. CCOSC, NAFC and NRSC, operating under the auspices of a not-for-profit company, were not intended, and may not be well-suited to, determining or giving effect to what is in the national interest in preparing for, and responding to, all natural disasters. AFAC is not subject to the organisational governance principles and public accountability requirements that apply to government agencies.
- 36. Current arrangements do not provide a clear mechanism to elevate matters to national leaders—that is, the Prime Minister and other First Ministers of states and territories. We appreciate that current arrangements reflect changes that have occurred over time, but, due to an increasing need for better coordination, these arrangements might not be suitable to facilitate national decisions in appropriate circumstances, such as where a natural disaster is considered to amount to a national emergency or where resources need to be prioritised.
- 37. The 2019-2020 bushfires demonstrated challenges with coordinating resource sharing on a large scale and prolonged responses under current national arrangements. We are examining whether more suitable arrangements can be made to facilitate timely and fully-informed strategic decisions nationally to prepare for and respond to natural disasters.

## **National Cabinet**

- 38. National Cabinet was established following a meeting of the Council of Australian Governments (COAG) on 20 March 2020 in response to the growing COVID-19 pandemic.
- 39. The functions of the National Cabinet, or a similar peak intergovernmental decisionmaking body, could be adopted for the national management of future natural disasters.
- 40. For national natural disasters, a body like the National Cabinet could receive advice from appropriate intergovernmental bodies, such as the ANZEMC. ANZEMC could in turn be informed by subordinate groups such as CCOSC, the Community Outcomes and Recovery Sub-committee (CORS), and other bodies relevant to the particular natural disaster.
- 41. This arrangement would be analogous to that between the National Cabinet and the Australian Health Protection Principal Committee and the National COVID-19 Coordination Commission (now the National COVID-19 Commission Advisory Board) in response to the COVID-19 pandemic.

## A national recovery and resilience agency

42. The recently created disaster-specific recovery agencies, such as the National Bushfire Recovery Agency, Bushfire Recovery Victoria and the National Drought and North Queensland Flood Response and Recovery Agency, have performed a valuable role in recovery.

- 43. Rapidly establishing new agencies as a natural disaster is unfolding can be disruptive, delay necessary and immediate assistance, and create confusion. There may be benefit in a single, scalable standing body responsible for natural disaster recovery and resilience at the Australian Government level. Such a body would be responsible for Commonwealth recovery coordination, prioritisation, policy and collation of relevant data.
- 44. The body could also provide national leadership for broader resilience policy and national programs. It would support the development of skills and expertise in recovery, and foster consistent approaches to recovery and lessons management, including by building resilience in communities. It would work closely with governments and organisations at the state, territory and local levels. This body would require a strong connection with Australian Government preparation and response capabilities and policy making.

#### **Assurance capability**

- 45. Australia has a long history of seeking to understand the causes and impacts of natural disasters, and how disaster arrangements can be improved, with more than 240 previous inquiries being brought to our attention.
- 46. We have learned that recommendations, findings and directions from the last 20 years of natural disaster inquiries, roadmaps, strategies and frameworks have advocated for consistent disaster risk information, greater investment in national resilience and in mitigation of risk, and improved collaboration. However, it is difficult to determine the implementation status for many recommendations. We observe that many initiatives have not yet been adequately implemented and we question why this is so.
- 47. We have seen how governance and accountability arrangements have been improved in recent years within emergency management sectors with the introduction of external review and assurance bodies, such as the Inspectors-General of Emergency Management in Victoria and Queensland—two states that have experienced significant natural disasters. These bodies have supported a culture of continuous improvement and collaboration.
- 48. A level of national consistency in review and assurance functions would likely strengthen the national capability to respond to natural disasters.
- 49. We continue to consider ways to track the implementation of recommendations of reviews and to monitor and assure the implementation of national plans and frameworks.

# **Declaration of national emergency**

- 50. The Australian Government can, if it chooses, declare a national emergency. There can be little dispute about this. However, the consequences of a declaration, beyond symbolic, require elaboration, and we continue to consider this issue.
- 51. A declaration of a national emergency could serve several purposes. It could emphasise the gravity of a situation and galvanise the population in the face of a

national natural disaster. It could signal to Australian Government departments and agencies the need for a state of readiness or action, and mobilise them to support states and territories. It could provide for a better coordinated national approach and action.

- 52. It might enable or facilitate the securing of international resources to, for example, fight bushfires. It could also facilitate the early deployment of Department of Foreign Affairs and Trade liaison officers to EMA to assist with offers of international assistance.
- 53. States and territories already have legislated power to make emergency declarations and have done so in respect of a number of natural disasters, including during the 2019-2020 bushfire season and the COVID-19 pandemic. We are considering how any national declaration would 'interact with state and territory emergency management frameworks', and whether the Australian Government should have 'clearer authority' to take action 'in the national interest'.

## **The Australian Defence Force**

- 54. The contribution of the Australian Defence Force (ADF) in supporting state and territory governments during response and recovery efforts during the 2019-2020 bushfires was without parallel in peacetime. Between September 2019 and March 2020, 'Operation Bushfire Assist' saw some 8,000 defence force personnel assist with the bushfires, including more than 2,500 ADF Reserves. Approximately 500 defence personnel from abroad also helped, from countries including New Zealand, Papua New Guinea, Japan and Fiji.
- 55. The ADF does not directly combat bushfires, but is an important component of response and recovery for bushfires and other natural disasters. The ADF provides a set of specialist support capabilities. For example, ADF vessels HMAS Choules and MV Sycamore evacuated hundreds of people from fire-affected Mallacoota in Victoria in early January 2020.
- 56. The involvement of the ADF in natural disasters in Australia is already contemplated in government disaster plans. However, there was some uncertainty about the 'thresholds' that must be met before seeking the assistance of the ADF, and how the thresholds apply. Those thresholds are set out in NATCATDISPLAN, COMDISPLAN, and the Defence Assistance to the Civil Community (DACC) Manual. We understand that the Australian Government is currently working to clarify the thresholds and we support these efforts.
- 57. Additionally, some state government agencies and some local governments did not understand what tasks the ADF could perform, how to seek ADF assistance, or how best to interact with the ADF once it was deployed, during both the response and recovery phases. It appears this arose from unfamiliarity with working with the ADF in natural disasters and the relevant processes.
- 58. Separately, some stakeholders questioned the limits of the existing authority to support DACC tasking. It has been said, in the context of the 2019-2020 bushfire season, that the limits of the existing legal framework were 'tested'. We have not yet

reached a view about whether further legislative authority is required, and have sought further information on this issue.

59. We have also heard that the ADF lacks privileges and immunities otherwise afforded to state and territory emergency responders, and that the legislative provisions for the call-out of the ADF Reserve force may not have been sufficiently flexible. We have sought further information on the nature and effect of those challenges.

# **National information systems**

- 60. Nationally consistent and comparable data and information, when made widely available, can deliver efficiencies, avoid duplication, improve understanding, and facilitate decision making. This includes both standards to promote harmonisation of collection, storage and analysis of data, and national systems to provide particular information services.
- 61. Currently, Australian, state, territory and local governments have a range of systems, tools and technologies to gather and share data, information and knowledge about natural disasters. This information differs in quality and consistency and much of it is not directly comparable between jurisdictions. As a result, there are gaps and inefficiencies in data collection, sharing, and the use of data in products and services.
- 62. A better understanding of risk would improve decisions that balance risk reduction against other priorities. For example, risk to the built environment is caused not only by natural conditions, but also by the legacy of decisions that may have been made decades ago about where and how to build. Today's decision makers should have access to easily understandable information and data, and decision frameworks and tools, to support them to make decisions that will affect future risk.
- 63. Good information and data support decision making during and after a natural disaster. National situational awareness would benefit from a range of technologies, including remote sensing and data visualisation systems, and information from a variety of sources. Real-time decision making needs relevant real-time data.
- 64. Commonwealth organisations (such as the Bureau of Meteorology, Geoscience Australia, and the CSIRO) provide and continue to develop valuable products and services fulfilling one or more of these functions.
- 65. Products and services that could further benefit from a national approach include:
  - climate information and climate services;
  - platforms to store and distribute information, such as map-based tools that identify built and natural environments, systems and risks;
  - tools, including modelling, that assist people to take steps to manage the risks and the consequences for which they have responsibility, such as by taking out insurance;
  - systems to provide warnings, predictions and real-time monitoring and reporting during a disaster;

- systems to assess the impact of disasters and collect and distribute information during the recovery phase; and
- monitoring and evaluation of risk reduction, response and recovery actions, to help build a national picture of which approaches are most effective.
- 66. The Australian Broadcasting Corporation, alongside community radio, is acknowledged as a trusted broadcaster of emergency messages and warnings. It is a role that the ABC has fulfilled over many years and in which it has an established reputation. ABC managers are embedded in some but not all emergency centres. To assist with the timely delivery of critical information to the public, we see a need for all state and territory emergency response organisations to consistently embed ABC managers within state and territory emergency management centres.

## Air quality

- 67. During the 2019-2020 bushfires, smoke blanketed large parts of the nation. Poor air quality can have a negative impact on health outcomes. The air quality in some areas was very poor for days on end, and there was high public demand for clear information about air quality and health advice.
- 68. There is an opportunity to improve the air quality information and associated public health advice that is provided to the community. For example, near real-time information would assist members of the community to take preventative steps to reduce the negative health impacts of smoke.
- 69. Air quality is reported differently between states and territories, such that air quality might be reported as 'poor' on one side of a border, and 'hazardous' on the other. This undermines the utility of this information, and poses risks to vulnerable members of the community. In considering this issue, we note that steps were taken during the 2019-2020 bushfires to improve air quality information.
- 70. Helpfully, following a recommendation of the COAG Health Council, since February 2020 Australian, state and territory governments have been working towards national consistency in air quality standards.

## National research and emerging technologies

- 71. There are opportunities to encourage the development and utilisation of technologies in the generation and use of information for, and in the response to, natural disasters. This should not just be through the development of new technology, but also through better use of existing technology (eg, satellites, airborne platforms, sensors, night capabilities, as well as improved modelling and simulation tools).
- 72. Australian, state and territory governments should fund and support the proposed research centre for natural hazard resilience and disaster risk reduction announced by the Australian Government on 23 July 2020. The centre is intended to deliver on national research priorities that address national knowledge gaps and research needs in respect of all natural hazards, acknowledging that the emergency management

sector is not the only stakeholder in natural hazard resilience and disaster risk reduction.

73. The Australian, state and territory governments should establish effective pathways for interaction between government, government bodies, research institutions, the private sector and entrepreneurs to facilitate and utilise the development of expertise, tools and systems to improve preparedness for, response to, resilience and recovery from natural disasters.

# **Opportunities for improvements in national mitigation and preparedness arrangements**

## **Emergency planning**

- 74. It is important for emergency planners at all levels of government to have the best available information and input from appropriate experts and organisations. Relevant expertise and, importantly, local knowledge, may be needed from a range of government and non-government sources, including private sector operators, critical infrastructure providers, charities, medical practitioners, and wildlife and stock welfare groups. We have heard that some groups could have been better integrated, at the appropriate level, into natural disaster planning and management.
- 75. By way of example, local health professionals are an important part of Australia's health care system and local communities. They have valuable knowledge of, and pre-existing relationships with, the local communities they support. However, they do not appear to be systematically included in emergency planning for response, or recovery arrangements.
- 76. As Australia increasingly faces cascading, concurrent and compounding natural disasters, 'stress testing' disaster plans and evaluating outcomes will be crucial. Joint and national exercises can assist to evaluate plans, develop and assess competence, identify gaps and improvements, and build relationships.

## **Evacuation planning and shelters**

- 77. There is an opportunity for more work to be done to improve evacuation planning and sheltering options.
- 78. We have heard that there may be a need for evacuations to better take all relevant factors into account, including tourist populations, access to appropriately prepared evacuation routes, and the identification of appropriate sheltering locations.
- 79. We heard of confusion in the community about the nature of the different sheltering options—including evacuation centres, Neighbourhood Safer Places and places of last resort—and the level of protection provided by each of these facilities. This confusion could have an adverse impact on safety where the protection offered by the facility does not meet the expectations of those seeking shelter.

- 80. In some cases, evacuations crossed state and territory borders. In those circumstances, some people may have experienced additional confusion, including due to the differences in terminology used.
- 81. The evacuation of people from aged care facilities raises particular issues, and we have referred this topic to the Royal Commission into Aged Care Quality and Safety.

## Supply chain continuity

- 82. Natural disasters can have a significant impact on supply chains, leading to shortages of essentials for the community, businesses and emergency services. Some have suggested that domestic stockpiles (eg, fire retardant and consumables) are warranted to ensure supply during these times of most urgent need. This might operate similarly to the national medical stockpile, which was used during the 2019-2020 bushfire season to supply P2 masks to alleviate the widespread smoke effects of the bushfires.
- 83. To support preparedness, we consider that forming a better understanding of supply chain risks would be of great benefit at each planning level. Understanding these risks would provide sufficient time to consider alternatives and options. For example, governments could harness the private sector to create onshore redundancy for key goods sourced from overseas.

#### **Critical infrastructure and essential services**

- 84. In the context of natural disasters, the understanding of critical infrastructure is not consistent nationally. We have taken critical infrastructure to mean the physical assets (such as power lines, water pumps, roads and mobile towers) that provide everyday essential services such as power, telecommunications, transport and water. Commonwealth, state and territory legislation define, and require registers of, critical infrastructure. However, for a variety of reasons, these definitions are different and critical infrastructure registers are not exhaustive.
- 85. Critical infrastructure can be publicly and/or privately owned and operated. Planning and preparation should ensure that communities, individuals and businesses are aware of vulnerabilities and take necessary steps in advance of essential service outages, in order to manage cascading effects.
- 86. There seem to be some deficiencies with integrating critical infrastructure into planning processes. We observed challenges faced by managers of critical infrastructure in coordinating with others during the 2019-2020 bushfires. For example, we heard of difficulties for power providers in identifying who owns telecommunications assets for the purpose of notifying telecommunications providers about power outages. We have also noted inconsistencies in the extent to which the vulnerability of essential infrastructure is accounted for in government emergency planning and risk management.
- 87. Restoring essential services to communities following an outage takes time, and depends on the scale of the disaster. Risks can be mitigated but, in the course of a natural disaster, some outages are unavoidable. During the 2019-2020 bushfires, businesses and communities were significantly affected by essential service outages.

While power and telecommunications outages were most visible, communities also had limited access to other essential services. Infrastructure owners and operators appeared to have a broad understanding of their own interdependencies. Others seemed less aware of the extent to which their services relied on other services—until an outage occurred. We are considering whether coordination arrangements can be strengthened to improve understanding of these risks.

## Public and private land management

- 88. Land management can reduce some aspects of natural disaster risk (eg, through vegetation fuel management). However, the effectiveness of land management depends in turn on a range of factors, particularly weather. There are also a number of constraints that limit the extent of, and opportunities for, land management, including cost, community awareness, regulatory settings, and the shortening of seasonal windows.
- 89. States and territories are primarily responsible for regulating land management, including environmental and hazard management activities. However, the practical implementation of land management rests with the land manager—whether an individual, a business, a government or other entity.
- 90. We have heard of the complexity and variation in approval processes. In some cases, there appears to be a need for practical guidance for land managers and the broader community.
- 91. There is a strong interest in, and views on, prescribed burning as a bushfire hazard reduction activity. Other activities include mechanical clearing—such as slashing, thinning and mowing—and grazing by animals. All these activities can play an important role in ameliorating bushfire behaviour and increase the potential for suppression. However, these activities will not eliminate bushfire risk.
- 92. There is a need for further education and research to improve understanding of the effectiveness of these activities under severe to catastrophic bushfire weather conditions.

## Indigenous land and fire management

- 93. There are varying degrees of community understanding of Indigenous land management practices and how they differ from emergency management-driven hazard reduction activities.
- 94. We have observed the interconnected nature and cultural and environmental significance of Indigenous land management practices in Australia, including traditional fire management.
- 95. We have heard evidence that Indigenous land and fire management is supported and practised differently across the varied landscapes of Australia. Indigenous groups and communities have different objectives and levels of knowledge, experience, resources and opportunities to undertake Indigenous land and fire management. We have also heard how Indigenous land and fire management incorporates technology, such as satellite data and helicopters.

96. Indigenous land and fire management in northern Australia is practised on a broader scale than in southern Australia. We have heard that these practices can reduce bushfire risk in the north; more research is required as to their role in bushfire risk mitigation in the south. Some jurisdictions are working with Traditional Owners to explore the relationship between Indigenous land and fire management and natural disaster resilience and its integration into a whole-of-community approach. There is a place for Indigenous land and fire management practices to be integrated into the planning and execution of public land management activities across Australia.

#### Land use planning and building

- 97. Land use planning and building decisions are a key factor in the extent of exposure, and vulnerability, of households and communities to natural hazards. However, there are gaps in the natural disaster risk information available to decision makers.
- 98. Decisions about where to locate communities, buildings and services and what conditions to impose or standards to require for new buildings or developments, should be informed by sound risk data. Information about hazards and exposure should be publicly available to ensure that informed decisions can be made. Decision makers may need tools or services to use probabilistic data effectively for the assessment of current and future risk in a changing global climate.
- 99. We have heard that many hundreds of thousands of Australians live in at-risk areas. The insurance industry reported that, in the 2019-2020 bushfire season, 99% of destroyed and damaged residential buildings were located on, or within 500m of, land declared as 'bushfire prone', and 74% were built before the introduction of the relevant Australian Standard, AS 3959.
- 100. The extent to which structures and communities are exposed and vulnerable to natural hazards should be identified and communicated, so people can make informed decisions about the risk with which they are willing to live, and the actions they can take to mitigate this risk.
- 101. Land use planning and building regulations presently apply only to new developments (or significant modifications to existing developments), not to existing developments.
- 102. We have also heard about issues relating to insurance affordability, coverage, and the ability to understand insurance products. Another question raised was the extent to which insurers recognise actions taken by householders to reduce their risk. Many of these issues are covered in more detail in other inquiries.

# **Opportunities for improvements in national response** arrangements

103. Time-critical decisions need time-critical information. Accurate and timely information allows decisions to be made at the most appropriate level, and empowers the public to make informed decisions about their safety prior to and during events. Inconsistency in information creates confusion, and limits the ability of individuals and agencies to deal with a natural disaster effectively.

## **Emergency information**

104. The Bushfire Warnings System, established in 2009, is a national, three level bushfire alert system. While the warning levels are the same nationally, the symbols used and the corresponding action required under each alert level varies across states and territories (see Figure 1). We have heard that the middle-level warning, 'Watch and Act', causes confusion—could it mean 'wait and see' or 'act now'? The recommended steps to be taken in response to the warning also vary across the nation. An AFAC working group has been tasked with developing a national all-hazard warning system—the Australian Warning System—for some six years. Community research on the proposed AWS has been ongoing since September 2018.



Figure 1: Current Bushfire Warnings System.

- 105. We recognise AFAC's efforts to pursue consistency in a collegial manner through CCOSC. Nonetheless, for such a critical issue, this work has taken too long and is an example of the need for a clear decision-making process and to elevate matters to national leaders where required. The work on the Australian Warning System should be finished as a priority.
- 106. Likewise, there are variations in the current fire danger ratings across state and territory fire authorities, and in the guidance on how to react to each level (see Figure 2). For example, in Victoria, 'Catastrophic' is 'Code Red', and in Tasmania 'Catastrophic' is represented by black, not red. Some states show the fire danger

index for each rating and others do not. In 2014, ANZEMC agreed to the development of a new Australian Fire Danger Rating System. Since 2016, AFAC has been leading the development and implementation of the new system, drawing on the latest science and technology to better reflect the effect of forecast environmental and weather conditions on the potential for bushfires. While we appreciate the complexity involved, we are of the view that this needs to be finalised as a matter of priority.



Figure 2: Fire Danger Rating System in each jurisdiction.

- 107. A national community education campaign should be prioritised following the finalisation of the Australian Warning System and the Australian Fire Danger Rating System.
- 108. During the 2019-2020 bushfire season, members of the community and first responders used state and territory government operated map-based applications (apps), such as the NSW RFS app 'Fires Near Me' and 'VicEmergency', for emergency information and warnings in their respective areas. The various apps use different terminology, symbols and explanations for the same emergency and do not consistently include the same types of information, or all of the necessary information, to enable informed decisions.
- 109. While the apps are generally well liked by the community, the inconsistencies and differences in information provided in apps caused some issues during the 2019-2020 bushfire season, especially for border communities and tourists who had to use

multiple apps. We are considering the value of a national approach to apps that can standardise the process of attributing a warning to an emergency, clarify time lags in publishing warnings, and provide all relevant information an individual may need to make an informed decision in relation to all hazards. We are considering the need for a new 'national app' with information about all natural disasters, not just bushfires.

110. Closer collaboration between agencies, and between agencies and the private sector, could help resolve these issues.

#### **Emergency responders**

- 111. Australia is well served by the career and volunteer emergency responders who work together in the service of the nation. As natural disasters become more frequent and intense, there may be greater need for emergency responders to work with other agencies and across the nation. Emergency responders, both career and volunteer, are already being frequently deployed interstate, to provide surge capacity, relief to local workers, and critical expertise.
- 112. National standards, training and protocols should make the process for interstate deployments and the relocation of responders more efficient and effective. Despite national standards, such as the Public Safety Training Package, standards, training and protocols differ between states and territories. Some differences are understandable, for example differences in training to account for local geography. We are considering whether emergency responders would benefit from greater consistency in standards, training and protocols.
- 113. The vast majority of people who fight bushfires and respond to floods and cyclones in Australia are volunteers. They played a vital role during the 2019-2020 bushfires, as they have during many previous bushfires, floods and cyclones across Australia. Volunteers are also crucial in helping communities recover from natural disasters.
- 114. Evidence of volunteers and volunteering organisations emphasised the importance of according volunteers respect and recognition, for their skills, knowledge, hard work and sacrifice. The 2019-2020 bushfire season made extraordinary calls on some volunteer firefighters. Without these volunteers, the bushfires may well have lasted longer, taken more lives and destroyed more homes.
- 115. During the 2019-2020 bushfires, many volunteers worked for weeks on end, often taking them away from their regular employment. Some support was offered to volunteers, including a government funded volunteer support payment and support from the private sector. We are considering whether all volunteers ought to have the same immunities, and whether volunteers taken away from their regular employment for extended periods would benefit from additional employment protections.

## **Aerial firefighting**

116. The use of aerial firefighting is an integral part of strategies to contain and control bushfires. For example, aircraft are used to gather information, to apply retardant to reduce the progression and intensity of bushfires, and to move emergency responders to strategic locations.

- 117. NAFC coordinates the procurement of contracted aircraft and services for state and territory agencies. State and territory governments also presently own a small number of emergency response aircraft.
- 118. Various types of aircraft play valuable but differing roles in aerial response. For example, large and very large air-tankers (LATs and VLATs) have large load capacity and can travel relatively long distances at speed, and deploy across Australia; smaller aerial assets, such as helicopters and small fixed-wing aircraft, have a smaller load capacity, but are capable of operating at higher rates of effort in local responses and from regional locations. There are only a small number of LATs and VLATs in operation globally, with most based in North America. There is only one LAT permanently located in Australia (NSW).
- 119. Aerial firefighting is not a task directed of the ADF by Government. ADF aerial assets are not generally equipped for firefighting. They are used to support firefighting efforts, such as for evacuations and moving personnel. They are also used for concurrent natural disasters, such as floods and cyclones, and broader national security tasks.
- 120. Some aerial assets that are relied on as part of the national firefighting capability are based overseas. As fire seasons in both hemispheres increase in length and intensity, and other global issues arise, there is a risk that it will become increasingly difficult to secure overseas aircraft to provide contracted services during the Australian bushfire season.
- 121. In light of these risks, existing aerial firefighting capability and capacity arrangements require reassessment. This would need to be supported by research and evaluation to inform specific future capability needs, including the desirability for a modest, Australian-based sovereign VLAT/LAT capability. There may also be a need to explore contracting models that encourage Australian industry involvement in the development of future aerial firefighting capability.

## **Emergency communications and equipment**

- 122. Investing in equipment for fire and emergency services can be expensive. These decisions have long-lasting ramifications, with some in place for decades, requiring long lead times to change. For example, we have heard that the 'refresh' time for firetruck fleets can be as long as 30 years.
- 123. Effective communication among emergency responders relies on the specific equipment they use. Firefighters and other first responders have repeatedly stressed the importance of their communications equipment being interoperable. An absence of compatible information and communications equipment can make information sharing in the field challenging or impossible. Where people from different jurisdictions are working together to respond to a natural disaster, it is vital that their various technologies also work together.
- 124. Australian, state and territory governments have long recognised the need to improve the national interoperability of communications equipment. We encourage governments to prioritise and conclude arrangements to deliver more interoperable communications equipment.

## Public safety mobile broadband

- 125. A widely recognised gap in the communications platforms available to emergency responders in Australia is a national public safety mobile broadband (PSMB) capability, which would enable first responders to make better use of internet-based technologies and applications to access video, images, location tracking and other data.
- 126. We support the need for governments to prioritise, and expedite discussions about, delivering a national PSMB capability, which would confer significant benefits to emergency responders in the states and territories.
- 127. There are significant spectrum requirements to deliver a PSMB capability. The Australian Government has responsibility for managing the allocation of spectrum, which has significant commercial value. It is unclear to us why the Australian Government should provide this spectrum to the states and territories without contribution from those governments.

# **Opportunities for improvements in national recovery** arrangements

- 128. Recovery is a complex and multi-layered process that seeks to address the diverse needs of individuals and communities—it is more than simply rebuilding what has been destroyed. The recovery process often commences during the response phase, can run concurrently over multiple disasters, and can continue for years.
- 129. We have observed that successful recovery is community-centred. It is the role of formal recovery entities—at all levels of government, non-government organisations and the private sector—to provide structured support, communication, and coordination to assist these efforts.
- 130. Community-led and coordinated recovery relies on effective preparedness and planning processes. These processes should provide a framework and governance for recovery and set out the operational strategies and interventions specific to the affected communities.

## **Coordinating recovery efforts**

131. Despite the goodwill of all parties, there is variability in the level of collaboration and coordination in the delivery of recovery programs and services across jurisdictions. We will continue to consider the evidence relating to broader coordination and planning issues relevant to recovery, including between the Australian Government, state, territory and local governments, charities, non-government organisations, insurance companies and volunteer and community groups. This includes consideration of whether particular needs of individuals, small businesses, primary producers and the environment are appropriately addressed. We will continue to analyse the evidence regarding recovery coordination, including the adequacy of recovery resource sharing arrangements.

## **Disaster Recovery Funding Arrangements**

- 132. The Disaster Recovery Funding Arrangements 2018 (DRFA) is a joint Australian, state and territory government cost-sharing initiative aimed at alleviating the financial burden on states and territories of certain natural disaster related recovery measures.
- 133. We have learned of a number of issues, including the scope of 'betterment' initiatives, the eligibility of certain public assets, and administrative requirements (such as preparation of a business case for new recovery programs).
- 134. We welcome the current review of the DRFA which, in part, seeks to identify pre-agreed recovery programs that can promote quick and effective delivery of recovery assistance to communities.

## Sharing of personal information

- 135. We have heard of the frustration and trauma of people having to tell their story repeatedly to multiple relief and recovery organisations.
- 136. The Australian Government has the power to make an emergency declaration under the *Privacy Act 1988,* and did so on 20 January 2020. The declaration permitted Australian Government agencies and private sector organisations subject to the Privacy Act to collect, use or disclose personal information, which they might not otherwise be able to do, for purposes related to the emergency or disaster.
- 137. The declaration did not apply to the collection, use or disclosure of personal information obtained by state and territory agencies, and general awareness of the declaration appears to have been limited.
- 138. States and territories do not presently provide exemptions from their privacy obligations through an emergency declaration. An exception is the Northern Territory, where such an exemption is limited to sharing information within the Territory's public sector.
- 139. We observe the need for Australian, state and territory governments to work together to ensure that personal information of individuals affected by a natural disaster is able, legally and technically, to be appropriately shared between all levels of government, agencies, insurers and non-government organisations for recovery purposes.

## **Mental health**

140. Exposure to traumatic events, such as natural disasters, can have a significant effect on emergency responders. More broadly, natural disasters can affect the mental health and wellbeing of individuals in a number of ways and over different periods of time. We have heard evidence of this impact, ranging from mild or transitory symptoms, to mental health disorders that can be delayed in onset and have longterm impacts. We have also received evidence of the particular mental health impacts on vulnerable groups, such as children and the elderly. For those who experienced the devastation of the 2019-2020 bushfires, the cumulative mental health impact of the COVID-19 pandemic has been particularly acute.

141. Australian, state and territory governments have told us about the mental health and support services offered after the 2019-2020 bushfires. We also note the Productivity Commission inquiry into the role of mental health in supporting economic participation, enhancing productivity and economic growth. We acknowledge the ongoing work of the National Mental Health Commission, in conjunction with the states and territories, in developing the National Natural Disaster Mental Health Framework. We support the work of the Commission on the recognition of the cumulative impact of drought, bushfires and COVID-19 on mental health as a long-term public health issue.

#### Wildlife management and species conservation

- 142. The 2019-2020 bushfires have been described as an 'ecological disaster'. We have heard evidence of the extraordinary efforts of individuals, organisations and governments to protect wildlife before, during and after the bushfires.
- 143. Knowledge of Australia's wildlife and its distribution in Australia was, and remains for many species, disparate, fragmented, incomplete and inaccessible. Through a considerable and coordinated effort, however, a significant amount of information was collated to rapidly assess the impact of the bushfires on wildlife, threatened species and ecological communities, and to develop recovery plans for priority species. Improving knowledge of the impacts of natural disasters on wildlife could support the rapid deployment of wildlife triage and rehabilitation efforts.
- 144. There remain significant information gaps for more effective wildlife management and species conservation. These are challenging to fix immediately. The 2019-2020 bushfires have highlighted the need for action to ensure greater consistency and collaboration in the collection, storage, access and provision of environmental information.

## **Impact data**

- 145. We have experienced real difficulties in developing a clear national picture of the impact of the 2019-2020 bushfires across the nation. A number of issues have been raised in relation to impact assessments, including: limited availability of data, technical limitations in systems and platforms, inconsistent and incomplete collection practices, and limited capacity of entities responsible for conducting impact assessments, and barriers in the broad distribution of impact data.
- 146. Standardised impact data collection and improved data sharing platforms, at all levels nationally, could help improve the delivery of recovery services and facilitate improved assessment of the effectiveness of resilience measures. We are considering the means by which all governments could strive to develop a greater capacity to collate and share standardised and comprehensive disaster impact data.

## **Next steps**

- 147. These interim observations include our preliminary views on matters raised by the terms of reference in our Letters Patent. Some of the topics in these observations, and a number of other topics, will be canvassed in a separate paper, to be released shortly, that invites comment on a number of propositions from Counsel Assisting the Commission.
- 148. We thank all of the members of the community, government agencies and nongovernment entities for the contributions they continue to make to the work of this Commission. We will continue to analyse the extensive evidence before us, as well as views to be provided on the propositions, and information arising from the final block of hearings, to be held in the week commencing on 21 September 2020.





2 September 2020

The Mayor Central Highlands Council

## **Re: Electric Vehicle charger at Ouse**

Dear Mayor,

Electric Highway Tasmania recently commissioned our electric vehicle (EV) fast charger at Derwent Bridge in cooperation with Central Highlands Council as host site. This infrastructure is part of a developing statewide network of EV chargers designed to enable electric vehicles to travel freely around the state, a critical requirement to support the transition to renewably powered, zero emission transport in Tasmania.

We are currently in active discussions with The Johns Group to locate an EV fast charger at their Miena property, about to undergo a major redevelopment.

While the route from Hobart to Queenstown is now accessible to longer range EVs, there are some older model and shorter range EVs for which the chargers along this route remain too widely spaced to enable easy travel. An additional site is also required for some travellers who come from Hobart via Mount Field before going on to Derwent Bridge and the west coast, or to the Great Lake area.

For this reason, we are seeking Council's support to install a charger at Ouse, locating a charger at the side of the community hall. The site has toilets and food and beverage available nearby. The Council hall has three phase power and council staff have provided past billing information that shows current demand can be met along with the supply to a 25 kW charger.

We propose an arrangement essentially the same as the Derwent Bridge site:

- EHT would pay the full electricity bill for the site, including current community use (approx. \$1,100 per year)
- EHT would install, service and maintain EV charging equipment at the site at our expense
- When demand warrants additional capacity in the future, EHT would install the additional capacity and lease additional parking bays, subject to Council approval

The main difference is that the initial charger will be of lower capacity, 25 kW DC instead of 50 kW. As we expect the main users of the site will be shorter range EVs and some longer range EVs looking for a modest top up, the lower power level is considered appropriate.



We propose the site agreement from Derwent Bridge as the basis for the agreement at Ouse, with minor amendments as required to recognise the differences at this site.

Should Council choose to support this request, we anticipate the site could be completed during 2021.

Best regards,

Clive Attwater Managing Director Electric Highway Tasmania P/L 0439 941 934

Freedom to move

#### **CENTRAL HIGHLANDS COUNCIL AUDIT PANEL**

#### ANNUAL REPORT TO COUNCIL

#### For the Year Ended 30 June 2020

#### **Audit Panel Objectives**

The objective of the Audit Panel is to provide an accountability mechanism in relation to Council's financial, compliance, risk management and internal control activities. The panel reviews the council's performance under Section 85A of the Local Government Act and reports to the council its conclusions and recommendations.

#### **Meeting Attendance – Audit Panel Members**

Meeting Date	Mr Ian McMichael (Chairman)	Clr Jim Allwright	Clr J Poore
22 October 2019	$\checkmark$	$\checkmark$	$\checkmark$
10 December 2019	$\checkmark$	$\checkmark$	$\checkmark$
25 February 2020	$\checkmark$	$\checkmark$	$\checkmark$
3 March 2020	~	~	~
2 June 2020	1	1	√

#### Summary of the Audit Panel Meetings held during 2019/20

Meeting Date	Main Agenda Items/Outcomes	
22 October 2019	Noted the following:	
	Statutory Financial Requirements Report Financial Reports to Council Risk Management Register	

	Policy Review
	Noted Audited Statements
	CHC Audited Financial Statements 2018/19
	Management Letter
	Independent Auditors Report Management report for year ended 30 June 2019
	Wanagement report for year chiefe 50 June 2015
	<ul> <li>Discussed upcoming changes to the financial reporting for</li> </ul>
	2019/20 as follows:
	Valuation of Lander Under Roads
	Classification of investment accounts
	Leases longer than 12 months
	Volunteer service value
	Noted Insurance Information
	Overview of General Insurance
	Overview of Mutual Liability Insurance
	JLT Public Risk Report 2019
	Draft Audit Panel Report accepted
10 December 2019	Noted the following:
	Statutory Einancial Requirements Report
	Financial Reports to Council
	Risk Management Register
	Policy Review
	Discussed progressing Investment Believ
	• Discussed progressing investment Policy
	Noted CHC LIVII Risk Gap Analysis Report:
25 February 2020	Noted the following:

	Statutory Financial Requirements Report
	Financial Reports to Council
	Risk Management Register
	Policy Review
	Noted the following
	Investment Policy to be tabled May 2020
	LTFP 2016 Comparison to 2019 Actuals – to be included in Council agenda March 2020
	Risk Management Register – recommendation to Council that the General Manager organise a third party to undertake an internal audit to review the segregation of duties, which ensures the organisation meets the requirements of Item 4.14 of the Risk Management Register
	Other Business:
	Deputy General manager to investigate if other Councils have a complaint handling policy and provide feedback to the next Audit Panel meeting
	Review the office security in the Bothwell and Hamilton Offices and consider personal security for field staff
	Noted Councillor Status Report
	Discussed cyber training
3 March 2020	Follow up on progress of investment Policy
	Follow up on Office Security
2 June 2020	<ul> <li>Noted the following:</li> </ul>
	Statutory Financial Requirements Report
	Financial Reports to Council
	Risk Management Register
	Policy Review

Followed up on items from previous minutes
Recommended Investment Policy for adoption by Council
Reviewed Draft 2020/21 Budget
Reviewed Draft Coronavirus Safety Plans
Noted Coronavirus added to risk register

#### Private and Confidential

Ms Lyn Eyles General Manager Central Highlands Council leyles@centralhighlands.tas.gov.au

Dear Ms Eyles

#### Code of Conduct Panel Determination Report – Local Government Act 1993 (Section 28ZJ)

In accordance with section 28ZK of the *Local Government Act 1993* (the Act) the Code of Conduct Panel has made its determination in relation to the complaint lodged by Cr Robert Cassidy against Cr Jim Allwright. A copy of the Determination Report is enclosed.

As per section 28ZK (2) of the Act, copies have also been provided today to Cr Cassidy, Cr Allwright and to the Director of Local Government.

Section 28ZK (7) of the *Local Government Act* 1993 requires that any person who receives a determination report must keep the determination report confidential until the report is included within an item on the agenda for a meeting of the relevant council. Failure to do so may result in a fine of up to fifty penalty units.

In accordance with section 28ZK (4) of the Act, you are to ensure that the Report is tabled at the first meeting of the Council at which it is practicable to do so and which is open to the public.

I may be contacted on (03) 6232 7013 or by email at <u>lgconduct@dpac.tas.gov.au</u> if you have any queries.

Yours sincerely

Je Malle

Helen Medhurst Executive Officer Code of Conduct Panel

25 August 2020 Encl. Determination Report Local Government Act 1993

## CENTRAL HIGHLANDS COUNCIL CODE OF CONDUCT PANEL DETERMINATION REPORT \*

Complaint made by Cr Robert Cassidy against Cr Jim Allwright

Reference : c20666

#### Date of Determination: 25 August 2020

#### Code of Conduct Panel:

Lynn Mason (Chairperson), Kathy Schaefer (community member with experience in local government), Sam Thompson (legal member)

#### Summary of the Complaint

Cr Cassidy's complaint dated 29 May 2020 (the complaint) was referred to the Executive Officer of the Code of Conduct Panel (the Panel) on 3 June 2020. On 4 June 2020 the complaint was sent to the Chairperson of the Panel for assessment.

Pursuant to section 28ZA(1)(e) of the *Local Government Act 1993* (the Act), the Chairperson advised on 19 June 2020 that the whole of the complaint should be referred to a Panel for investigation and determination.

The complaint alleged that at the ordinary council meeting of the Central Highlands Council (the Council) held on 19 May 2020, Cr Allwright failed to declare or act on a conflict of interest in item 16.2, *Installation of Stock Grid Rotherwood Road*, and that Cr Allwright had, in addition, expressed personal bias before voting on the matter. Cr Allwright voted against the motion, which was defeated.

The Code of Conduct (the Code) in force at the time of the alleged breaches was approved by Council on 15 January 2019. The sections of the Code which Cr Cassidy alleged Cr Allwright breached are:

#### PART I – Decision Making

- 1. A councillor must bring an open and unprejudiced mind to all matters being decided upon in the course of his or her duties, including when making planning decisions as part of the Council's role as a Planning Authority.
- 2. A councillor must make decisions free from personal bias or prejudgement.
- 3. In making decisions, a councillor must give genuine and impartial consideration to all relevant information known to him or her, or of which he or she should have reasonably been aware.
- 4. A councillor must make decisions solely on merit and must not take irrelevant matters or circumstances into account when making decisions.

PART 2 - Conflicts of interest that are not pecuniary

- 1. When carrying out his or her public duty, a councillor must not be unduly influenced, nor be seen to be unduly influenced, by personal or private interests that he or she may have.
- 2. A councillor must act openly and honestly in the public interest.
- 3. A councillor must uphold the principles of transparency and honesty and declare actual, potential or perceived conflicts of interest at any meeting of the Council and at any workshop or any meeting of a body to which the councillor is appointed or nominated by the Council.

<sup>\*</sup> Section 28ZK (7) of the *Local Government Act* 1993 requires that any person who receives a determination report must keep the determination report confidential until the report is included within an item on the agenda for a meeting of the relevant council. Failure to do so may result in a fine of up to 50 penalty units.

- 4. A councillor must act in good faith and exercise reasonable judgement to determine whether he or she has an actual, potential or perceived conflict of interest.
- 5. A councillor must avoid, and remove himself or herself from, positions of conflict of interest as far as reasonably possible.
- 6. A councillor who has an actual, potential or perceived conflict of interest in a matter before the Council must:
  - a) declare the conflict of interest and the nature of the interest before discussion of the matter begins; and
  - b act in good faith and exercise reasonable judgement to determine whether a reasonable person would consider that the conflict of interest requires the Councillor to remove himself or herself physically from any Council discussion and remain out of the room until the matter is decided by the Council.

## The Complaint

The resolution moved by Cr Cassidy, at item 16.2 of the meeting of 19 May 2020, proposed that Council contribute up to \$2,000 towards the cost of installation of a stock grid on a public road. The request for financial assistance had been made by two private landowners. Cr Cassidy alleged that Cr Allwright 'unequivocally expressed a personal bias regarding paying for his own installation of a cattle grid on his farm, prior to a vote on the matter'. Cr Cassidy also alleged that as Cr Allwright had voted first, his vote against the motion influenced other votes around the table, with the result that the motion was lost. Cr Cassidy stated in his complaint that Cr Allwright had a conflict of interest in the matter which he failed to declare prior to participating in the debate and voting on the motion.

## Procedure

Cr Allwright was provided with a copy of the complaint on 19 June 2020 and was requested to provide a response to the Panel by 3 July 2020. The Executive Officer of the Panel received a response on 24 June 2020, but this was not attached to or part of a Statutory Declaration. The Panel requested that Cr Allwright provide a Statutory Declaration to accompany any specific response he might wish to make, and granted an extension of time until 10 July 2020. The response was received on 9 July 2020.

Cr Cassidy wrote to the Executive Officer on 1 July 2020. The letter was not attached to or part of a Statutory Declaration, and dealt principally with matters not relevant to the complaint.

On 10 July 2020, in accordance with section 28ZG(2)(a) and (b) of the Act, the Panel informed Cr Allwright that it was of a mind not to conduct a hearing into the complaint, and invited Cr Allwright to make submission on whether he would be disadvantaged if a hearing were not to be held. Cr Allwright was at the same time invited to make submission on what sanction he considered would be appropriate in the event that the Panel determined to uphold part or all of the complaint.

On 10 July 2020, in accordance with section 28ZG(2)(a) and (b) of the Act, the Panel informed Cr Cassidy that it was of a mind not to conduct a hearing into the complaint, and invited him to make submissions on whether he would be disadvantaged if a hearing were not to be held.

On 13 July 2020 Cr Cassidy made a further submission to the Panel in response to Cr Allwright's initial response to the complaint. Cr Allwright had raised allegations against Cr Cassidy in his response of 9 July 2020, and Cr Cassidy responded to those allegations. Those allegations were not relevant to the complaint, nor to the Code generally. The Panel has therefore placed no weight on Cr Allwright's counter allegations and Cr Cassidy's response to those allegations. The Panel confined its investigation to the matter of the Complaint.

On 20 July 2020 the Executive Officer received an email from Cr Cassidy which had no direct bearing on the matter of the complaint. This was provided to the Panel but none of the information therein was deemed relevant to determination of the complaint. The Panel therefore afforded it no weight.

On 22 July 2020 the Panel wrote again to Cr Allwright, inviting him to respond to Cr Cassidy's second Statutory Declaration (13 July 2020), and again inviting him to make submission on sanction in the event that all or part of the complaint were to be upheld. Cr Allwright provided his response to the Executive Officer on 23 July 2020.

The Panel met, via an online meeting platform, to consider the relevant material and evidence on 30 June 2020, 22 July 2020, and 30 July 2020.

#### Material considered by the Panel

- The Central Highlands Council Code of Conduct Policy, 15 January 2019;
- Audio recording of the Central Highlands Ordinary Council meeting, 19 May 2020;
- The Complaint against Cr Allwright, 29 May 2020;
- Letter from Cr Allwright to the Executive Officer, Code of Conduct Panel, 24 June 2020;
- Email from Cr Cassidy to the Executive Officer, Code of Conduct Panel, I July 2020;
- Statutory Declaration from Cr Allwright, 9 July 2020;
- Statutory Declaration from Cr Cassidy, 13 July 2020;
- Email from Cr Cassidy to the Executive Officer, 20 July 2020;
- Email from Cr Allwright to the Executive Officer, 23 July 2020.

#### Determination

Pursuant to section 28ZI (1)(b), the Code of Conduct Panel dismisses the complaint against Cr Allwright.

#### Reasons for the Determination

#### Alleged Breach of Part 1 of the Code

Part 1.1 A councillor must bring an open and unprejudiced mind to all matters being decided upon in the course of his or her duties, including when making planning decisions as part of the Council's role as a Planning Authority.

The Panel determines that while Cr Allwright expressed his view about the proposed financial support from Council for private works on a public road, and based this view on his personal experience, insufficient evidence was provided to permit the Panel to conclude that Cr Allwright had closed his mind to further argument, had there been any, or that he exhibited prejudice in the statements he made in debate.

The Code requires that a councillor's mind be open to persuasion rather than foreclosed with respect to a particular matter. It does not require that a councillor must come to a meeting as a blank slate. Councillors are elected and have political functions. It is expected that a councillor may hold and espouse views, based on personal experience, about a particular matter.

Therefore, the Code of Conduct Panel dismisses this part of the complaint against Cr Allwright.

Part 1.2 A councillor must make decisions free from personal bias or prejudgement.

The Panel finds that Cr Allwright made his decision on how to vote based on his own experience in having paid for a similar installation himself at some time in the past. Cr Allwright took into account his personal experience. However, that is not prohibited by the Code. Rather, the Code prevents 'personal bias or prejudgment'.

Councillors are elected members with political functions. Their personal experience is not irrelevant. It is accepted, even desirable, that they take into account their personal experiences. The Panel understands Cr Allwright to have taken into account his personal experience as reasons for fairness and consistency in decision making.

The debate was truncated by Cr Cassidy's interjections and the Mayor's calling of a vote. Had this not occurred, Cr Allwright may have gone on to talk about the further reasoning, explained in his Statutory Declaration, and the Panel cannot therefore be satisfied that Cr Allwright's personal experience in installation of a private cattle grid on a public road was his only reason for voting against the motion. That the debate was truncated and Cr Allwright's contribution limited does not establish that Cr Allwright's vote was infected by personal bias or prejudgment.

The Panel dismisses the complaint that Cr Allwright breached Part 1.2 of the Code.

Part 1.3 In making decisions, a councillor must give genuine and impartial consideration to all relevant information known to him or her, or of which he or she should have reasonably been aware.

The Panel is not persuaded that Cr Allwright did not give genuine and impartial consideration to the information before him or of which he should have been aware. No evidence was provided to indicate that Cr Allwright had deliberately ignored information provided to the Councillors. Council's debate with respect to this matter was short. However, there is no evidence that Cr Allwright failed to give genuine and impartial consideration to the little information before him, or of which he should have been aware.

The Code of Conduct Panel dismisses the complaint that Cr Allwright breached Part 1.3 of the Code of Conduct.

Part I.4 A councillor must make decisions solely on merit and must not take irrelevant matters or circumstances into account when making decisions.

Cr Allwright based his decision to vote against the motion on the fact that he had not received a council subsidy when he installed a stock grid on a public road. The Panel does not accept that this was an irrelevant matter. Arguably, Cr Allwright should have taken into account *additional* matters and ensured that the debate was more fulsome, but he did not take into account *irrelevant* matters, and in the interests of consistency in the use of public funds for assistance in like matters, his argument is not without merit. The Mayor's chairing potentially compromised debate by all Councillors, including Cr Allwright.

The Panel dismisses the complaint that Cr Allwright breached Part 1.4 of the Code of Conduct.

Alleged breach of Part 2 of the Code

Part 2.1. When carrying out his or her public duty, a councillor must not be unduly influenced, nor be seen to be unduly influenced, by personal or private interests that he or she may have.

The Panel determines that as Cr Allwright's statements indicate that he had paid for his own grid installation sometime in the past, he did not have a direct or indirect interest in the outcome of this resolution. Council was debating a single issue, whether or not to assist in paying for a particular stock grid installation. This was not a debate on a Council policy which could affect Cr Allwright's private interests. As a result, the Code of Conduct Panel dismisses the complaint that Cr Allwright breached Part 2.1 of the Code of Conduct.

#### Part 2.2 A councillor must act openly and honestly in the public interest.

The Panel finds that there is no evidence that Cr Allwright failed to act openly and honestly, nor that he failed to act in the public interest. The Panel is not satisfied that voting against the motion (to subsidise a stock grid) was contrary to the public interest. During the debate, Cr Allwright was open about the fact that when he installed a stock grid, he did not receive a Council subsidy.

The Code of Conduct Panel dismisses the complaint that Cr Allwright breached Part 2.2 of the Code of Conduct.

Part 2.3 A councillor must uphold the principles of transparency and honesty and declare actual, potential or perceived conflicts of interest at any meeting of the Council and at any workshop or any meeting of a body to which the councillor is appointed or nominated by the Council.

The Panel finds that Cr Allwright did not have a conflict of interest in deciding how to vote on financial support for the installation of a stock grid for two parties unrelated to him and his interests. He therefore had no need to make such a declaration in the meeting.

The Code of Conduct Panel dismisses the complaint that Cr Allwright breached Part 2.3 of the Code of Conduct.

Part 2.4. A councillor must act in good faith and exercise reasonable judgement to determine whether he or she has an actual, potential or perceived conflict of interest.

The Panel received no evidence that Cr Allwright failed to exercise reasonable judgement in determining whether he had a conflict of interest in the issue. The Mayor asked him directly during debate whether he had a conflict of interest or not. It is therefore apparent that he had to consider the matter. There was no evidence before the Panel that Cr Allwright failed to act in good faith and exercise reasonable judgment in concluding that he did not have a conflict of interest. There was a sound basis for Cr Allwright to reach that view; see the application of Part 2.1 of the Code (above).

The Code of Conduct Panel dismisses the complaint that Cr Allwright breached Part 2.4 of the Code of Conduct.

- Part 2.5. A councillor must avoid, and remove himself or herself from, positions of conflict of interest as far as reasonably possible.
- Part 2.6. A councillor who has an actual, potential or perceived conflict of interest in a matter before the Council must:
  - a) declare the conflict of interest and the nature of the interest before discussion of the matter begins; and
  - b) act in good faith and exercise reasonable judgement to determine whether a reasonable person would consider that the conflict of interest requires the Councillor to remove himself or herself physically from any Council discussion and remain out of the room until the matter is decided by the Council.

For the reasons given above, the Panel finds that Cr Allwright had no conflict of interest to declare.

The Code of Conduct Panel dismisses the complaint that Cr Allwright breached Part 2.5 and Part 2.6 of the Code of Conduct.

## Conclusion

Pursuant to section 28Z(1)(b) of the Act, the Panel dismisses the whole of the complaint.

The Panel finds that the conduct of the debate on item 16.2 at the Council meeting of 19 May 2020 was not such as to allow Councillors to hear differing points of view. When the motion was eventually moved and seconded, the Mayor immediately invited Cr Allwright to speak. He did so, against the motion. His debate against the motion could and should have included reference to matters beyond his personal experience, or at least, a more detailed explanation of the relevance of this experience to other landholders and to the ratepayers of Central Highlands. However, as stated above, he was interrupted several times, and the debate, such as it was, was cut short by the Mayor's calling the vote.

When the Mayor put the motion to the vote, asking each Councillor in turn for their vote, Cr Allwright was invited to vote first. Cr Cassidy alleged that this influenced other Councillors' votes, but there is no evidence that this was so. At no point was either the mover or the seconder invited to speak to the motion: Cr Allwright was the only speaker. This is contrary to good governance and is unfair to all Councillors. The Panel notes that no Councillor moved a Procedural Motion<sup>1</sup> to try to prevent the matter from going to a vote before any other argument was heard. Councillors should also shoulder their responsibility to ensure that all sides are heard, enabling considered decisions made on the merits of the case in point. This includes Cr Allwright, particularly in his role as Deputy Mayor.

#### Right to Review

Under s28ZJ of the Act, a person aggrieved by the determination of the Panel is entitled to apply to the Magistrates Court (Administrative Appeals Division) for a review of the determination on the ground that the Panel has failed to comply with the rules of natural justice.

Lynn Mason (Chairperson)

Manpsan

Sam Thompson (Legal Member)

Kathene Scharfer

Kathy Schaefer (Community Member with experience in local government)

<sup>&</sup>lt;sup>1</sup> In accordance with the *Local Government (Meeting Procedures) Regulations 2015,* 20(1)(a), an appropriate Procedural Motion would have been *That the motion not now be put.* 

## Department of Primary Industries, Parks, Water & Environment

WATER AND MARINE RESOURCES DIVISION

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7 September 2020

Katrena Stephenson Chief Executive Officer Local Gov Assoc of Tas

Katrena.stephenson@lgat.tas.gov.au

Dear Katrena

#### Tasmanian Recreational Sea Fishing Strategy: Update and invitation for further input

In June, I informed your organisation that the DPIPWE was seeking community wide input in developing the Tasmanian Recreational Sea Fishing Strategy. The Strategy aims to clearly delineate the vision, goals and guidelines for Tasmania's recreational marine fisheries.

I am now pleased to inform you that we are now commencing another consultation phase with the release of a Discussion Paper *Towards a 10 Year Vision for Recreational Sea Fishing in Tasmania*. We encourage organisations and individuals to make submissions on the initiatives proposed in the Paper with until 25 October 2020. The initiatives have been informed through community engagement including targeted feedback from key stakeholders and public input into the *For a Better Fishing Future* survey in June and July 2020.

The public consultation period is an important step in the Strategy development process and provides Tasmanians with another opportunity to have their views heard on the future of recreational sea fishing. During the public consultation period, we are particularly focussed on seeking views on ways to progress initiatives described in the Discussion Paper – these views will be instrumental in sharpening our focus and developing the Strategy. As well as written submissions, small public consultative meetings are being held around the state. I would be happy to offer a briefing to your organisation if your organisation can not attend the scheduled meetings.

An outline of the Strategy, access to the Discussion Paper and a report on the previous survey and details are published on the Department's <u>Recreational Sea Fishing Strategy</u> web page. The Department's Fisheries Tasmania Facebook, Instagram and fishing news email service will briefly detail updates and notifications of consultation meetings.

I encourage you to share the notifications through your networks, so we can have community wide input into this process.

Please feel free to find out more details by contacting the Recreational Fisheries Strategy team on 6165 3047 or <u>RecFishingStrategy@dpipwe.tas.gov.au</u>. Yours sincerely

All

Dr Ian Dutton Director Marine Resources

# TOWARDS A 10 YEAR VISION FOR RECREATIONAL SEA FISHING IN TASMANIA

**Discussion Paper** September 2020





Wild Fisheries Management Branch Department of Primary Industries, Parks, Water And Environment Author: Wild Fisheries Management Branch

#### Coordination:

#### Strategy Steering Committee:

Ian Dutton, Director of Marine Resources Max Kitchell, RecFAC Chair Jane Gallichan, TARFish CEO Jeremy Lyle, Senior Recreational Fisheries Researcher, IMAS Andrew Hart, Recreational Fisher Emilie Donovan, Recreational Fisher

#### Strategy Working Group

Ian Dutton, Director of Marine Resources Sven Frijlink, Recreational Fisheries Policy Officer Grant Pullen, Manager, Wild Fisheries Management Branch Rod Peam, Principal Fisheries Management Officer (Recreational Fisheries) Sally Williams, Senior Fisheries Communications Officer Travis Preece, Fisheries Awareness Officer (Northern Tasmania) Fang Zhou, Fisheries Awareness Facilitator IMAS Recreational Researchers (as needed)

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# INVITATION TO CONTRIBUTE

The Tasmanian Government continues to demonstrate our strong support and recognition of the importance of recreational marine fishing in our state.

Like many Tasmanians, I love to enjoy our wonderful waterways and catching a feed of fish with family and friends. I am passionate about recreational fishing and the important role it plays in the Tasmanian way of life.

As Minister, I have come to the view that a more overarching recreational sea fisheries strategy is required to place ongoing decisions within a strategic framework for the recreational fishery including how it operates into the future.

This 10-year strategy, to be released in July 2021, will clearly delineate the vision and outcomes for recreational fisheries and how they will be achieved. We highly value the opinions and ideas of our recreational sea fishing community and non-fishers with an interest in this topic. I encourage Tasmanians of all ages and backgrounds to put forward their views now during the development of the strategy.

I want to be ambitious in our approach to meet the many challenges of the future. Recreational sea fishers are as diverse as the gear they use, and fish they catch so it is important we capture this. We also want more women, children and recent immigrants to our wonderful state to embrace recreational sea fishing as a lifestyle choice and a form of healthy outdoor recreation.

Seeking diverse views will help us strike the right balance between providing access for today's fishers and ensuring we have fish for future generations. The views of stakeholders are a critical part of this process. So – please carefully consider the issues raised here – then have your say.

#### Guy Barnett Minister for Primary Industries and Water



# INTRODUCTION

# Recreational sea fishing is important

Recreational sea fishing is an important way of life for many Tasmanians. Given our extensive coastline and access to diverse fisheries, recreational sea fishing plays a prominent role in Tasmania's lifestyle and economy.

Approximately I in 4 or more than 100,000 Tasmanians fish each year. About 75% of all fishing is in marine waters. The Tasmanian visitor survey indicates that more than 30,000 visitors from interstate and overseas go fishing in Tasmania each year. Annual catches by recreational fishers include 1.35 million finfish, 43,000 rock lobster and 34,000 abalone.

The reasons why people fish vary greatly. While motivations to catch fish for food are important, others such as fishing skill, enjoying the outdoors and spending time with friends and family are central to the fishing experience. Incorporating these values when managing fisheries requires balancing the needs of users with the goal of maintaining sustainable fish stocks.

Recreational fishers make a significant contribution to the Tasmanian economy, spending more than \$160 million a year including \$19 million on gear, tackle and bait. This expenditure is particularly important for regional communities.



# Why a strategy is needed

Tasmania's recreational sea fisheries are managed by the Wild Fisheries Management Branch of the Department of Primary Industries, Parks, Water and Environment (DPIPWE) on a fishery by fishery basis under the *Living Marine Resources Management Act 1995*.

Recreational fisheries management also includes initiatives such as public education programs and coordinating with government agencies including MAST, Inland Fisheries Service and Tasmania Police.

Until now, there has never been a comprehensive strategy that addresses the entirety of recreational sea fishing issues. As community aspirations for access to fisheries evolve, global warming changes marine habitats and other coastal activities compete for marine resources, it is time to take a more forward-looking view.

# What will the strategy look like?

The *Tasmanian Recreational Sea Fishing Strategy* will establish a decade-long vision for recreational sea fisheries in Tasmania. It will guide decision making, support services and resource allocation by government, and establish a framework to engage stakeholders.

Following public comment on this Discussion Paper, a draft Strategy will be developed.

# What is the timeline?

This Discussion Paper is a mid-way step in the strategy process and draws from the public *For a Better Fishing Future Survey* to which over 3,200 Tasmanians responded.

From 7 September to 25 October 2020, DPIPWE is seeking public input on this Discussion Paper via an online response form and/or verbally at face-to-face regional meetings.

We want your feedback about:

- The Draft Vision, Outcomes and Strategic Initiatives. Have we got them right? What is missing?
- Proposed Actions under each Initiative: What is needed to achieve the Vision and Outcomes?

The draft Strategy will be released for public comment in February 2021. After reviewing the draft, the final strategy will be released in July 2021.

# How to have input

#### In person

Small public meetings will be held around Tasmania to share results from our public engagement, to seek further input and discuss priorities for action. The meeting schedule is available at: www.fishing.tas.gov.au/rec-strategy

#### Online, email and post



Online: The online response form is available at: www.fishing.tas.gov.au/rec-strategy

Email: Submissions can be emailed to: <u>recfishingstrategy@dpipwe.tas.gov.au</u>

Post: Recreational Fishing Section, DPIPWE, GPO Box 44 Hobart, TAS 7001

To request a hard copy of the Discussion Paper, email <u>recfishingstrategy@dpipwe.tas.gov.au</u> or phone (03) 6165 3047.

RESPONSES MUST BE RECEIVED BY MIDNIGHT SUNDAY 25 OCTOBER 2020.



# TIMELINE

Scoping stage - Initial input from 150 key stakeholders

#### Public survey during June-July 2020

- Over 3200 responses
- See Survey Summary Report

#### Discussion Paper - Vision and Initiatives HAVE YOUR SAY HERE

- Online submissions
- In-person feedback

#### Small workshops on key topics DPIPWE does further analysis and drafts Strategy

### Public comment on draft Strategy

DPIPWE refines Strategy with further public input

Minister launches Strategy

# Summary of Proposed Outcomes and Initiatives

### Outcome 1: Valuing recreational sea fishing

#### **Potential strategic initiatives**

- 1. Recognising the social and economic importance of recreational fishing in management decisions
- 2. Research into the social and economic contributions of recreational fishers

#### Outcome 2: Involving the community in fisheries management

#### Potential strategic initiatives

- 1. Involving fishers more in managing fisheries, including taking responsibility to protect them
- 2. Involving fishers more in citizen science programs

#### Outcome 3: Making it easier for people to go fishing

#### **Potential strategic initiatives**

- I. Program support to make fishing more accessible
- 2. Making fishing easier by changing group fishing rules
- 3. Targeted promotion of Tasmania as a fishing tourism destination, and charter fishing
- 4. Enabling fishing access through providing and improving facilities

#### Outcome 4: Promoting responsible recreational fishing

#### **Potential strategic initiatives**

- I. Making it easier for fishers to follow the rules
- 2. Increasing awareness of sustainable fishing practices
- 3. Increasing community understanding about how and why fisheries are managed
- 4. Engaging fishers from multicultural backgrounds

#### Outcome 5: Ensuring the long-term sustainability of fish stocks and habitats

#### **Potential strategic initiatives**

- I. Research to support healthy recreational fisheries
- 2. Reducing fishing impacts on non-target species and the marine environment
- 3. Assessing whether high impact recreational fishing methods should continue

#### Outcome 6: Improving capacity to support recreational fishing

#### Potential strategic initiatives

- I. Identifying funding sources to improve programs and facilities that benefit recreational fishers
- 2. Improving services to fishers by working more closely with the Inland Fisheries Service, Marine and Safety Tasmania and Tasmania Police.

# **DRAFT 2030 VISION**



To deliver the best recreational fishing experience to Tasmanians by ensuring sustainable fish stocks and optimising benefits to the community.

A vision statement is an inspirational, short and simple statement outlining what we would like to achieve by 2030. It should be no more than one sentence.



- I. Indicate your level of support for this vision.
- 2. Are any words or elements missing?
- 3. Do you have a different vision?

# OUTCOMES

# Outcome I: Valuing recreational sea fishing



#### Why valuing recreational sea fishing matters

Whether you enjoy wrestling a tuna, setting your lobster pot or catching a feed of flathead, recreational sea fishing is a way of life for many Tasmanians. To preserve this, we recognise that ensuring sustainable fish stocks for future generations is a shared responsibility between fishers and government.

To optimise community benefits from recreational sea fishing, we need to understand the values, attitudes and activities of fishers to better meet their needs. Understanding recreational fishers is also important when considering how fish stocks are shared with other users, including commercial fishers and Tasmanian Aboriginal people.

### Potential strategic initiatives

# 1. Recognising the social and economic importance of recreational fishing in management decisions

Fisheries managers and researchers understand the importance of having a strong focus on this initiative to address long-standing fisher perceptions of being undervalued in resource sharing decisions. This sentiment was reinforced by recreational fishers, both in general terms and in relation to specific fisheries such as the East Coast rock lobster fishery. Some expressed concern that emerging fisheries including King George whiting and snapper were not given sufficient protection from commercial fishing in view of their value to recreational fishers.

Three initiatives about recognising the importance of recreational sea fishing were proposed in the For a Better Fishing Future Survey ('the survey'). These were:

- I. Recognising the social and economic importance of recreational fishing;
- 2. Recognising the importance of new species such as snapper, kingfish and King George whiting to recreational fishers; and
- 3. Better recognising the importance of recreational fishing when managing fish stocks and fishing areas.

All received a high level of support. Most written responses indicated that recreational values were being ignored and many suggested ways to remedy this. Recreational-only fishing areas in sheltered or coastal areas were most commonly raised. There were also suggestions that some species should be allocated solely to the recreational sector.

Some stakeholders indicated the need to consider a decision-making framework for recreationally important areas and species including emerging species. This would require the involvement of all sectors to discuss criteria for allocations.

# Public Input



- I. How should the social and economic values of recreational fishing be considered in overall fisheries management?
- 2. Any other comments about this initiative?

#### 2. Research into the social and economic contributions of recreational fishers

The use of social and economic data to guide decisions is an important part of fisheries management. DPIPWE, in their partnership with the Institute for Marine and Antarctic Studies (IMAS), have sought socioeconomic data on recreational fishers to better understand the sector. While this information has informed the management of Tasmania's fisheries, recreational fishers would like to see it used to a greater extent.

While collecting data within the recreational sector is straightforward, it is more complicated when decisions affect other resource users such as commercial fishers. The values that underpin each sector are very different: the value of commercial fishing is expressed in economic terms while the value of recreational fishing is a complex mixture of cultural, social and economic values. If we make management decisions to optimise community benefit, it is important that we establish methods for collecting socio-economic data.

This initiative was strongly supported in the survey. Some respondents provided suggestions for crosssectoral research, particularly for rock lobster and abalone. These included comparing environmental impacts between sectors, better understanding the economic benefits to Tasmania and considering the relative values of allocating catch and areas to either sector.



- 1. What sort of recreational fishing information do you think we need over the next 10 years?
- 2. Any other comments about this initiative?

# Outcome 2: Involving the community in fisheries management



#### Why community involvement matters

Managing recreational fisheries is a shared responsibility between fishers and the government. DPIPWE engages fishers and the broader community in a range of ways including using representative bodies and Fishery Advisory Committees to advise the Minister, public consultation on fisheries management and through education and outreach programs operated by Fishcare.

While the government makes fishing rules, the sustainability of our fisheries relies on the stewardship of all participants. Complying with rules is a big part of this, however the responsibility for sustaining our fisheries requires individual fishers to become stewards of our fish stocks, ensuring their health for future generations. As fishing pressures increase, recreational fishers will play an increasingly important role in limiting catches and minimising damage to habitats.

### Potential strategic initiatives

# 1. Involving fishers more in managing fisheries, including taking responsibility to protect them

Involving recreational fishers in the overall management of fish stocks requires a co-management approach. In the survey, expansion of recreational fisher engagement in managing fisheries received a high level of support. It also appears that existing activities involving fishers in managing fisheries are not well understood. These include:

- The peak body for recreational sea fishing the Tasmanian Association for Recreational Fishing (TARFish) represents the views of fishers and communicates directly with the Minister.
- The Recreational Fisheries Advisory Committee (RecFAC) provides advice on fisheries management matters to the Minister. RecFAC membership includes recreational fishers, the TARFish CEO, a conservation representative, Marine Police and an IMAS researcher.
- Proposed changes to fisheries rules have a 30-60 day public consultation period. All public submissions on proposals are considered and summaries made publicly available.
- DPIPWE engages the public directly through activities such as fishing and boating expos, Agfest, fishing forums and review meetings.

The Fishcare Program fosters resource stewardship among Tasmanian fishers by promoting sustainable fishing to the community. The Tuna Champions program – a collaboration between IMAS and the Australian Recreational Fishing Foundation – promotes fishery stewardship among tuna fishers.

We are committed to hearing your ideas on how we could improve co-management. Through the survey, we have already received many suggestions. Some of these relate to greater transparency from government, establishing regional advisory bodies and including recreational interests on commercial fishery advisory committees, and vice versa.





- 1. Are there other actions we should consider to involve fishers more in recreational fisheries management and stewardship?
- 2. Any other comments about this initiative?

#### 2. Involving fishers more in citizen science programs

Many stakeholders who supported improving management representation also indicated that fishers should be more involved in citizen science programs. Survey respondents expressed a willingness to be involved in data collection programs using new technologies including ways to manage catches of high value species such as rock lobster.

Many recreational fishers already participate in IMAS projects including:

- Voluntary participation in IMAS recreational phone-diary surveys;
- Investigations into the biology of snapper and yellowtail kingfish where fishers fill out logbooks and donate fish frames;
- The RedMAP program where members of the community record marine species observed beyond their normal range of distribution; and
- The Research Angler Logbook Program which collects size data on recreational species to better understand the impact of fishing.

As is evident in other states where citizen science programs are expanding, there will be more opportunities for fishers to contribute fisheries information. Some of these may overlap with stewardship programs such as habitat restoration and marine debris clean-up programs.



- I. What role should recreational sea fishers play in citizen science programs?
- 2. Any other comments about this initiative?

# Outcome 3: Making it easier for people to go fishing



#### Why access matters

For some, fishing is a great way to get away from life's pressures. Others are lured by the excitement of battling a large fish on the open seas. Whatever the attraction, the Tasmanian Government recognises the lifestyle benefits of recreational fishing and the need to provide facilities that make it easier to access.

As the profile of Tasmania's fishing population changes, new ways to provide access are needed. There are often barriers that restrict people from participating. These include not having the necessary skills or knowledge, changes in physical ability, limited access to equipment and, for new arrivals, not knowing what Tasmania has to offer and the rules that apply.

For boat-based fishers, facilities such as boat ramps and parking are required. For shore-based fishers, access may be difficult, particularly for the elderly and fishers with disabilities.

A lack of public facilities is also a constraint to fishing participation. No toilets near shore-based fishing areas and boat ramps has been identified as an impediment for female fishers and family groups. Providing toilets can promote greater female participation and a create a more family-friendly environment.

Infrastructure projects can enhance fishing opportunities by deploying artificial reefs and fish aggregation devices (FADs). Artificial reefs provide bottom-fishing opportunities in sheltered waters where little natural reef exists while FADs attract pelagic fish such as tunas and yellowtail kingfish.

## Potential strategic initiatives

### 1. Program support to make fishing more accessible

Many stakeholders indicated that fisheries managers need to be forward-thinking about ways to encourage fishing participation. The survey results supported tackling participation barriers for females, the mobility impaired, and fishers with disabilities.

In Tasmania, the Fishcare program has a major focus on learn-to-fish activities. Recently the program has diversified to run clinics targeting young fishers, female fishers and fishers from multicultural backgrounds.

Suggestions to make fishing more accessible include partnerships with fishing clubs, developing an ambassador-style program using media identities, promoting participation through fishing competitions and government sponsored fishing days. For the mobility impaired, a 'buddy' program run in partnership with councils, fishing clubs and community groups has been suggested.



- 1. What programs would you like to see implemented to make fishing more accessible?
- 2. Any other comments about this initiative?

## 2. Making fishing easier by changing group fishing rules

Individual catch limits are key tools that sustainably limit recreational catches. Daily bag limits apply to individuals but do not extend to others participating in group fishing activities.

Many stakeholders including survey respondents requested that bag limits be reviewed to accommodate group fishing activities, particularly for scallops and rock lobster.

A recent IMAS survey indicated that sharing catches with other licence holders is quite common and considered to be acceptable providing that individuals don't exceed possession limits. Allowing group fishing would be a major shift in current fisheries management requiring compliance and stock risks to be evaluated against benefits to fishers.

Public Input



- I. Do you support recognising group fishing activities?
- 2. What types of group fishing should be considered and are there types that should not be considered?
- 3. Any other comments about this initiative?

# 3. Targeted promotion of Tasmania as a fishing tourism destination, and charter fishing

Attracting a greater number of fishing tourists could have significant economic benefits for Tasmania. This is important for regional areas where economic opportunities are limited. While Tasmania's famous trout fishery is a big tourist drawcard, our marine fisheries are less well promoted. We have some fisheries such as the East Coast game fishery, that could be further developed as a destination fishery.

A range of fishing charter businesses operate in Tasmania. While many target offshore fish such as tuna, striped trumpeter and swordfish, others target inshore species including flathead, bream and rock lobster. Charter operations provide an important service to fishers who don't have access to the expertise or equipment for certain types of fishing. There is also a growing market for 'catch and cook' style charters.

Figures on the economic benefits of charter fishing and fishing tourism are limited but recognised as being considerable. Many stakeholders identified that the sector needs regulating in regard to fish stock access, biosecurity, interactions with recreational and commercial fishers, and licensing.

Survey respondents had divided attitudes towards promoting fishing tourism – those in favour identified the economic benefits while those opposed recognised the additional fishing competition that more tourists would bring. Some suggested that fishing tourism could be limited to regions of low fishing pressure in need of additional tourism income in regional areas such as Flinders and King Islands.





- I. What actions are needed to promote sea fishing to tourists?
- 2. What actions are needed to support the charter fishery?
- 3. Any other comments about this initiative?

### 4. Enabling fishing access through providing and improving facilities

Facilities such as boat ramps, jetties, pontoons and fishing platforms are maintained by Marine and Safety Tasmania (MAST) in association with councils and government agencies. While facilities are expensive to build and maintain, they serve multiple functions including access, reducing participation barriers and easing pressure on fish stocks when fishing activities become concentrated.

Survey respondents strongly supported providing both boat and shore-based fishing facilities under the Strategy. There was also strong support for the deployment of FADs and artificial reefs. Suggestions included:

- Jetties and pontoons should be accompanied by rubbish bins, rod holders, fresh water, toilets, lighting, CCTV cameras, tables and fish cleaning facilities.
- Jetties should be sited close to productive fishing grounds or deep water.
- Tasmania's north coast was identified as being in need of shore-based facilities.
- Upgrading current jetties that are small, congested or in a state of disrepair.
- Facilities to provide solely for the use of the mobility impaired.



- I. What types of facilities would improve access, and where?
- 2. What actions do you think should be undertaken in relation to FADs and artificial reefs?
- 3. Any other comments about this initiative?

# Outcome 4: Promoting responsible recreational fishing



### Why responsible fishing matters

To keep our fisheries sustainable, it is essential people fish within the rules. This requires effective communications and policing – for DPIPWE to provide fishers with easy to understand rules and the Marine Police to ensure fishers do the right thing.

There are challenges providing information to our diverse fishing community, particularly new immigrants, seasonal workers and tourists. They face language barriers, have limited access to information and may have different attitudes to harvesting fish resources.

Providing information to fishers is not just about the rules – there is a need to improve the community's understanding of sustainable fishing practices and how fisheries are managed. DPIPWE promotes individual fisher responsibility on topics such as proper fish handling and disposal of discarded fishing gear. This material is delivered online, in print and in person.

### Potential strategic initiatives

#### I. Making it easier for fishers to follow the rules

Stakeholders highlighted the importance of having fishing rules that are easy to understand and don't change too often. Striking the right balance between making rules that are easy to follow and providing the right level of protection for fisheries is not always simple.

To reach all fishers, we publish rules using different media, from the printed guide to phone apps and online formats and signage at popular fishing spots.

Suggestions from survey respondents to increase our reach included webinars, more signage and providing information on fishing rules at points of entry such as airports and the Spirit of Tasmania terminal.



2. Any other comments about this initiative?

## 2. Increasing awareness of sustainable fishing practices

Many people recognise that fishing responsibly is in the interests of a sustainable fishery. Instilling a responsible fishing ethic at a young age is an effective way to build a fishing population willing to do the right thing. Providing targeted information on how we can minimise our impacts is also important.

DPIPWE's Fishcare program promotes sustainable fishing through fishing clinics, community patrols, attending events and by running a schools program targeted at primary and high school students.

Survey respondents suggested a range of actions to increase awareness including:

- More information on topics such as proper waste disposal, minimising barotrauma and the ethical killing of fish;
- Promoting undervalued species to transfer fishing pressure from heavily targeted species; and
- More information on the historical state of fish stocks.

## Public Input



- I. What actions do you think would increase awareness of sustainable fishing practices?
- 2. Any other comments about this initiative?

#### 3. Increasing community understanding about how and why fisheries are managed

Research suggests that fishers who are better informed about fisheries management are more likely to comply with regulations. Many fishers would like to be better informed about the reasons behind changes to fishing rules, and to better understand how fisheries are managed by tools such as catch limits, seasonal closures and protected areas.

DPIPWE provides information about proposed rule changes in discussion papers during management plan reviews. More could be done in terms of the type of information produced and the way it is circulated. Suggestions by stakeholders include using the DPIPWE Fisheries website, emails, more social media and fisheries forums.



- 1. What sort of information about fisheries management would you like to receive and how would you like to receive it?
- 2. Any other comments about this initiative?

## 4. Engaging fishers from multicultural backgrounds

Addressing the communications and compliance needs of fishers from multicultural backgrounds has become an increasing focus for DPIPWE.

A Multicultural Fisheries Awareness Facilitator works with DPIPWE on a range of activities including identifying target species, distributing translated communications products such as fish measures, abalone tools, multilingual webpages, social media and pamphlets. Fishcare attends multicultural events such as UTAS Market Day and conducts responsible fishing clinics for multicultural fishers.

As we understand more about the fishing activities of multicultural fishers, activities need to be developed to improve communications and increase stewardship. This will assist in directing compliance and fisheries management.



- I. What should we do to better engage and support fishers from multicultural backgrounds?
- 2. Any other comments about this initiative?

# Outcome 5: Ensuring the long-term sustainability of fish stocks and habitats



### Why sustainability matters

Ensuring long-term resource sustainability of fisheries and habitats is the overarching objective in managing our fisheries. This includes monitoring catches, reporting on stock levels and developing fishing rules to maintain catches within sustainable limits. It is also necessary to minimise fishing impacts on non-target species and habitats.

Developing rules to manage impacts requires an understanding of how much fishing pressure species and ecosystems can sustain and how much is being applied. Having sustainable fish stocks with enough biomass to be resilient to a changing environment is essential. Management should discourage the targeting of vulnerable fish stocks and encourage the reasonable harvest of more abundant species. If there is insufficient information, precautionary management measures should apply.

A similar level of caution should apply for fishing gear and methods – low impact methods and gear should be encouraged.

## Potential strategic initiatives

#### 1. Research to support healthy recreational fisheries

Research informs management rules and addresses emerging challenges to healthy fisheries. Survey feedback identified the need to better understand the impacts of fishing on marine environments and for research activities to quickly adapt to fishery changes.

The Tasmanian Government has a long-standing partnership with IMAS to support research on marine resources, including commercial and recreational fisheries. Annual fisheries assessments are undertaken for key fisheries. They conduct a phone-diary survey for recreational fishing every five years, and annual surveys of rock lobster and abalone fishers.

In the past five years, recreational focused research has been undertaken on yellowtail kingfish, King George whiting, snapper, striped trumpeter, swordfish, sand flathead, and southern bluefin tuna.

A range of marine environmental research projects continue to be supported including recording marine species moving south due to climate change, whether artificial reefs increase fish numbers, harmful algal blooms and monitoring of sea urchin numbers.

Survey respondents strongly supported further research into the fish we catch and their habitats. Suggestions were made about focusing research in local areas facing high fishing pressure and better understanding the life history of some species.



- I. What actions would improve research into managing fisheries sustainably?
- 2. Any other comments about this initiative?

#### 2. Reducing fishing impacts on non-target species and the marine environment

As fishers adopt greater stewardship of the species they target, there is a need to reduce their impacts on non-target species and the marine environment. A clear message from survey respondents was that actively minimising ecological impacts of recreational fishing is not only a fundamental responsibility but necessary to maintain a social licence in the community.

DPIPWE addresses this issue through measures such as restricting net mesh size and soak times, area restrictions such as shark refuge areas and protecting threatened species. We promote practices to minimise impacts on non-target species such as using circle hooks and minimising wildlife interactions.

Feedback from the survey also identified recreational fishing behaviours that need addressing. These include leaving fish frames near boat ramps, the killing of 'nuisance' species and disposal of fishing gear and rubbish.

Public Input

- I. What actions do you think would reduce recreational fishing impacts?
- 2. Any other comments about this initiative?

#### 3. Assessing whether high impact recreational fishing methods should continue

Whether high impact fishing methods have a role in Tasmania's recreational sea fishing future was a 'hot button' issue for many stakeholders. The most common high-impact recreational fishing activity raised was gillnetting. Recreational gillnetting is deeply embedded in our recreational fishing culture, though its popularity has been declining for many years. Community debate about gillnetting has been active since the 1880s, often resurfacing during fisheries rules reviews. Concern remains about its impacts on fish stocks and non-target species, including seabirds, particularly when used incorrectly. In recent years, net restrictions have increased including banning night use and restricting mesh sizes, set times and areas.

Other high impact recreational fishing methods include seine nets, droplines and longlines. While regulations have increasingly restricted the use of these gears, concerns about their impacts remain.



- I. What recreational fishing methods do you regard as high impact?
- 2. What actions should be undertaken to address those impacts?
- 3. Any other comments about this initiative?

# Outcome 6: Improving capacity to support recreational fishing



#### Why supporting recreational sea fishing matters

As the popularity of recreational sea fishing grows, so does the demand for programs and facilities. Many survey respondents supported an expansion of capacity to support recreational fisheries research, management and education.

By re-assessing the role of government agencies and developing partnerships with non-government providers such as community and private sector organisations, there is greater potential to meet emerging demands.

## Potential strategic initiatives

# 1. Identifying funding sources to improve programs and facilities that benefit recreational fishers

Marine recreational fisheries management is funded through the sale of recreational fishing licences. In addition, the government funds specific policing and research services. While this model has supported the core functions of fisheries management for years, funding limitations restrict the ability to undertake additional activities, particularly during times of low licence sales. Given that recreational fishers have expressed a desire for more services and facilities to improve the fishing experience, it is appropriate that new funding mechanisms are identified.

In the survey, respondents overwhelmingly supported identifying additional funding options. Many responses focused on expanding marine recreational fishing licensing, including through a saltwater licence – some supported this initiative while others were opposed. Other suggestions included a boat fishing levy, a tourist fishing licence and increasing fines for fishing infringements.



- 1. What options do you support to fund programs and facilities that benefit recreational fishers?
- 2. Any other comments about this initiative?

#### 2. Improving services to fishers by working closely with the Inland Fisheries Service, Marine and Safety Tasmania and Tasmania Police.

Several government agencies have distinct roles in providing services for recreational fishers. DPIPWE manage sea fisheries, Tasmania Police undertake compliance activities, the Inland Fisheries Service manage freshwater fisheries while MAST provides marine safety services and infrastructure including jetties and boat ramps.

Each agency delivers services in an effective and coordinated manner, but there is always potential for improvements through closer working partnerships. This could streamline services such as communications, outreach, licensing and compliance, making it easier to manage issues that straddle different agencies.

The potential benefits of greater collaboration between agencies was identified by a range of survey respondents.



- 1. What steps could be taken to improve services to recreational fishers by agencies you interact with?
- 2. What steps could be taken to ensure compliance activities are fit for purpose?
- 3. Any other comments about this initiative?

# INFORMATION ABOUT SUBMISSIONS

## Acknowledgement of submissions

Respondents using the online response form will receive an automatic acknowledgement of receipt. DPIPWE will not automatically send an acknowledgement for other methods of response.

#### How responses to the Discussion Paper will be used

Submissions will be considered by DPIPWE and Recreational Sea Fishing Strategy Steering Committee. They may also be provided to the Recreational Fisheries Advisory Committee (RecFAC).

DPIPWE will prepare a summary report which will be publicly available prior to finalising a draft Strategy.

No personal information other than an individual or organisation's name will be published.

#### Accessibility of submissions

The Government recognises that not all individuals or groups are equally placed to access and understand information. We are committed to ensuring government information is accessible and easily understood by people with diverse communication needs.

#### Important information

Your name (or the name of the organisation) may be published unless you request otherwise. No private information will be published.

In the absence of a clear indication that a submission is intended to be treated as confidential, the Department will treat the submission as public.

If you would like your submission treated as confidential, whether in whole or in part, please indicate this in writing at the time of making your submission clearly identifying the parts of your submission you want to remain confidential and the reasons why. In this case, your submission will not be published to the extent of that request.

Copyright in submissions remains with the author(s), not with the Tasmanian Government.

The Department will not publish, in whole or in part, submissions containing defamatory or offensive material. If your submission includes information that could enable the identification of other individuals, then either all or parts of the submission will not be published.

### The Right to Information Act 2009 and confidentiality

Information provided to the Government may be provided to an applicant under the provisions of the *Right to Information Act 2009* (RTI). If you have indicated that you wish all or part of your submission to be treated as confidential, your statement detailing the reasons may be taken into account in determining whether or not to release the information in the event of an RTI application.

For further information in relation to this paper please email <u>recfishingstrategy@dpipwe.tas.gov.au</u> or phone (03) 6165 3047.



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South Australian Centre for Economic Studies

# Fifth Social and Economic Impact Study of Gambling in Tasmania

# **Discussion Paper**

Report commissioned by **Department of Treasury and Finance** Tasmanian Government

Report prepared by **The South Australian Centre for Economic Studies** University of Adelaide

together with ENGINE Group

and Centre of Policy Studies Victoria University

and Saul Eslake

September 2020

# adelaide.edu.au

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#### 1. About the social and economic impact study

The Gaming Control Act 1993 requires that an independent review of the social and economic impact of gambling in Tasmania be conducted every three years. To date, four social and economic impact studies have been completed since 2008, with the most recent being in 2017. Copies of the previous studies are available here.

https://www.treasury.tas.gov.au/liguor-and-gaming/gambling/reduce-harm-from-gambling/social-andeconomic-impact-studies

Following a short delay due to the impact of COVID-19, the fifth Social and Economic Impact Study of Gambling in Tasmania has commenced and is expected to be completed by the second quarter of 2021. The Department of Treasury and Finance has appointed a multidisciplinary team comprising the SA Centre for Economic Studies, Engine, the Centre of Policy Studies and Saul Eslake to conduct the latest independent review.

The study involves two broad elements:

- provision of an analysis of key trends in gambling and comparisons with other states and territories, including, but not limited to, an update of the gambling industry structure and characteristics, changes and trends in gambling behaviours, and revenue; and
- a gambling prevalence study to enable comparisons with previous Tasmanian prevalence studies.

As part of the study the research team is undertaking consultations with stakeholders and inviting written submissions from the community. This discussion paper provides background information on relevant economic and social aspects of the gambling industry in Tasmania to inform the community consultations. Details on how you can make a submission are provided at the end of the discussion paper.

#### 2. The Tasmania Gambling Industry: Structure and Recent Trends

#### 2.1 Structure of the gambling industry

The Tasmanian gambling industry is a mature industry that offers a range of gambling products including casino table gaming, gaming machines, keno, lotteries, race wagering and sports betting. There are also a range of minor gaming activities including raffles, bingo, lucky envelopes, calcutta sweepstakes, and instant draw bingo. Given the very small scale of minor gaming activities, expenditure data for these activities has not been collected for many years.

Table 1 summarises the gambling activities currently available in Tasmania in terms of the number of venues and gaming units or permits. At 30 June 2020 there were 3,521 EGMs located across 97 venues including hotels and clubs, the two casinos, and two Spirit of Tasmania ferries. Other commonly available forms of gambling in terms of their presence in venues and outlets are keno, wagering, and lotteries.

Activity	No of venues or outlets	Number
Electronic Gaming Machines	97	3,521
- Casino	2	1,185
- Hotels and Clubs	93	2,300
- Spirit of Tasmania Ships	2	36
Casino table games <sup>(a)</sup>	2	38
Lottery outlets	91	na
Keno venues	153	na
Race wagering		
- UBET retail outlets	133	na
- On-course bookmakers <sup>(b)</sup>	6	na
Minor gaming permits	na	273

Table 1: Gambling A	Activities in Tasmania	– as at 30 June 2020	(unless otherwise stated)
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Note: na = not applicable. (a) As at 11 February 2020.

(b) For 2018-19. Department of Treasury and Finance (2020, 2020a, 2020b), and Racing Australia (2019). Source:

The two major gambling operators regulated in Tasmania are the Federal Group and UBET TAS Pty Limited (rebranded as TAB and a subsidiary of Tabcorp Holdings Limited). The Federal Group has exclusive rights to conduct casino operations (Wrest Point Hotel Casino and Country Club Tasmania) and to operate a network of keno and gaming machines in Tasmania through its casinos and hotels and clubs until 30 June 2023 as part of a 2003 Deed of Agreement.

UBET TAS offers pari mutuel (pool-based) and fixed odds wagering on racing products including thoroughbred, harness and greyhound racing, and fixed odds wagering for sports betting. Its products are delivered through a state-wide network of retail outlets (including hotels and clubs), the internet, telephone and at racecourses.

The Tasmanian Liquor and Gaming Commission is the independent regulator responsible for the regulation of gambling in Tasmania in accordance with the *Gaming Control Act 1993*. The Commission oversees a suite of measures to protect people from gambling harm, including a responsible gambling industry code of practice, and a gambling exclusion scheme.

#### 2.2 Gambling Expenditure

Based on the most recently available data, total recorded player expenditure on gambling in Tasmania – defined as the total amount gambled less the total amount won by players – was \$304.1 million in 2017-18. As Figure 1 shows, the level of gambling expenditure, measured in real terms, has fallen steadily since it peaked in 2008-09. The pace of decline has been somewhat more subdued over recent years – in the five years to 2017-18 total spending on gambling fell by 14 per cent, whereas it fell by 22 per cent over the previous 5 year period. By way of comparison, total Tasmanian household consumption spending on goods and services rose by 10 per cent over the last five years (ABS, 2019).



Figure 1: Tasmanian Real Gambling Expenditure, 1992-93 to 2017-18 <sup>(a), (b)</sup>

(a) Expenditure in 2017 to prices.
(b) Excludes minor gamming expenditure, which has not been collected since 2003-04 (earlier data is excluded). Lotto includes lotto, keno, lotteries and pools.
Source: Queensland Government Statisticians Office, Australian Gambling Statistics, 35<sup>th</sup> Edition.

Tasmania has a relatively low level of total gambling expenditure. In 2017-18, the state had an average per capita spend of \$736 per adult, which was 43 per cent below the national average of \$1,292. Tasmania has the second lowest average spend in Australia behind only Western Australia (\$657 per adult) – see Figure 2. It is interesting to note that the Northern Territory is a significant outlier, having by far the highest relative level of total gambling spend (\$11,940 per adult). The high spend for the Northern Territory can be attributed to online racing and sports betting wagering providers concentrating in the Territory due to the existence of favourable taxation arrangements (Barnes et al 2017). Thus some of the spending for the Northern Territory would capture spending by residents in other states and territories, including Tasmania.<sup>1</sup>

It is important to note that the relative small size of the population in the Northern Territory would exaggerate the size of this effect.



#### Figure 2: Real Per Capita Total Gambling Expenditure by State, 2012-13 and 2017-18 (a)

Note: (a) Expenditure in 2017-18 prices. Source: Queensland Government Statisticians Office, *Australian Gambling Statistics*, 35<sup>th</sup> Edition.

Gaming machines located in hotels and clubs accounted for 35 per cent of total gambling expenditure in 2017-18. The next highest gambling expenditures in order were casino gaming (27 per cent), race wagering (14 per cent), lotteries (13 per cent), keno (10 per cent), and sport betting (1.1 per cent).

#### 2.3 Policy changes and industry developments

The outbreak of COVID-19 has significantly disrupted the gambling industry and broader economy. Public health restrictions saw the closure of gaming venues from 23 March 2020. Keno, wagering and minor gaming were allowed to recommence from 5 June 2020, while other gaming activities were permitted to recommence from 26 June.

Beyond the impact of COVID, the most significant industry development since the last social and economic impact study is the State Government's proposed *Future Gaming Market* reforms. Announced during the 2018 State election, the proposed reforms aim to end the exclusivity arrangements for the Federal Group to conduct casino operations and operate EGMs in 2023. Other notable policy changes proposed include:

- a decrease in the State-wide cap for EGMs in hotels and clubs by 150 machines, from 2,500 to 2,350;
- establishing individual venue licences to operate EGMs in hotels and clubs;
- the creation of two new 'high roller, non-resident' casino licences, which would exclude gaming machines;
- establishing a more appropriate distribution of returns between venues and the government;
- the tender of the rights to operate the monitoring of the hotel and club EGM network;
- the Community Support Levy on EGMs in hotels and clubs is to be increased for hotels and extended to EGMs in casinos.

Further information on the proposed changes are contained in the *Future of Gaming in Tasmania, Public Consultation Paper 2020.*<sup>2</sup> On 28 March 2020 the Government announced that the reforms would be deferred due to the COVID-19 outbreak.

For further information see: https://www.treasury.tas.gov.au/liquor-and-gaming/gambling/future-gaming-market

A timeline of major recent developments for the gambling industry is provided in Box 1.

#### Box 1: Tasmanian Gambling Industry – Events since 2017 Social and Economic Impact Study

Major Events	
2017	Community Interest Test introduced in September 2017 which applies to venues seeking to possess EGMs for the first time
2017	First review of the Responsible Gambling Mandatory Code of Practice for Tasmania completed
2017	Tasmanian Parliament Joint Select Committee on Future Gaming Markets released its final report on 28 September
2017	Sole wagering licence holder Tatts Group (UBET TAS) combined with Tabcorp Limited
2018	Measures identified as part of the review of the Mandatory Code implemented on 1 May, with additional measures taking effect on 1 November
2020	Point of consumption tax on wagering introduced for all Australian betting operators on bets made by Tasmanians from 1 January
2020	Future of Gaming in Tasmania - Public Consultation Paper released on 25 February, seeking feedback on proposed reforms
2020	Gaming venues closed from 23 March due to COVID-19 lockdown measures. Keno, wagering and minor gaming allowed to recommence from 5 June, other gaming activities from 26 June.
2020	State Government announced on 28 March a deferral of its Future Gaming Markets policy due to COVID-19 outbreak

#### 3. The Benefits and Costs of Gambling

#### 3.1 Benefits of gambling

Gambling provides a source of recreation and entertainment for players. Individuals consequently derive satisfaction and enjoyment from their consumption of gambling.

Gambling also provides economic benefits in the form of taxation revenue to the Tasmanian Government, which is used to fund public services and infrastructure. Total government revenue derived from gambling taxes, licences fees and penalties amounted to \$95.3 million in 2018-19. This represents a decline of 1.2 per cent from its previous peak of \$96.4 million in 2015-16.<sup>3</sup> The importance of gaming as a source of government revenue has fallen over the past decade – gambling taxes, licences fees and penalties accounted for 1.5 per cent of State Government revenue from all sources in 2018-19, down from 2.2 per cent in 2009-10.

The gambling industry supports jobs, both directly and indirectly through its purchases of goods and services from suppliers. Estimating total employment generated by the gambling industry is a difficult task given incomplete data coverage of the sector, uncertain supply chain linkages, and overlap with non-gambling related activities, particularly in hotels and clubs which offer gambling and non-gambling services such as meals, alcoholic beverages, entertainment and accommodation.

Data from the 2016 Australian Bureau of Statistics Census on employment in gambling and gambling related industries for Tasmania shows there were approximately 823 people employed in gambling activities such as casino, lottery, and TAB operations; 181 in respect of horse and dog racing activities; and 2,489 in hotels, clubs and bars. These estimates will overestimate gambling employment to the extent they include employment related to non-gambling related activities in hotels and clubs, and underestimate gambling-related employment to the degree they do not capture employment generated through the supply chain and regulatory functions of government.

Income derived from gambling activities enables businesses to subsidise other services and complementary activities such as meals, and undertake investment to improve the quality of existing facilities. It also provides a source of sponsorship to sporting clubs and donations to community and sporting groups.

#### 3.2 Costs of Gambling

The costs of gambling primarily arise from social costs related to individuals who find it difficult to control their gambling. The Australian Ministerial Council on Gambling defines problem gambling as gambling that "is characterised by difficulties in limiting money and/or time spent on gambling which leads to adverse consequences for the gambler, other, or for the community."

The costs of problem gambling include:

- financial impacts related to bankruptcy and debts;
- negative impacts on productivity, employment and study;
- crime and justice system costs related to court proceedings and imprisonment where problem gamblers have resorted to crime;

<sup>&</sup>lt;sup>3</sup> Measured in current price or nominal terms.

- personal and family impacts including depression, stress, suicide and family breakdown; and
- treatment and increased community support costs.

A prevalence survey conducted as part of the fourth social and impact study in 2017 provides the most recent insight into participation in gambling and the scale of problem gambling in Tasmania. It found that:

- 58.5 per cent of Tasmanian adults participated in any form of gambling in 2017, down from 61.2 per cent in 2013;
- lotteries were the most common form of gambling in which Tasmanian adults participated (38.5 per cent), followed by keno (25.9 per cent), instant scratch tickets (20.5 per cent), and EGMs (18.6 per cent);
- 0.6 per cent of Tasmania adults were classified as problem gamblers, 1.4 per cent as moderate risk gamblers, 4.8 per cent as low risk gamblers, 51.8 per cent as non-problem gamblers, and 41.5 per cent as non-gamblers; and
- the proportion of adults classified as being problem, moderate risk and low risk gamblers in 2017 were comparable to those recorded in 2011, indicating no major changes over time in terms of at risk categories of gamblers.

An updated prevalence survey is being conducted as part of the fifth social and economic impact study. The survey will include questions on gambling behaviour since COVID-19 began.

#### 4. Gambling Support and Harm Minimisation Measures

The Gambling Support Program (GSP) provides a range of support services that comprise the main public health response aimed at preventing and reducing harms from gambling in Tasmania. The GSP is administered by the Department of Communities Tasmania and is funded by the Community Support Levy. The Levy is funded as a percentage of the gross profit derived from EGMs in hotels and clubs. The Gaming Control Act requires that 50 per cent of the fund be allocated to:

- research into gambling;
- services for the prevention, treatment and rehabilitation of compulsive gamblers;
- community education concerning gambling; and
- other health services.

The *Gambling Support Program Strategic Framework 2019-2023* provides the current roadmap for preventing and reducing gambling harms. It has three priority areas comprising the provision of high-quality gambling support services, educating Tasmanians so they understand the risks of gambling, and enabling communities to identify and respond to gambling-related harm and issues.

Existing support services comprise the Gamblers Help suite of services, which are:

- Gamblers Help in-person support services offered during business hours in a range of locations across Tasmania, including Hobart, Launceston, Devonport and Burnie. Anglicare Tasmania is funded to provide these services until 30 June 2023.
- Gamblers Helpline telephone based support services offered 24 hours per day, 7 days a week. Eastern Health is funded to provide these services until 30 June 2023.
- Gamblers Help Online online support services offered 24 hours per day, 7 days a week. Eastern Health is the current service provider of online support services as part of a nationally managed service formed through a Memorandum of Understanding between all states and territories.

The Tasmania Gambling Exclusion Scheme allows for patrons to exclude themselves from gambling. Venue operators and third parties with a close personal interest in the welfare of another person can also apply for a person to be excluded from gambling. A total of 389 people were excluded from gambling under the scheme as at 30 June 2020. This represents a decline of 5.6 per cent from the same time a year earlier, although the number excluded was still 5.7 per cent higher than in the corresponding period in 2016 just prior to undertaking the 2017 SEIS (Department of Treasury and Finance, 2020).

#### 5. Call for Submissions

#### 5.1 Invitation to make a submission

Members of the community are invited to make a written public submission in respect of the social and economic impacts of the Tasmanian gambling industry.

Some of the issues highlighted below may provide guidance for those who wish to make a submission. However, you are welcome to provide comments on any aspects of the gambling industry in Tasmania.

#### 5.2 Key issues

#### Economic development of the gambling industry

- How has the Tasmanian gambling industry evolved since 2017?
- What has been the impact of COVID-19 on gambling participation and the performance of businesses engaged in gambling activities?
- Have there been any notable changes in gambling behaviour?
- To what extent have innovations or new forms of gambling emerged?
- What is the level of employment associated with gambling activities and how has it changed over recent years?

#### Benefits and Costs of Gambling

- What are the benefits and costs of gambling in Tasmania?
- How does gambling impact other sectors of the economy?
- Are there any notable regional differences in terms of the concentration of activities, and the social and economic impacts of gambling?

#### Problem gambling and support services

- Are existing policies and strategies in place to minimise harm from gambling effective?
- Do gambling venues adequately adhere to responsible gambling practices?
- Do existing support services meet the needs of those individuals who are experiencing problems with their gambling?

#### 5.3 Making a Submission

If you would like to provide a submission please submit it electronically **by email** to the SA Centre for Economic Studies (SACES) at <u>saces@adelaide.edu.au</u>

If you would prefer to make a hard copy submission, please submit it to SACES at:

Fifth Tasmanian Gambling Study SA Centre for Economic Studies University of Adelaide SA 5005

All submissions will be published on the Department of Treasury and Finance website. Your name (or the name of the organisation) will be published unless you request otherwise.

In the absence of a clear indication that a submission is intended to be treated as confidential (or parts of the submission), SACES/the Department will treat the submission as public.

If you would like your submission to be treated as confidential, please indicate this in writing at the time of making your submission by clearly identifying the parts of your submission you wish to remain confidential. Your submission will not be published to the extent of that request.

#### The closing date for submissions is 5.00 pm, Friday 16 October 2020.



# Policy No. 2015-39

# Grading of Snow off Council Roads Policy

Document:	Start Date: 15 Sept 2020	Page Reference:
Grading of Snow off Council Roads Policy	Review Date: 31 Dec 2024	Page <b>1</b> of <b>3</b>

#### 1. INTRODUCTION

This policy has been prepared to determine when it is appropriate for Council to grade snow off municipal roads maintained by Council.

#### 2. CRITERIA

Council will only grade snow off Municipal roads during normal working hours only if the relevant State road access is open and if it does not pose a safety risk for Council staff and equipment; and one of the following criteria is met:

- (a) if there is a medical emergency a medical emergency is defined as a situation where a person is required to have immediate medical attention; or
- (b) in exceptional circumstances where snow levels reach a depth in excess of 30 centimetres and remains after 48 hours; and the road is deemed by Tasmania police to be impassable by four wheel drive vehicles, or deemed necessary by Councils Works and Services Manager.

Where there is a medical emergency outside of council working hours, Ambulance Tasmania and/or Tasmania Police may request assistance by contacting Council's Works & Services Manager or Central Highlands Emergency Management Coordinator, who are authorized to provide that assistance.

#### 3. PRIORITY SNOW CLEARING

Where Criteria 2 (b) is met, snow grading may be undertaken on roads in the following order for each side of the Municipality:

#### **Bothwell & Surrounding Areas**

- From Highland Lakes Road to Ambulance Station
- Miena subdivision roads to Lochiel Drive
- Arthurs Lake Road including Wilburville, Flintstone Drive and Morass Bay Roads
- Todds Corner Road
- Barren Plains Road
- From Lochiel Drive to Haulage Hill Roads
- Cramps Bay Road
- Lake Crescent Roads
- Interlaken
- Waddamana Road

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#### Hamilton & Surrounding Areas

- Victoria Valley Road from Strickland turn-off to the Lyell Highway, Bronte Park end
- Bradys Lake Road
- Bashan Road from Victoria Valley end to Macclesfield Road
- McGuires Marsh Road
- Bronte Lagoon Road
- Strickland Road

It is acknowledged that in some instances snow may need to be graded over private entrances to property.

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