

Chapter 1

Introduction and background

Reference

1.1 On 17 March 2016, the Senate referred the following matter to the Environment and Communications References Committee (the committee) for inquiry and report by 30 May 2016:

The response to, and lessons learnt from, recent fires in remote Tasmanian wilderness affecting the Tasmanian Wilderness World Heritage Area, with particular reference to:

- (a) the impact of global warming on fire frequency and magnitude;
- (b) the availability and provisions of financial, human and mechanical resources;
- (c) the adequacy of fire assessment and modelling capacity;
- (d) Australia's obligations as State Party to the World Heritage Convention;
- (e) world best practice in remote area fire management; and
- (f) any related matter.¹

1.2 On 8 May 2016, the Governor-General issued a proclamation dissolving the Senate and the House of Representatives on 9 May 2016 for a general election on 2 July 2016. As a result of the dissolution of the Senate, the committee ceased to exist and the inquiry lapsed.

1.3 The 45th Parliament commenced on 30 August 2016 and the committee was appointed on 31 August 2016.² On 13 September 2016, the Senate agreed to the committee's recommendation that the inquiry be re-adopted with the terms of reference unchanged and with a reporting date of 1 December 2016. The Senate agreed also that the committee have the power to consider and use the records of the Environment and Communications References Committee appointed in the 44th Parliament.³

1.4 The reporting date was subsequently extended to 8 December 2016.⁴

1 *Journals of the Senate*, No. 148–17 March 2016, p. 3990.

2 *Journals of the Senate*, No. 2–31 August 2016, pp. 75–76.

3 *Journals of the Senate*, No. 5–13 September 2016, pp. 176–178.

4 *Journals of the Senate*, No. 23–1 December 2016, p. 753.

Conduct of the inquiry, acknowledgement and note on references

1.5 In accordance with its usual practice, the Environment and Communications References Committee of the 44th Parliament advertised the inquiry on its webpage, and wrote to organisations and individuals, inviting submissions by 15 April 2016. The committee continued to receive submissions after this date. In total, the committee received 34 submissions, which are published on the committee's website and listed at Appendix 1.

1.6 In addition to the published submissions, the committee received nine form letters in relation to the inquiry. These were available to the committee throughout the inquiry but the form letters were not published as submissions.

1.7 The committee held public hearings in Canberra on 1 November 2016 and Launceston on 2 November 2016. A list of witnesses who appeared at the hearings is at Appendix 2 and the evidence received by the committee is available on the committee's website.

1.8 The committee thanks those organisations, individuals, departments and agencies that contributed to the inquiry.

1.9 All references in this report are to the proof *Hansard* and page numbers may vary between the proof and the official *Hansard*.

Structure of the report

1.10 This chapter outlines the history and effect of the bushfires that occurred in the Tasmanian Wilderness World Heritage Area (TWWHA) in early 2016. The chapter particularly notes the vegetation types affected by the fires.

1.11 The following chapters examine:

- the impact of climate change on fire frequency and magnitude in the TWWHA (chapter two);
- the adequacy of the TWWHA's fire assessment and modelling capacity (chapter three);
- the financial, human and mechanical resources that were available and provided for the bushfires in the TWWHA (chapter four); and
- Australia's obligations under the Convention Concerning the Protection of World Cultural and Natural Heritage and world best practice in remote area fire management (chapter five).

Tasmanian Wilderness World Heritage Area

1.12 The TWWHA covers approximately 1.6 million hectares, occupying almost one-quarter of Tasmania and encompassing four national parks.

Figure 1.1: Tasmanian Wilderness World Heritage Area



Source: Parliamentary Library

1.13 The TWWHA is one of the largest temperate natural areas in the southern hemisphere and is recognised as a World Heritage property for its Outstanding Universal Value (OUV). It contains significant natural and cultural heritage, including a wide range of plant communities (flora). Two-thirds of Tasmania's endemic higher plant species occur only in the TWWHA, and many species provide living evidence of the Gondwanan origin of the Tasmanian flora. Some species are representative of plant communities that once dominated mainland Australia.⁵

1.14 The Parks and Wildlife Service, Tasmania (PWS) describes the TWWHA as 'the Australian stronghold of cool temperate rainforest'. Some vegetation species in these forests date back over 60 million years and were once dominant components of the vegetation across the Australian continent (before the arrival of the eucalypts and acacias that now dominate the Australian flora). The ancestors of many rainforest species—such as myrtle-beech, native plum and leatherwood—evolved on the ancient continent of Gondwana. Many rainforest species are extremely fire sensitive and can take 400 years or more, in the absence of any further fires, to recover to their former glory after fire.⁶

1.15 According to the PWS, the TWWHA also hosts 'the most extensive and pristine areas of alpine vegetation in Australia'. The dominant species are shrubs, rather than the tussock grass and herb-dominant communities of the mainland Australian Alps. About 60 per cent of the alpine flora is endemic to Tasmania. These include such species as cushion plants, scoparia and Tasmania's only native deciduous species, the deciduous beech. This alpine environment is extremely fragile and susceptible to damage from fire.⁷

1.16 Most of Tasmania's unique conifers occur within the TWWHA: the second longest lived organism in the world, the Huon pine; and the sole representatives of the family *Taxodiaceae* to be found in the southern hemisphere, the endemic King Billy pine (*Athrotaxis selaginoides*), the Pencil Pine (*Athrotaxis cupressoides*) and their natural hybrid, *Athrotaxis laxifolia*. Like rainforest species, these conifers are highly susceptible to fire and in some areas, extensive stands of dead 'stags' bear testimony to the ravages of previous fires. Some species will never recover from burning.⁸

1.17 Moorlands are found throughout the TWWHA, with the sedge (buttongrass) being the dominant species. The buttongrass moorlands contain over 150 vascular plant species, a third of which are endemic to Tasmania. Buttongrass moorlands have a high frequency of fire and as a result, the acidic peat soil in which they grow is among the most nutrient poor in the world.⁹

5 Parks and Wildlife Service, Tasmania (PWS), [World Heritage Values, Flora](http://www.parks.tas.gov.au/index.aspx?base=639), <http://www.parks.tas.gov.au/index.aspx?base=639> (accessed 11 November 2016).

6 PWS, World Heritage Values, Flora (accessed 11 November 2016).

7 PWS, World Heritage Values, Flora (accessed 11 November 2016).

8 PWS, World Heritage Values, Flora (accessed 11 November 2016).

9 PWS, World Heritage Values, Flora (accessed 11 November 2016).

1.18 The TWWHA also provides secure habitats for some of the most unique animals (fauna) in the world, as well as endangered species. Tasmania and the TWWHA have a high proportion of endemic fauna, including five species of mammal. Over half of the mammal species are a distinct subspecies from their mainland counterparts. The TWWHA is also home to the three largest carnivorous marsupials in the world: the Tasmanian devil; the spotted-tail quoll; and eastern quoll. Endangered species within the TWWHA include species that have recently become extinct or threatened on the mainland, and rare and threatened species within Tasmania—such as the orange-bellied parrot and the white goshawk.¹⁰

1.19 In addition to its flora and fauna, the TWWHA is recognised for its heritage values. These include: some of the richest and best preserved Indigenous sites in Australia dating back around 45000 years; an 'outstanding' example of one of the most significant features of world population movement in the 18th and 19th centuries (the Macquarie Harbour Historic Site); a profusion of complex and well-exposed geological features; and the most significant and extensive glacially modified landscapes in Australia.¹¹

1.20 Further, the TWWHA is important to Tasmania's culture, identity and economy.¹² For example, in 2008 a report commissioned by the (then) Department of the Environment, Water, Heritage and the Arts estimated that Tasmania's World Heritage Areas contributed \$721.8 million in annual direct and indirect state output or business turnover, \$313.5 million in annual direct and indirect state value added, and 5372 direct and indirect state jobs.¹³

The 2016 bushfires and their estimated impact on the TWWHA

1.21 Bushfires are a part of Australia's natural environment. Compared to the mainland, Tasmania has relatively infrequent fire weather and high intensity bushfires. However, these fires can occur throughout the fire season (December to March).¹⁴

1.22 In January to February 2016, Tasmania experienced a series of dry lightning strikes (commencing on 13 January). Fire authorities responded to 2350 incidents,

10 PWS, [World Heritage Values, Fauna](http://www.parks.tas.gov.au/index.aspx?base=642), <http://www.parks.tas.gov.au/index.aspx?base=642> (accessed 11 November 2016).

11 PWS, [World Heritage Values](http://www.parks.tas.gov.au/index.aspx?base=7450) (Aboriginal Heritage, Historic Heritage, Geoheritage), <http://www.parks.tas.gov.au/index.aspx?base=7450> (accessed 11 November 2016).

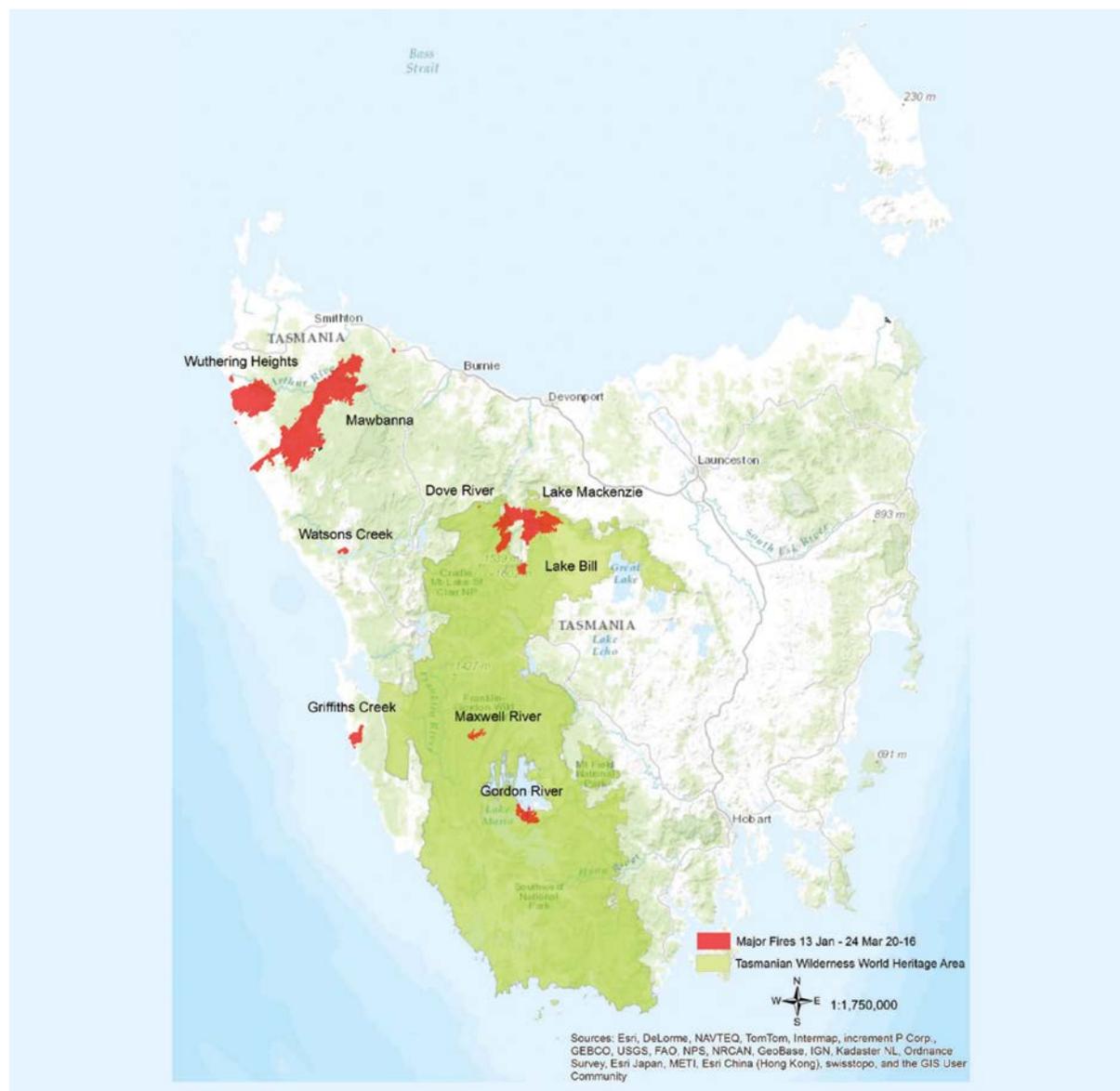
12 Australian Conservation Foundation, *Submission 20*, p. 2; Tasmanian Greens, *Submission 22*, p. 5.

13 Gillespie Economics and BDA Group, Economics and Environment, [Economic Activity of Australia's World Heritage Areas](https://www.environment.gov.au/system/files/resources/c890e9a0-6462-4412-8b74-14054966b8c0/files/economic-activity-summary.pdf), Report to the Department of the Environment, Water, Heritage and the Arts, Final Report, July 2008, p. 3, <https://www.environment.gov.au/system/files/resources/c890e9a0-6462-4412-8b74-14054966b8c0/files/economic-activity-summary.pdf> (accessed 11 November 2016).

14 Commonwealth Scientific and Industrial Research Organisation (CSIRO), *Submission 1*, p. 4; Dr Richard Thornton, Chief Executive Officer, Bushfire & Natural Hazards Cooperative Research Centre, *Committee Hansard*, Launceston, 2 November 2016, p. 20.

including 639 vegetation fires. Of these fires, eighteen affected the TWWHA, burning out approximately 19 936 ha (1.3 per cent).¹⁵ The majority of the burnt area was at Lake Mackenzie (13 822 ha), Mt Cullen or Gordon River Road (3520 ha), and Maxwell River South (1389 ha).¹⁶

Figure 1.2: Major fires in Tasmania, 13 January to 24 March 2016



1.23 According to the Tasmanian Government, the majority of the burnt area was composed of vegetation types and fauna that are adapted, or resilient, to the effects of fire, and are therefore likely to recover to something similar to their original state.¹⁷

15 Tasmanian Government, *Submission 24*, pp. 7–8.

16 Department of the Environment and Energy (DEE), *Submission 23*, p. 4.

17 Tasmanian Government, *Submission 24*, p. 5. The submission notes that the burnt area on the Central Plateau also includes vegetation types and soils that are not fire-adapted.

Vegetation with high ecological value

1.24 The Tasmanian Government identified the Mersey Forest Complex fires on the alpine and sub-alpine vegetation around Lake Mackenzie as having the most significant potential impact to vegetation values in the TWWHA:

The most significant flora value affected is Pencil Pine (*Athrotaxis cupressoides*). This species is an iconic example of Gondwanic legacy in the TWWHA, identified under World Heritage Criteria (ix). It also contributes to the aesthetic importance of the alpine landscapes of the TWWHA identified under World Heritage Criteria (vii). The recovery of cushion moorlands, various alpine heathlands and sedgeland and alpine sphagnum peatlands will be dependent on the fire intensity and degree of organic soil loss.¹⁸

1.25 Pencil Pine is classified as a 'threatened native vegetation community' under the *Nature Conservation Act 2002* (Tas).¹⁹ An estimated 141 ha of Pencil Pine forest and woodland are potentially impacted by the bushfires, representing 'approximately 0.6% of the mapped distribution of this species'.²⁰

Figure 1.3: Aftermath of bushfires, Lake Mackenzie



The largest remaining pencil pine forest growing in sphagnum, killed in the late stages of the fire south of Lake Mackenzie

Source: Rob Blakers, Submission 21, p. 9.

18 Tasmanian Government, *Submission 24*, p. 5.

19 Other 'threatened native vegetation communities' potentially affected by the bushfires include: Highland Poa Grassland (624 ha); Highland Grassy Sedgeland (578 ha); and Sphagnum peatland (80 ha).

20 Tasmanian Government, *Submission 24*, p. 7. Similarly, the DEE estimated that the impact on Pencil Pines is less than two per cent: *Submission 23*, p. 4.

1.26 The fires are expected also to have affected geoconservation features (organic and mineral soils, karst and fluvial systems, wetland peats, cushion moors and sphagnum bogs).²¹ Some of these—organic soils and karst systems—are recognised as part of the OUV of the TWWHA.²²

21 DEE, *Submission 23*, p. 4.

22 Tasmanian Government, *Submission 24*, p. 5.